KONICA MINOLTA

Version 5.6.4.0

Ultra

Operators Manual

500-000978A

Table of Contents

Revision History

Revision	Date	Reason for Change
A	08/30/2025	New Manual for Ultra software version 5.6.4.0

KONICA MINOLTA

Distributed by:

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Introduction

Ultra software is designed as an exam-based modality image acquisition tool. Ultra software and its accompanying Universal Acquisition Interface (UAI) were developed to be acquisition device independent. Basic Features of the software include Modality Worklist Management (MWM)/Modality Worklist (MWL) support, DICOM Send, CD Burn, DICOM Print, and Exam Procedure Mapping.

Ultra software is made up of multiple components designed to increase patient throughput while minimizing data input errors. The main components of Ultra are the Worklist, the Acquisition screen, and the Configuration Utility. Combined, these components create a stable, powerful, and customizable image capturing system.

The intuitive graphical user interface is designed to improve radiology, technologist accuracy, and image quality. Worklist and Acquisition screens were developed to enable site-specific customizations to seamlessly integrate into existing practice workflows.

Overview

Before using the Ultra system, please review the following:

- Advisory Symbols
- Definitions
- Abbreviations
- Operator Advisories and Responsibilities

Advisory Symbols

DANGER!	
	Danger text advises of conditions or situations that may cause serious personal injury or death if proper precautions are not exercised.

WARNING!	
	Warning text advises of conditions or situations that may cause serious personal injury or catastrophic damage to equipment or data if proper precautions are not exercised.

CAUTION!	
	Caution text advises of conditions or situations that may cause personal injury or damage to equipment if proper precautions are not exercised.

Note: Notes alert readers to pertinent facts and conditions. Notes represent information that is important to know but does not necessarily relate to possible injury or damage to equipment.

Example: Examples illustrate information to further elaborate on how to complete a particular procedure, routine, or function.

Definitions

Definitions	
As Low as Reasonably Achievable (ALARA)	A term often used in the milieu of radiation safety systems. The ALARA principle as applied to X-ray is that the residual radiation risk shall be as low as reasonably achievable.
Automatic Exposure Control (AEC)	An X-ray exposure termination device. A medical radiography X-ray exposure is always initiated by a human operator. X-ray termination is done by the same human operator or an exposure control device such as an electronic timer or an AEC device, whichever comes first. The intention of the AEC termination device is to provide consistent X-ray film display quality.
Automatic Exposure Detection (AED)	An X-ray exposure detection sensor. It detects X-ray like film, without cabling between detector and generator by synchronized signal. The detector responds to the presence of X-ray.
Anatomically Programmed Radiography (APR)	A computerized control that is programmable so the exposure factors from a conventional technique chart can be made available from within acquire software.
Back-Up Time (BUT)	A manually set time that ensures that an exposure will be terminated should the AEC fail.
Bucky	The panel-like part of an X-ray positioner that is designed to receive an X-ray. The housing containing the grid, the Flat Panel Detector (FPD), and the Automatic Exposure Control (AEC).
Computed Radiography (CR)	Uses similar equipment to conventional radiography except that in place of a film to create the image, an Imaging Plate (IP) made of photostimulable phosphor is used.
Digital Imaging & Communications in Medicine (DICOM)	A standard for handling, storing, printing, and transmitting information in medical imaging. It includes a file format definition and a network communications protocol.
Digital Radiography (DR)	A form of X-ray imaging in which digital X-ray sensors are used to capture X-ray images instead of traditional X-ray film.

Definitions	
Flat Panel Detector (FPD)	The panel used in digital radiography to capture X-ray information and convert it to a digital image.
Health Information Technology for Economic and Clinical Health Act (HITECH Act)	Enacted under Title XIII of the American Recovery and Reinvestment Act of 2009. The HI-TECH Act incentivized meaningful use of interoperable EHR adoption and set EHR adoption in the health care system as a critical national goal.
ISO 8601	A standard format for representing date and time recommended by the International Organization for Standardization.
(Little Endian)	Explicit value representation must be included for each single DICOM tag. This transfer syntax is more often used since each data element has its own explicit value type declaration.
Modality Worklist (MWL/MWM)	Provides a list of imaging procedures that have been scheduled for performance by an image acquisition device.
Picture Archiving & Communication System (PACS)	A medical imaging technology that provides economical storage and convenient access to images from multiple modalities.
Portable Document Format (PDF)	A file format used to present documents in a manner independent of application software, hardware, and operating systems.
Radiation Absorbed Dose (RAD)	A unit of measurement of the absorbed dose of ionizing radiation, corresponding to an energy transfer of 100 ergs per gram of any absorbed material.
Radiographic Technologists (RT)	Medical personnel who perform diagnostic imaging examinations and administer radiation therapy treatments. They are educated in anatomy, patient positioning, examination techniques, equipment protocols, radiation safety, radiation protection, and basic patient care.

Definitions	
Source to Image-Receptor Distance (SID)	A measurement of the distance between the radiation source (such as an X-ray generator or gamma ray–generating radiopharmaceutical) and the radiation detector (such as a film, flat panel detector, or gamma camera).
USB Drive	An external flash drive, small enough to carry on a key ring that can be used with any computer that has a Universal Serial Bus (USB) port.

Abbreviations

Abbreviations	
AP	Access Point
CD-R / CDRW	Compact Disc Recordable, Compact Disc Rewriteable
DOB	Date of Birth
DVD-R / DVD-RW	Digital Video Disc Recordable, Digital Video Disc Rewriteable
EHR	Electronic Health Records
EMR	Electronic Medical Records
FPD	Flat Panel Detector
FSE	Field Service Engineer
HIPPA	Health Insurance Portability and Accountability Act of 1996
JPEG2000	Joint Photographic Experts Group
MWL	Modality Worklist
PCB	Printed Circuit Board
PHI	Protected Health Information
PID	Patient Identification Number
RH	Relative Humidity
SDK	Software Development Kit

Abbreviations	
SDLC	System Development Life Cycle
UAI	Universal Acquisition Interface
USB	Universal Serial Bus

Operator Advisories

The Ultra system is intended for use by qualified personnel only.

The DR detector, generator, and positioner are designed for general radiography in hospitals, clinics, and medical practices to provide X-ray radiographic images of the skeleton, skull, chest, abdomen, extremities, and other body parts.

Images can be obtained with the patient in the sitting, standing, or lying position. Specialty X-ray tables and weight-bearing stands can be incorporated with advanced positioner programming. Multiple images can be acquired and stitched together within Ultra using stitching stands for contiguous long leg and scoliosis exam images. A series of images can be merged into one image before they are sent to a physician for diagnosis.

The system is intended to operate within the Healthcare organization's internal firewall and is not intended to be used outside the firewall.

DANGER!	
	Do not use the equipment for any purposes other than those for which it is intended. Operation of the equipment for unintended purposes could lead to fatal or other serious injury.
WARNING!	
	Please study this manual and the manuals for each system component to be fully aware of all the safety and operational requirements.
WARNING!	
	X-ray equipment is dangerous to both patient and operator unless protection measures are strictly observed. If the equipment is not accurately used, it may cause injury.

WARNING!	
	Operators must have sufficient knowledge to competently perform the different diagnostic imaging procedures with X-ray devices. This knowledge is acquired through a variety of educational methods, including clinical working experience, and as part of many college and university radiologic technology programs in accordance with local laws or regulations.
WARNING!	
	Operators authorized to use this equipment must be aware of the danger of excessive exposure to X-ray radiation. It is vitally important that everyone working with X-ray radiation is properly trained, informed on the hazards of radiation, and takes adequate steps to ensure protection against injury.

Responsibilities

WARNING!	
	The X-ray unit may be dangerous to patient and operator unless safe exposure factors, operating instructions, and maintenance schedules are observed.
WARNING!	
	The equipment herein described is sold with the understanding that the manufacturer, its agents, and representatives are not liable for injury or damage which may result from overexposure of patients or personnel to X-ray radiation.
WARNING!	
	It is the responsibility of the operator to ensure the safety of the patient while the X-ray equipment is in operation by visual observation, proper patient positioning, and use of the devices that are intended to prevent patient injury.
WARNING!	
	Always watch all parts of the system to verify that there is neither interference nor possibility of collision with the patient, or a table, wall stand, weight bearing stand, stitching stand, or with other equipment.

WARNING!	
	It is the responsibility of the operator to ensure that all the exposure parameters are correct before performing an exam on the patient by verifying that the parameter selection has not been modified unintentionally in order to avoid overexposure or the need to perform a new exam. The clinical user is responsible for judging the accuracy of the measurements based on the selected measurement points and appropriate interpretation needed for projection X-ray images. Projection X-ray images may include super-imposed, multiple anatomies with varying degrees of magnifications.
WARNING!	
	The operator shall use the largest possible distance from the focal spot to skin to keep the absorbed dose as low as reasonably achievable (ALARA).
WARNING!	
	It is the responsibility of the operator to restrict access to the equipment in accordance with local regulations for radiation protection.

CAUTION!	
	Confirm that system devices are operating normally before use. The operators (hospitals and clinics) hold responsibility for the use and maintenance of X-ray system, devices, and computer operating system.
CAUTION!	
	It is recommended that cybersecurity be installed by the owner of the equipment. It is the responsibility of the owner to install proper security and antivirus software to the PC provided with the equipment.
CAUTION!	
	It is recommended that the PC is routinely backed up as a precaution in case of power outage or cybersecurity threats.

CAUTION!	
	The system needs periodic calibration using recommended X-ray settings, detector positioning, source-detector distance, and filtration. Please contact the dealer for assistance.
CAUTION!	
	If a problem occurs with the PC software or devices in the system, contact Konica Minolta DR support for technical assistance at 800-366-5343.

Software Hardware Specifications

Minimum Hardware and Specifications Table	
Hardware	**Specifications**
PC with Windows 10 OS	8GB RAM
DR Panel	(wired - any type)
X-ray Generator	Minimum 20 kW

Installing the Software

For information on installation of software, please contact:

Konica Minolta Healthcare Americas, Inc.

2217 US Highway 70 East
Garner, NC 27529
1-800-366-5343

Logging in to Ultra

Depending upon how Ultra is configured, registered users can log in to Ultra in one of two ways:

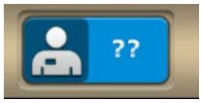
- Select their name on the Worklist.

  Note: If your system administrator has configured passwords, a password is required.

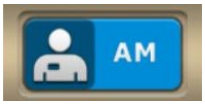
- Scan their registered RFID badge.

  Note: If your system administrator has configured an RFID badge reader, log in by scanning your assigned RFID badge.

When no users are registered in Ultra, the technologist icon displays question marks on the Worklist.



After logging in, the technologist icon displays the user's initials on the Worklist.

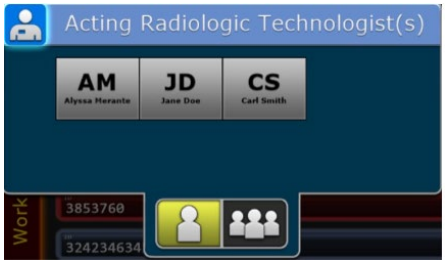


Multiple Users

If multiple technologists are necessary for a procedure, click the **Multiple Technologist** button.

When multiple users are logged in to Ultra, the technologist icon displays their initials on the Worklist.

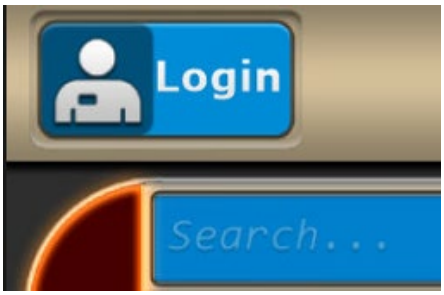
After users are registered in Ultra, you can select their names and initials from the Acting Radiologic Technologists dialog.



Logging in with LDAP Credentials

If LDAP login has been enabled at your facility, you can log in to Ultra with the LDAP Login screen.

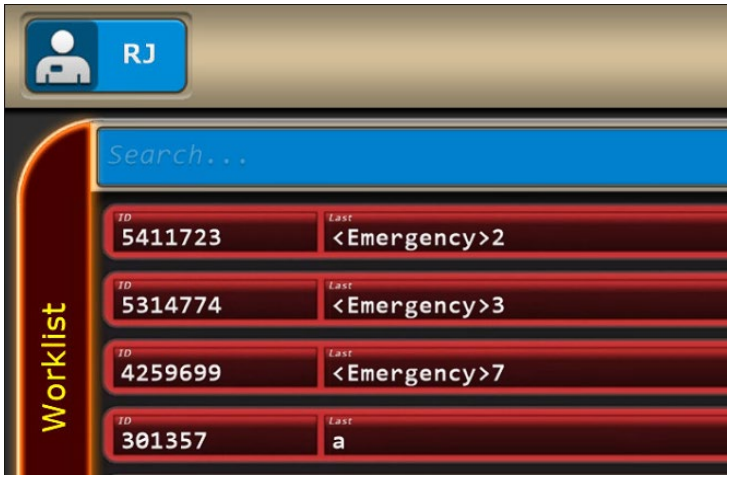
1. Click the **Login** button on the top-left of the worklist.



The **LDAP Login** window contains three text fields: **User Name**, **Password**¸ and **Domain Name**. The Domain Name may be automatically filled depending on how this feature was set up.

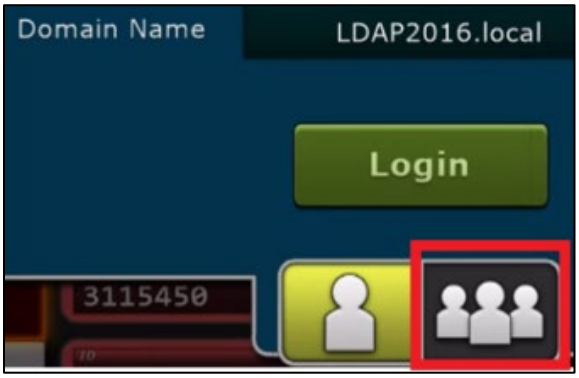
2. Type your User Name and Password, then click **Login**.

3. After you have successfully logged in, all patient/exam entries in the MWL are displayed and your initials are displayed in the top-left corner of the worklist.

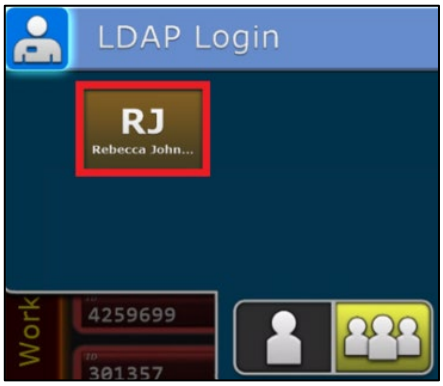


4. To log out, click the **Log Out** button in the top right of the Worklist. This will automatically close Ultra.

5. (Optional) To log out the current user **without closing Ultra**, click your initials in the top-left of the worklist and click the multi-user icon.



6. Click the icon that displays your name, then click **Log Off** in the confirmation window.



Ultra Worklist

Worklist Tab: Exams to be completed

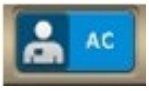
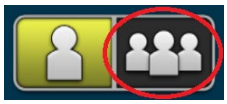
Completed Tab: Exams recently completed

Scroll Bar: Navigate through the list of exams.

The scroll bar is active only when the number of exams in the list exceeds the viewable area of the selected tab

Ultra Worklist Buttons

The following buttons are displayed at various times on the Worklist.

Button	Button Name	Button Description
	**Technologist/ Initials**	Displays the initials of the selected technologist of record for the exam.
	**Groups**	Displays multiple technologists so that each acting technologist can be selected individually.

Button	Button Name	Button Description
(example images)  	**Wi-Fi Status**	If enabled, a new Wi-Fi button shows the status of the Wi-Fi signal, using curved bars to indicate signal strength; from left to right: • 76%–100% strength • 51%–75% strength • 26%–50% strength • 1%–26% strength There may also be a text label indicating the percentage of remaining strength.
	**Options**	Launches the Options menu to configure settings for Ultra and attached devices. A password is required.
	**Exit**	Logs off the Ultra software.
	**Refresh**	Refreshes the Worklist.
	**Home**	Clears all search filters and returns the display to the default unfiltered view.
	**New**	Starts the **Add a New Patient Exam** process by opening fields to enter a new Worklist entry for a new patient exam. **Note:** If an input error occurs in patient information, image, or patient procedure, it can cause a misdiagnosis due to incorrect information.

Button	Button Name	Button Description
	**Emergency**	Lets users complete a patient exam without entering any patient information. Generic info will populate the fields. **Note**: These fields must be completed with correct patient information before sending the emergency exam to a PACS server.
	**QA**	If configured, launches an exam for QA purposes
 	**Query**	Completes a MWL Query for any configured modality worklist provider and populates the Worklist with any resulting patient exams. **Note**: If enabled, the Query button might display a gear icon to indicate an error occurred during a query.
	**More**	Launches the More options menu so users can copy the study to a CD/DVD, save the study to external HDD, or print the study to a DICOM printer. (Completed tab only.)
	**Acquire**	Launches the Acquisition screen and populates the appropriate acquire fields with the selected exam information.
	**Accept Image**	Accepts the selected image.
	**Reject Image**	Rejects the selected image.
	**Questionable Status**	Indicates a decision to accept or reject an image is required.
	**DR Panel Battery Indicator**	Displays the charge level of the DR Panel battery. (Wireless DR panels only)

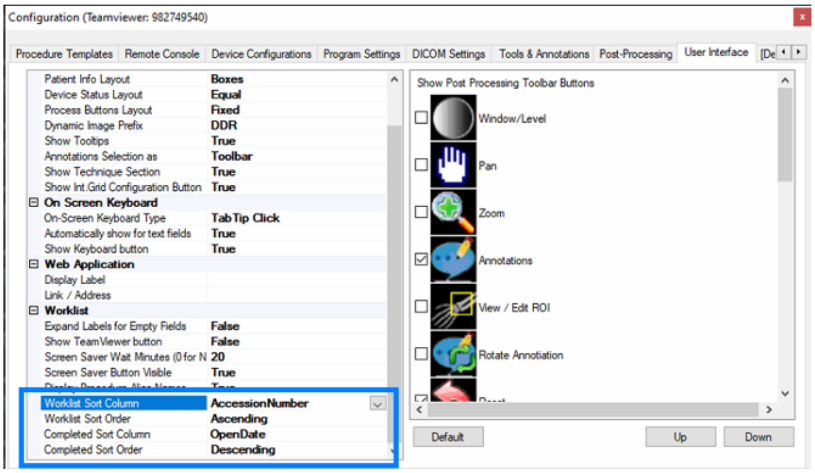
Button	Button Name	Button Description
	**DR Panel Battery Dead**	Displayed when a wireless DR panel battery is fully discharged or when the panel is turned off. (Wireless DR panels only)
	**Missing Image**	Indicates that an image is missing for a selected exam.
	**Alternate Grid Suppression**	Enables users to apply a secondary filter to suppress gridlines if configuration allows.
	**Positioning Guide**	Opens the Positioning and X-Ray Technique Guide. Refer to Resource Materials on page 81.

Adjusting the Size of the Worklist

To change the display size of the exam views within the Worklist, press **Ctrl +** to increase or **Ctrl –** to decrease.

Configuring the Worklist

Patient information can be sorted by alphabetical order, completed time, or scheduled time. To configure this, click the **Options** button, then the **User Interface** tab.



Sorting (Ascending or Descending) can be configured for the following columns:

- Last Name
- First Name
- Accession Number
- Scheduled Date
- Open Date

Worklist Colors

Each Worklist exam entry is color coded based on their status.

- **Blue** – Indicates a new Worklist entry.

  If the entry flashes, it indicates that an exam has been started and suspended.

  If the entry does not flash, the exam has not been started. However, procedures may have been added.

- **Red** – Indicates that the exam is an emergency patient exam. After patient information has been filled in, the exam displays Blue.

- **Orange** – Indicates that an exam has missing views or body parts, or the exam is missing images because they are no longer in the archive. Images that are affected are replaced with the image icon in the exam:

Editing Patient and Exam Information from the Worklist

1. Select the patient you want to edit.
2. Click the field you want to edit.

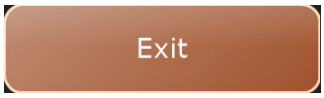
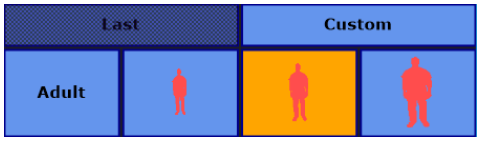
3. Edit the information.

Navigating the Acquisition Screen

Acquisition Screen Buttons

The following buttons are displayed on the Acquisition Screen.

Button	Button Name	Button Description
	**Grid In/Grid Out**	Click the appropriate button depending upon whether to include grid suppression filtering
	**Ion Chamber**	Indicates that the exposure mode is phototimed
	**Archive**	Opens the Image Archive window where you can retrieve images
	**Options**	Opens the Configuration window to set administrative parameters for Ultra

Button	Button Name	Button Description
	**Exit**	Ends the acquisition and returns to the Worklist
	**Body Habitus**	Click Adult or Peds to toggle between adult and pediatric settings

Editing Patient Information from the Acquisition Screen

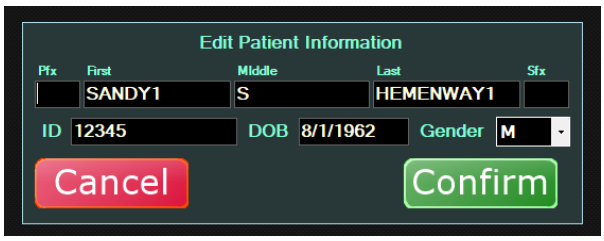
This feature lets a technologist edit the current patient's information from the Acquisition screen. Click the **Patient Info** box on the Acquisition screen to open a window that lets the user edit the following information:

- Patient Name
- Patient ID
- Patient Date of Birth
- Patient Gender

To edit patient information from the Acquisition screen, do the following:

1. On the Acquisition screen, click on the patient information area at the top of the window.

   A box opens displaying the patient information with editable fields that you can click in.

2. Update the patient information and click **Confirm**.

   The window closes and the patient information is updated.

Selecting an Exam in Ultra

Retrieving Exams from the MWL

New patient exams from a configured Modality Worklist server are displayed in the Worklist after you click the **Query** button.

Note: New patient exams show up automatically in the Worklist if the MWL sites are configured to Auto Query.

Note: Refer to Ultra Worklist Buttons for examples of buttons used within the software.

Selecting a Technologist

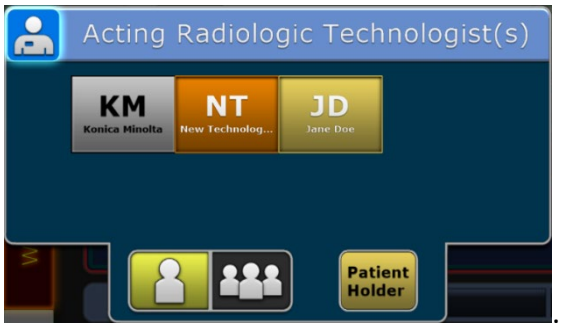
1. Click the **Technologist** button.
2. Select the technologist(s) for the exam.

   Note: To select more than one technologist, click the **Groups** button and select each acting technologist.

Designating a Patient Holder

A Patient Holder is usually a family member or guardian who assists patients who cannot maintain the physical or mental demands of being stationary during an exposure. Designating a Patient Holder is optional; the role is temporary and applies only to the current exam.

1. Click **Patient Holder** and type the Patient Holder's name in the **Enter Patient Holder Name** field.



2. Click **OK**.

   The Patient Holder name is displayed next to the technologist(s) on the selected exam and in log reports.

Changing Technologists on the Acquisition screen

Technologists can be changed from the Acquisition screen.

1. Click the **Technologist** icon on the top-right corner of the screen.
2. In the pop-up screen, select the technologists and enter the password.

Creating a New Exam in the Ultra Worklist

1. On the Worklist, click **New**.
2. Type the patient's information in the required fields.
3. (Optional) Press **Tab** or click in the **Accession Number** field and type in the exam's Accession Number.
4. Press **Tab** or click in the **Procedure** field and select or search for the exam from the **Choose a procedure** list.
5. After selecting the exam, click **Choose** or double-click the exam.
6. Do the same for the **Referring Physician** field, or manually type the name.
7. Do the following, if necessary:
   a. (Optional) Type a Station Name, if necessary.
   b. If a note is needed, click the yellow **Note** icon, type the notes, and click **Confirm**.
8. If another exam is needed, click **[add exam]** and select another procedure.
9. When all exams for the patient study are selected, click **Acquire** to open the Acquisition screen.

Retrieving Exams with a Barcode

You can opt to use a barcode to retrieve a patient and launch and exam in Ultra. To enable this feature, complete the following steps:

1. On the Ultra Worklist, click the **Options** button, then the **User Interface** tab.
2. Under Worklist, set **Bar Code Auto Start Acquisition Screen** to **True**.

To use the barcode scanning feature:

1. Open the Ultra Worklist and confirm that the cursor is in the Search bar.
2. Scan the barcode. The scanned value will populate the Search bar.
    - If a single patient/exam entry is returned, the Acquisition screen will open, and the exam is launched.
    - If a Technologist hasn't yet been selected, or if there is any required information missing for the patient or the exam, the Acquisition screen will not open.

Working with Exams

Button	Button Name	Button Description
	**Add View**	Adds an arbitrary body part to the exam
	**Add Exam**	Adds a new exam
	**Remove View**	Removes an arbitrary body part from the exam
	**Remap View**	Changes the assigned body part
	**Switch Mode**	Displays immediate load for view selection

Acquiring DR Images

1. Select a patient from the Worklist and click **Acquire** to launch the Acquisition screen.

2. Select the appropriate workstation for the desired exam.

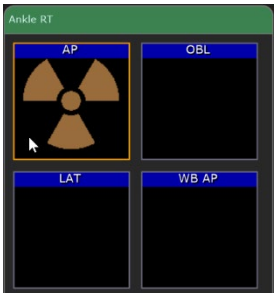
   Note: If your Ultra software was configured for multiple acquisition sub-systems, such as multiple detector panels or a positioner for procedures, the Workstation tab provides buttons for you to select the appropriate workstation.

   Users can select either the Wallstand, the Table, or the Tabletop as configured sub-systems to take an exposure using the Workstation icons located near the top-right corner of the acquisition screen.

3. Verify the status of the detector displays **Ready** in the upper left-hand corner of the screen prior to taking an image.

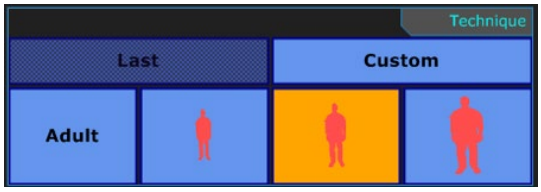
   This is the detector panel associated with the selected workstation in the previous step if multiple configurations are available.

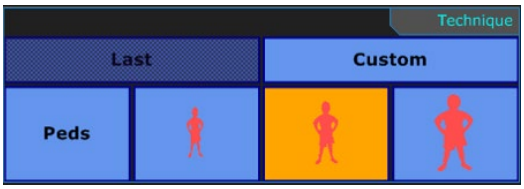
4. Click the desired **exam view**. The radiation symbol is displayed in the selected exam area.



5. Click the correct **Body Habitus** of the patient to enable the appropriate technique.

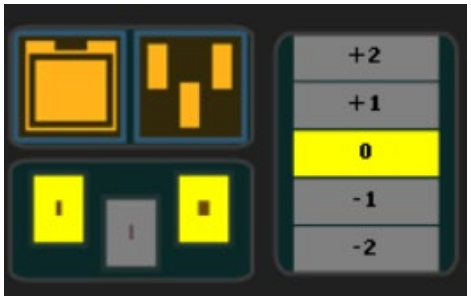
   Note: Click on **Adult** or **Peds** to toggle between Adult and Pediatric habitus.





6. Click the **Grid In** icon to enable grid suppression filtering when using a grid. Otherwise, click **Grid Out**.

7. Click the Automatic Exposure Control - **AEC** icon and the appropriate **Ion Chamber** icon(s) to enable AEC phototiming.



   Note: If Anatomically Programmed Radiography - APRs are programmed in Ultra, an AEC technique is preset for the body part view. The Density, kVp, mA, and BUT for the current exam can still be adjusted. Numbers that are displayed in **red** are set too high for the selected generator and X-ray tube.

   Note: AEC can be disabled by deselecting the **AEC** icon, to manually adjust time (ms).

8. Use the up and down arrows to manually adjust the techniques (kVp, mA, ms, mAs).

9. Position the patient and take the first image.

   Note: The radiation symbol automatically moves to the next view while the image is processing.

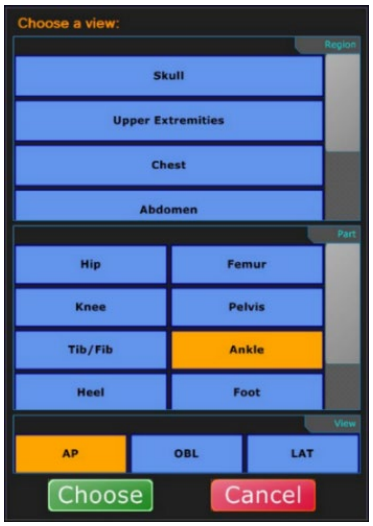
   Note: If you have a licensed U-arm positioner, after the radiation symbol has moved to the next view, press **MOVE** on the remote or positioner console to move the U-arm positioner to the next position.

10. Continue the procedure until you have acquired all required images.

Adding Additional Views to an Exam Procedure

1. Open a patient exam.
2. Click the **Add View** button located above the procedure section.

3. In the **Choose a View** window, select the exam view you want to add.



4. Click **Choose**. The next view is displayed in the procedure view section.

Removing a View from an Exam

1. In an exam, select a view that does not have a captured image.
2. Click the **Delete View** button.

The view is removed from the exam.

Remap a View in an Exam

1. In an exam, select an image with the incorrect view name.
2. Click the **Remap View** button.

3. Select the correct name of the view.
4. Click **Choose**. The view changes to the correct name.

5. Click the **Reprocess** button to reprocess the image as that new view.

Adding Exams from the Acquisition Screen

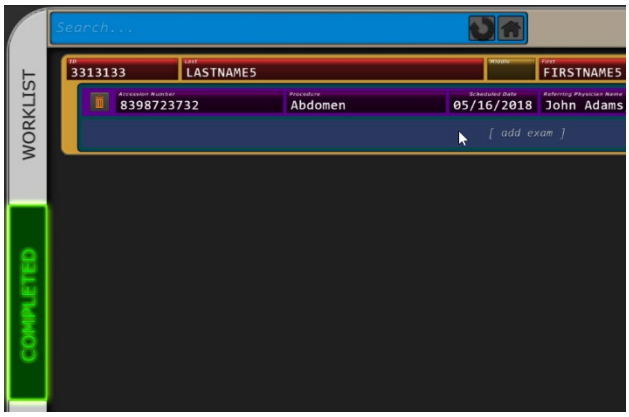
You can add exams from the Acquisition screen without returning to the Worklist.

1. On the Acquisition screen, click the **Add Exam** button to open the Choose A Procedure box.

2. Search for or navigate to an exam in the list.
3. Double-click the exam or select the exam and click **Choose**. The exam is added and displayed in the Exam view.

Adding an Exam to a Completed Patient Exam

1. Select a patient from the **Completed** tab of the Worklist.



2. Click the **[add exam]** link located below the patient's last exam.
3. Select the exam and click **Choose**.

   Note: You will **not** see the new exam on the **Completed tab**. The new exam will be added to the **Worklist tab**. Any completed exams remain on the Completed tab.

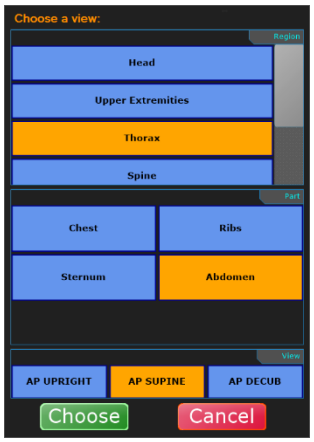
4. Continue the process of editing the exam as outlined in Editing Patient and Exam Information from the Worklist.

Adding an Image to a Completed Exam

1. Select a patient from the **Completed** tab of the Worklist.
2. Double-click the patient name.
3. If multiple exams are present for the active patient, choose the correct exam in the procedure view section on the right side of the Acquisition screen to activate it as the current exam.

   To add additional exam views to the previously completed exam, click the **Add View** button above the procedure section.

4. In the **Choose a View** window, select the exam view to add and click **Choose**. It will now be displayed in the procedure view section under the active exam.



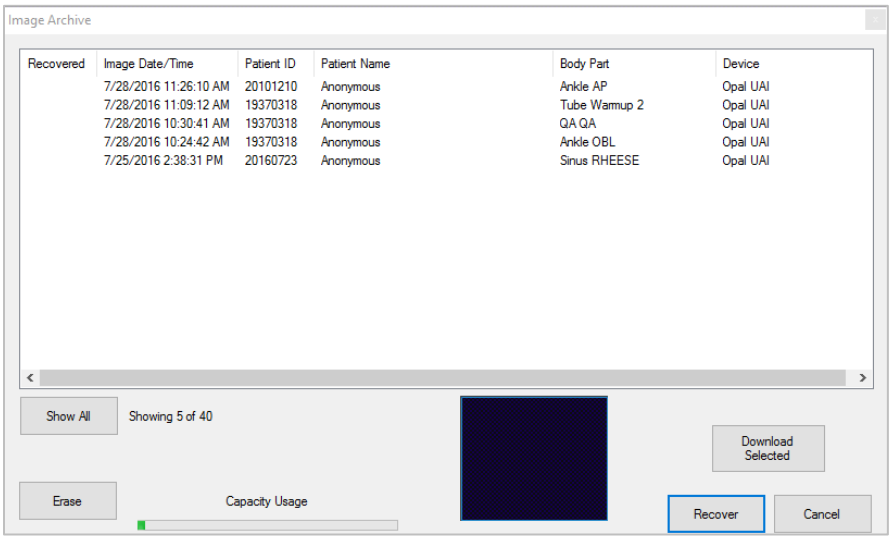
5. Select the new view and complete the steps to capture the image.

Moving an Image to Another Exam

You can move images from an existing exam to another. This may be necessary if an image is acquired under the wrong patient study.

Note: When moving an image, first reject the image from its current exam, (if not already accepted), and then select the correct exam and recover the raw image from the archive.

1. If necessary, add a new exam to an existing patient study that is going to receive the moved image.
2. Open the original patient exam.
3. Reject the image that you want to move (unless you have already accepted the image).
4. Select the correct receiving exam and go to the Acquisition screen.
5. Click the **Archive** button. The **Image Archive** window opens.



6. Select the image to recover and click **Recover**.

   Note: To select multiple images, select an image and press down the **Ctrl** button and select the additional images, then click **Recover**.

7. Proceed as normal by applying post processing to the image and accepting it.

   Note: If you have already accepted the image and sent the image to PACS under the incorrect patient, you must contact the PACS administrator to have them remove the image from the PACS server.

   Note: Alternatively, images can also be dragged and dropped to the correct exam directly from the Acquisition screen.

Deleting Exams

1. In an expanded exam, click on the **Trashcan** icon next to the study you want to delete.

2. Click **Delete** to permanently delete the exam. (Any raw images associated with the deleted exam will still remain in the image archive).

Dynamic Mode (Dynamic Digital Radiography)

Single frame radiography is referred to as **Static mode**. **Dynamic mode**, or Dynamic Digital Radiography (DDR), lets the user take a serial exposure, resulting in a series of images.

Static mode is the default mode. While this section applies specifically to DDR, all other sections of this manual provide general instructions for operation that are applicable to both static mode and DDR.

> **Note:** During exposure in DDR, a low frame rate preview is shown; the preview is not real-time and experiences slight delays. The preview is not intended as a diagnostic tool.
>
> **Note:** The system requires a preparation time of 5–20 seconds before a DDR exam may begin. The maximal standby time in dynamic mode is 5 minutes. After 5 minutes, a new preparation time of 5–20 seconds is required.
>
> **Note:** When using DDR, a lower target ms range of 4–8 ms for the Sedecal Generator, and 4–10 ms for the CPI generator, is required. 4–6 ms is the ideal range.

Button	Button Name	Button Description
	**Play**	Plays the video
	**Pause**	Pauses a playing video
	**Playback Speed**	Adjusts the speed at which the video is played
	**Trim**	Generates a new image sequence using only the currently selected portion of the frame sequence.
	**Trim Sub-image**	Generates a new image of a single frame in the currently displayed frame sequence.
	**Image Stack**	Indicates which images are dynamic sequences.

Operational Controls

1. Click the **Photo-time** button twice to enter dynamic mode.

Static Imaging Mode **Dynamic Imaging Mode**

The generator controls, in the lower part of the screen, are updated.

Static Mode Generator Controls

Dynamic Mode Generator Controls

2. In Dynamic Mode, serial exposures can be taken at 6 or 15 Frames Per Second (FPS). Click the **left** and **right arrow** buttons to change the FPS settings.

Dynamic Mode 6 FPS

Dynamic Mode 15 FPS

Syncing a Panel for Dynamic Mode

When Flex Wireless DDR is being used on either the Flex OTC system or the mKDR Xpress, the following messages are displayed when you are syncing a panel:

Resync Message

- mKDR Xpress: “The panel needs to resync. Please place it in the front charging unit.”
- Flex OTC: “The panel needs to resync. Please connect the cable.”

Sync Complete Message

- mKDR Xpress: “Syncing complete. Please remove the panel.”
- Flex OTC: “Syncing complete. Please disconnect the cable.”

Dismount Panel Message

- mKDR Xpress: “Please dismount the panel to have it available via Wifi.”
- Flex OTC: “Please disconnect the cable to have panel available via Wifi.”

Adjusting a Video Recorded in Dynamic Mode

Adjusting the Frames Displayed in Video Playback

1. Click the **Play** button to toggle between play and pause.

2. Drag the **StartFrame** and **EndFrame** markers to the desired beginning and end of the subsequence.

3. Click the **Play** button to play the video of the selected frames.

Note: If you adjust the start and end frames, only the selected frames will be sent to PACS applications. To send all the frames in the series, re-adjust the start and end frame to the first and the last frame in the image series before sending to PACS.

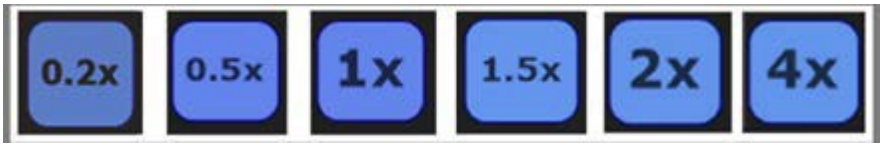
Displaying Frame by Frame

To display the video frame-by-frame:

1. Pause the video.
2. Click each frame with the mouse or scroll through each frame using the left and right arrow keys on the keyboard.

Accelerate or Slow Down Playback.

Click the **Playback Speed** buttons to cycle through speed presets.



Note: The last used setting is saved to the configuration file, enabling users to keep their preferences.

Image Stack Indicator

An icon is displayed on the thumbnail view to indicate which images are dynamic sequences.

Note: The icon represents a stack of images. The number of frames is displayed on top of the icon.

Trimming a Subsequence

Use the Trim Subsequence function to generate a new image sequence using only the current active portion, as defined by **StartFrame** and **EndFrame** markers.

To trim a subsequence:

1. Drag the **StartFrame** and **EndFrame** markers to the desired beginning and end of the subsequence.

2. Click the **Trim** button.

Note: If you adjust the start and end frames, only the selected frames are sent to PACS applications. To send all the frames in the series, re-adjust the start and end frame to the first and the last frame in the image series before sending to PACS.

Single Frame Image Capture (Trim Sub-image)

Use the Trim Sub-image function to capture an image of a single frame.

To create a screen capture of a single frame:

1. Select the desired frame.
2. Click the **Trim Sub-image** button.

Merging Patients

When a trauma patient arrives and needs an immediate X-ray, patient information in Ultra will consist solely of default values and will not match an existing patient. Later, target patient data from an external MWL (for instance, a RIS) can be transferred to Ultra so that the exam data can be correctly paired with the proper patient.

To assign the correct patient data to the recently acquired images, you can merge the two patients together by clicking the **Merge** button on the Acquisition screen. After merging is complete, all acquired images are displayed under the target patient information from the MWL.

Using the Merge Button from the Acquisition Screen

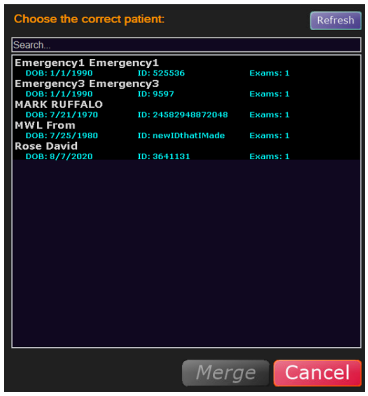
To merge a trauma patient from the Acquisition screen:

1. On the Acquisition screen, click the **Merge** button displayed next to the patient's name, DOB, and ID.

The **Choose the correct patient** window displays the patients in the Worklist. The **Merge** button is inactive until you select a patient.

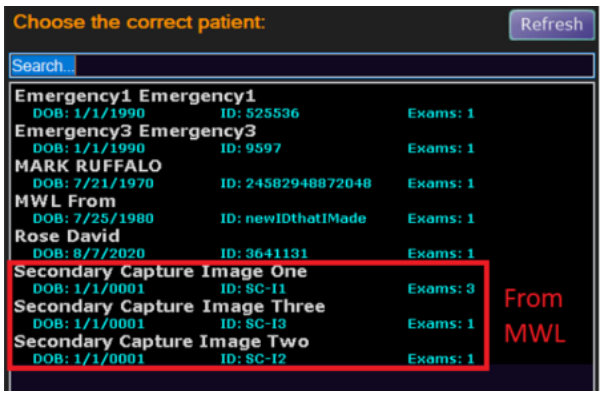
The following information is displayed for each patient:

- Patient Name
- DOB
- Patient ID
- Number of Exams



Note: When this window opens, it automatically queries the configured MWL and updates the displayed patient list.

2. If the desired patient information is not displayed, click the **Refresh** button to update the patient list to ensure that all patient data is displayed.



3. Select the target patient from the Worklist and click **Merge**.

Note: Use the search bar to quickly filter through the list of available patient data.

4. Click **Merge** in the confirmation box.

After merging, the Acquisition screen updates the display information to the target patient. The trauma patient is no longer present on the MWL.

Using the Merge To Button from the Worklist

To merge a trauma patient from the Worklist:

1. On the Worklist, select the trauma patient data on the MWL. A **[Merge To…]** button is displayed to enable merging the trauma patient with a target patient.

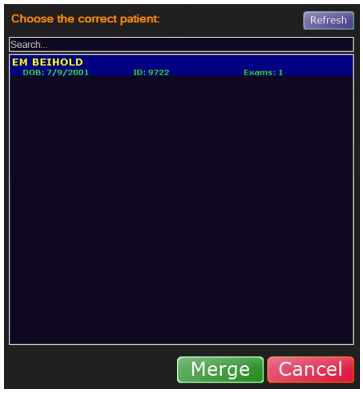
2. Click the **[Merge To…]** button.

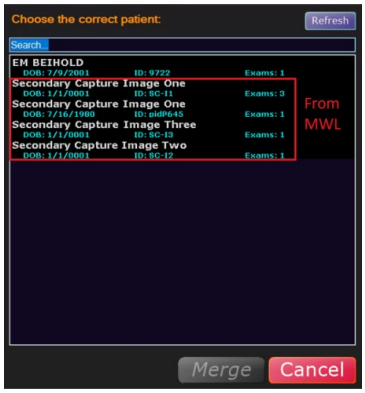
   The **Choose the correct patient** window displays a list of all patients in the MWL. The **Merge** button is inactive until a patient is selected.

   When the **Choose the Correct Patient** window opens, it automatically queries the configured MWL and updates the displayed patient list.

   Note: The search bar enables users to filter through the list of available patient data to easily find the desired patient.

3. Select the desired target patient from the Worklist and click **Merge**.





4. Click **Merge** in the confirmation box to confirm the action.

After merging, the Acquisition screen updates the display information to the target patient. The trauma patient is no longer present on the MWL.

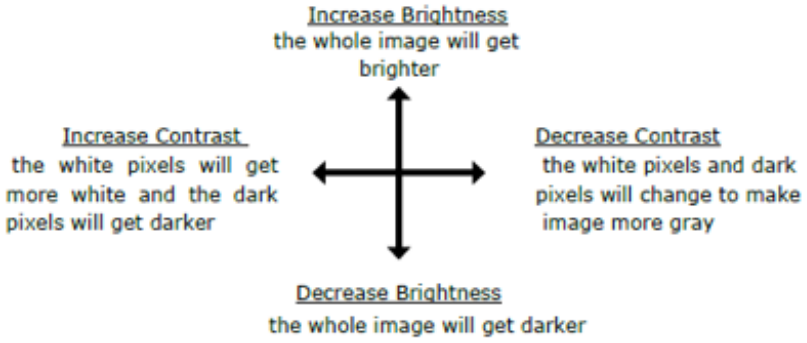
Viewing Images

To view an image in full screen mode, double-click anywhere on the screen. To exit full screen mode, double click again.

Button	Button Name	Button Description
	**Zoom**	Allows image zooming using the mouse. On touch screens, use 2 fingers to zoom.
	**Pan**	Enables the user to pan the image within the image view area
	**Rotate Image**	Rotates the image 90 degrees in the specified direction
	**Flip Image**	Flips the image either vertically or horizontally
	**Free Rotate Image**	Rotates the image slightly using the mouse. On touch screens, use 3 fingers to rotate the image.
	**Invert Image**	Inverts the current image

Zoom and Pan Using the Mouse

- **Zoom In** – Scroll wheel up
- **Zoom Out** – Scroll wheel down
- **Pan** – Click and hold the wheel down, then move the mouse



Rotating and Flipping Images

Rotate images in 90-degree increments by clicking on either the left or right **Rotate Images** button.

Flip images vertically or horizontally by clicking on the **Flip Images** buttons.

Free Rotate

Click **Free Rotate** to manually rotate images in smaller Increments.

1. Click once on the **Free Rotate** button to activate the function. The background of the button turns green when activated.

2. Click and hold outside the shutter lines of the image. (Be sure not to click on a shutter corner or line).

3. **Drag** the mouse to rotate the image clockwise, drag left to rotate counterclockwise until you reach the desired angle.

Note: If a touch screen is installed, drag outside the image instead of using a mouse.

4. **Release** the mouse button.

   Note: The **Free Rotate** button becomes inactive after you release the mouse button. If you need to rotate the image more, repeat steps 1–4.

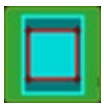
Inverting Images

Click the **Invert** button to invert the image from positive to negative (light to dark).

Post Processing Functions

Post-processing options can be applied to unaccepted images using the following toolbar buttons:

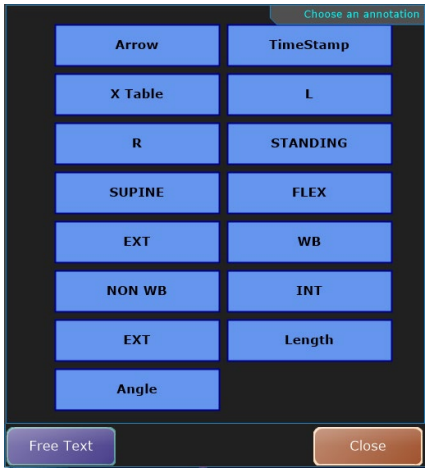
Note: If Send on Accept is enabled, be aware that after you accept an image, no additional changes can be made to the image. See Moving an Image to Another Exam on page 34 for how to recover raw images from archive.

Button	Button Name	Button Description
	**Annotations**	Provides the ability to annotate an image
	**Rotate Annotation**	Rotates the image annotation 90 degrees clockwise
	**Reset**	Removes all applied post-processing to an image and resets it to its original raw image state
	**Auto Window/Leveling**	Automatically inputs the approximate optimal window level for the exposure
	**Crop Image**	Crops the current image
	**View/Edit ROI**	Lets the user edit the region of interest

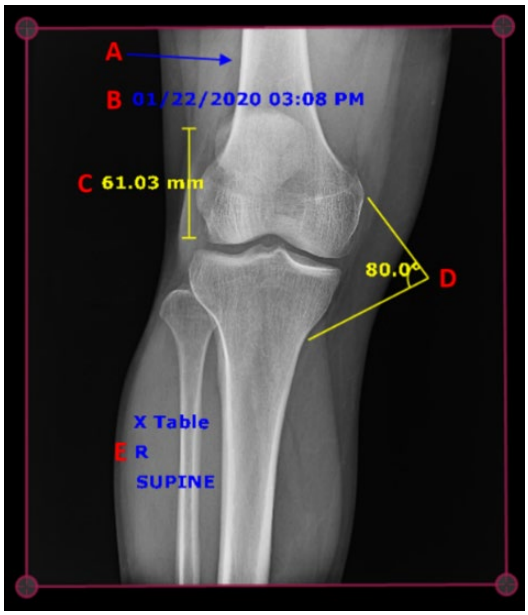
Note: You can choose what buttons are displayed in the toolbar. Click the **Options** button, then the **User Interface** tab and click the buttons you want to see in the Ultra toolbar. To reorder the buttons, select a button then click **Up** or **Down** to put it in the desired position, and then click **Apply**.

Applying Annotations to Images

1. After acquiring an image, click the **Annotations** button to see the list of annotations you can add to the image.

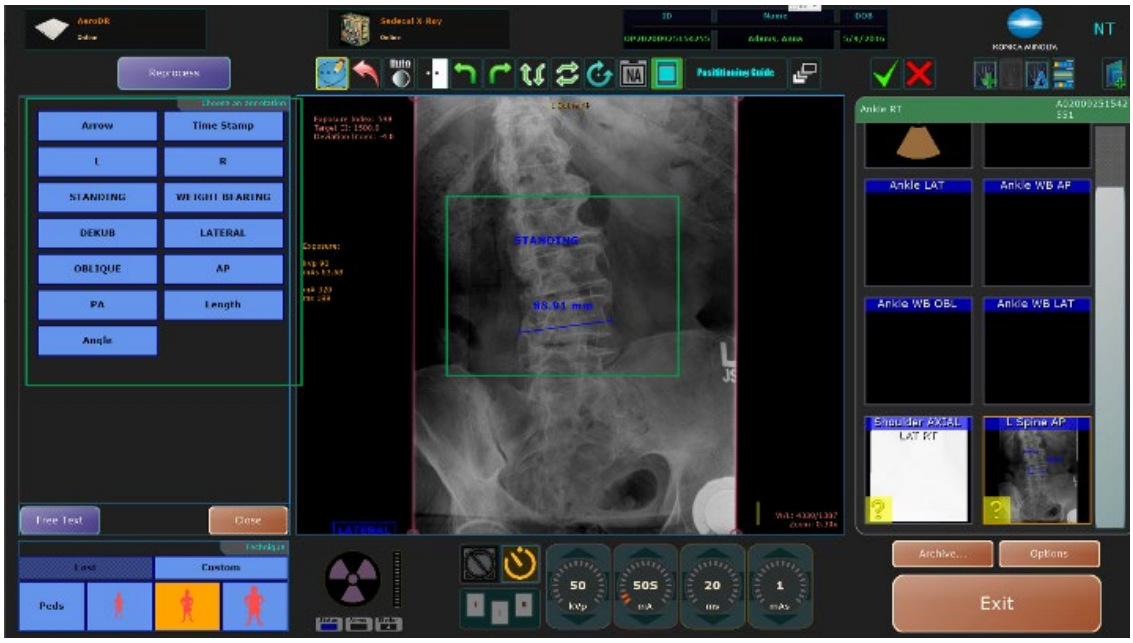


2. Click on the annotation that you want to apply to the image For the following annotations:



   - **Arrow:** Right click two points to draw an arrow from the first point to the second (see “Annotations,” “A.”)
   - **Timestamp:** Right click the desired area to add the current date and time (see “Annotations,” “B.”)
   - **Length:** Right click two points to add a measurement of length in millimeters (see “Annotations,” “C.”)
   - **Angle:** Right click three points to add a measurement of angle in degrees (see “Annotations,” “D.”)
   - X Table, L, R, STANDING, SUPINE, FLEX, EXT, WB, NON WB, INT: Right-click the desired area to add this annotation.

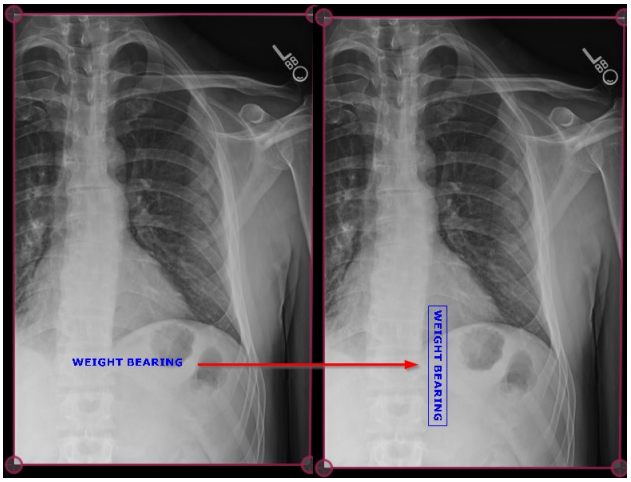
Note: An option is available that keeps the annotation menu open while you place annotations. When enabled, the Annotation menu remains docked to the left of the image and multiple annotations can be selected at once.



Note: The **Tech (My) Initials** option is available in the **Choose an Annotation** options window, while adding an annotation to an image in Acquisition screen. Click **Tech (My) Initials** to dynamically generate the current technician's initials as a text annotation.

Rotating Annotations

When the Rotate Annotation function is enabled, select an annotation, then click **Rotate Annotation** to rotate the annotation clockwise 90 degrees.



Note: Length and Angle annotations can also be accessed using the Measurement Tool icon, when enabled.

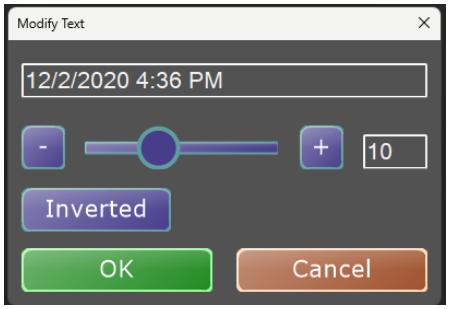
Note: Measurement Annotations can be burned into an image by double-clicking on a measurement annotation and checking the Burn Measure Toolbox. When selected, the measurements are burned to the image and sent to PACS.

Resizing Text Annotations

After you add a text annotation, you can increase or decrease the size of the annotation font.

To do this, complete the following steps:

1. Insert the text annotation (refer to Applying Annotations to Images on page 52).
2. Double-click the annotation to open the Modify Text box.



The annotation text populates the text field in this box.

3. To change the text size, do either of the following:
   - Click the plus and minus buttons at each end of the slider bar.
   - Click on the slider bar and drag the handle left and right manually.
4. When you are done, click **OK** to save your changes and close the box.

Auto W/L

If you have **manually** applied window and leveling to an image to increase or decrease contrast and/or brightness and you want to reverse the changes, click the **Auto W/L** button to restore the window and leveling that Ultra had originally applied.

Note: Ultra automatically applies window and leveling filters to images based on the body view you selected (for example, Chest AP). Auto W/L resets only manually applied window and leveling to the original W/L filtered image for that view. All other applied post-processing is not reset.

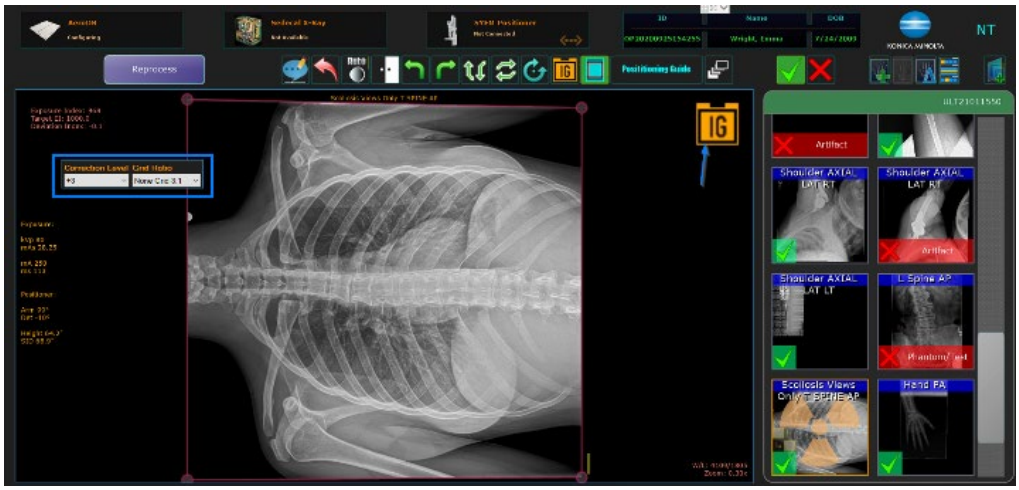
Note: Double click an image to view it in full screen mode.

Applying Alternate Grid Suppression

If configured, you can apply a secondary filter to suppress gridlines. This is primarily used with a secondary Bucky with a different grid than the primary Bucky or to support secondary orientation for wireless panels. Contact KMHA support for more information.

Applying Intelligent Grid (Optional with Aero Panel)

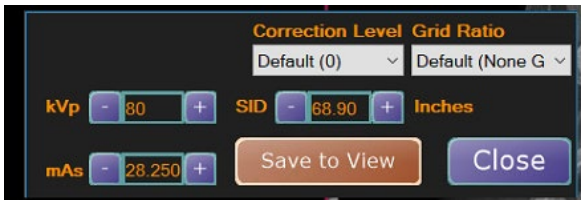
A floating toolbar with Intelligent Grid (IG) processing controls on screen is available if IG is **On** for the current image. The **IG** button is displayed on the View area of the Acquisition screen. When this button is available, click it to display/hide the Intelligent Grid processing controls on the screen.



Note: Click and drag the floating screen to move it anywhere within the view area.

Click on **Correction Level** or **Grid Ratio** to expand the full list of options that can be set.

On-screen IG processing controls can be configured to display additional buttons. The configuration needs to be set to **True** by the Administrator. The following additional options are displayed, with **Save to View** and **Close** button:

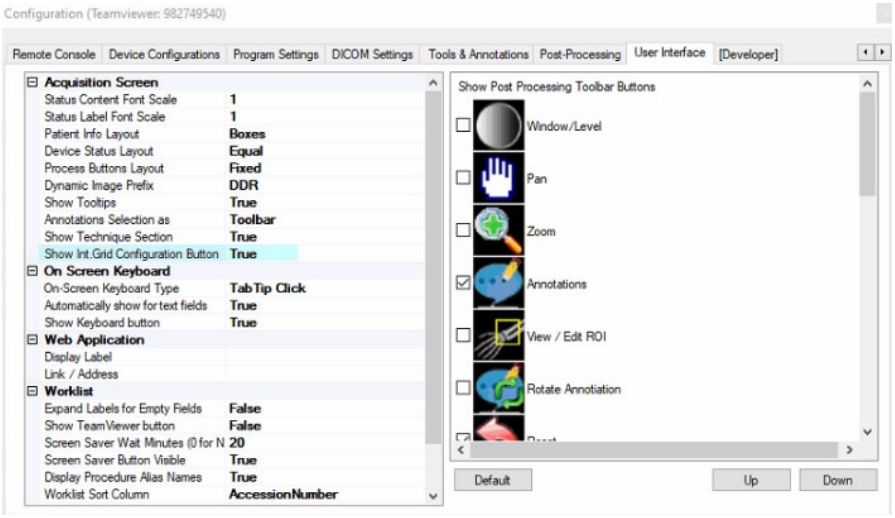


- **SID:** Increments/decrements 1 unit per click.
- **mAs:** Increments/decrements by generator station.
- **kVp:** Increments/decrements by 1 volt per click.

Note: The values for each of these options can also be entered manually.

Setting up Intelligent Grid Processing

1. Click the **Options** button, then the **User Interface** tab.
2. Under **Acquisition Screen**, set Show Int. Grid Configuration Button to **True** (Show icon) or **False** (Hide Icon).



Shuttering Images

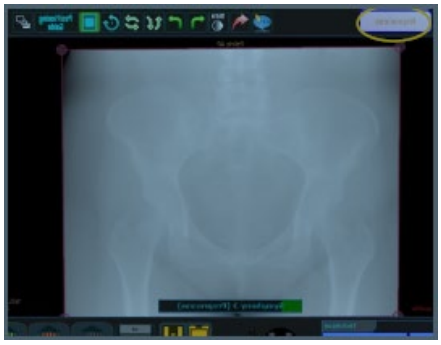
If **Auto Shutter** is not enabled, click the **Shutter** button to create a shutter box around the image.

There are two ways to correct a missed Auto Shutter:

1. **Manually adjust** either the **Red** shutter lines or its corners to the appropriate shape. When you hover over either one of these, they will turn **Blue**. This means that you can drag them freely.

2. Click the **Reprocess** button to reprocess the image for missing parts.
3. **Draw the own shutter box** by right-clicking the **Shutter** button, then clicking the 3 corner dots in a clockwise or counter-clockwise direction.

4. Click the **Reprocess** button to reprocess the image for missing parts.



Merging Images

You can combine a set of images into one view to display those images side by side. You have the option to manually merge images into one view, or you can create an image merge group to automatically merge preset views into one view.

Button	Button Name	Button Description
	**Image Combine**	Combines many images into a single image

Merging Images Manually (Image Combine)

1. Acquire the images for the exam.
2. Complete image post processing as needed for each image you plan to merge, but **do not** accept the images afterwards.

3. Click to highlight the first image that you want to merge, then right-click the **Image Combine** button. The **Image Combine** button turns green.

4. Click the first image in the folder.

5. Click the **second image** in the folder.

6. If needed, repeat steps 3– 5 to add a third image.
7. To merge the images, click the **Image Combine** button.

The following box opens:

8. Select the view for the final image to be named (for example. PA Hand).

9. Click **Choose**.

   The following example shows the final image with three images on one. It is sent to PACS as a single image under this study.

   Note: After the images are merged, the window/level function is for the whole image. Any adjustments should be made before merging.

Merging Images Automatically

Before you can merge images automatically, create an **Image Merge Group**. (Refer to the Ultra Administrator's Manual)

1. Create a new exam and select the views that are included in the defined Image Merge Group that was created.
2. Capture the images.
3. After you have acquired the images for the exam, click the **Image Combine** button to merge the images into one view.
4. Select a view to merge them under and click **Choose**. The merged view is then displayed as the view chosen.

   Note: You must capture all images defined in the Image Merge Group. If all required images are not captured, the image auto-merge process cannot be completed.

5. If **Auto Reject** was selected in the Image Merge Group configuration, a reject prompt is displayed. If **Auto Reject** was not selected, you must manually accept or reject each image.

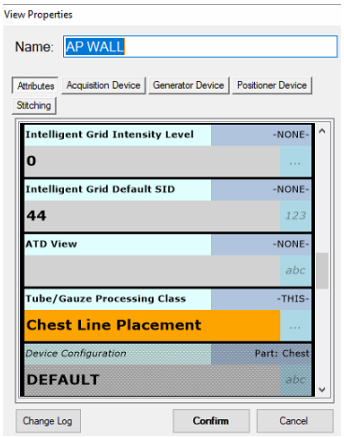
Note: When Auto Reject is enabled, all original individual views used to create the grouped image are rejected. However, you still need to accept the new merged view if applicable.

Example: To automatically merge the images for AP Ankles, OBL Ankles, and LAT Ankles into one view, create an Image Merge Group that includes those three views. After the image merge group is created, create an exam using the Ankle 3 view procedure and capture the AP Ankles, OBL Ankles, and LAT Ankles images. After all images are captured, click **Image Combine** to automatically merge the 3 views into one view.

Generating a Tube/Gauze Check Image

On some chest images, the technologist will want to apply a special filter that will help them detect if gauze or tubing was left in a patient.

1. Select **Properties**, select **Tube/Gauze** processing class.



When Tube/Gauze property is configured for a view, and the image is acquired using an Aero Panel, or if Tube Gauze processing class can be applied to the image, a pop-up box displays the **Tube/Gauze** button.

2. To apply Tube Gauze processing class, click the **Tube/Gauze** button.

Resetting the Entire Image to Remove All Applied Post Processing

Click the **Reset Entire Image** button to remove all the post processing that you have applied to the image and reset it to the original raw image.

Stitching

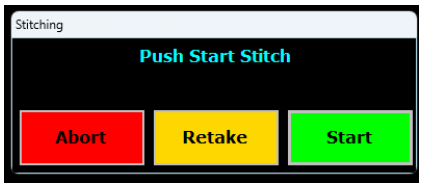
Stitching joins multiple images together to form one unified image.

The auto-stitching process joins multiple images together to form one unified image.

Button	Button Name	Button Description
	**Stitch**	Manually stitches multiple images into one image.
	**Auto Window/ Leveling**	Automatically inputs the approximate optimal window level for the exposure.
	**Free Rotate**	Rotates the image slightly using the mouse.
	**Image Overlap**	Increases or decreases the current overlap number.
	**Rotate Image**	Rotates the image 90 degrees in the specified direction.
	**Flip Image**	Flips the image either vertically or horizontally.

Auto Stitching a Scoliosis Study - KDR AU and KDR Primary

1. When you are ready to begin the exam, click the green stitching **Start** button. The Ultra software indicates that it is ready to take Shot 1.



2. Press and hold the **Move** button on the remote to move the U-Arm into the first position. The LED light on the U-Arm turns green when it is in the correct position.

3. When you reach the first position, go into the room, and position the patient on the stitching stand. Position the stand at least a fist's width away from the detector.

   Note: Collimation should be completely open on the top and bottom.

4. Manually move the U-Arm up or down to adjust the height to the desired start position (e.g., top of the ear).

   Note: The first position always starts at the top of the patient and moves down towards the patient's feet.

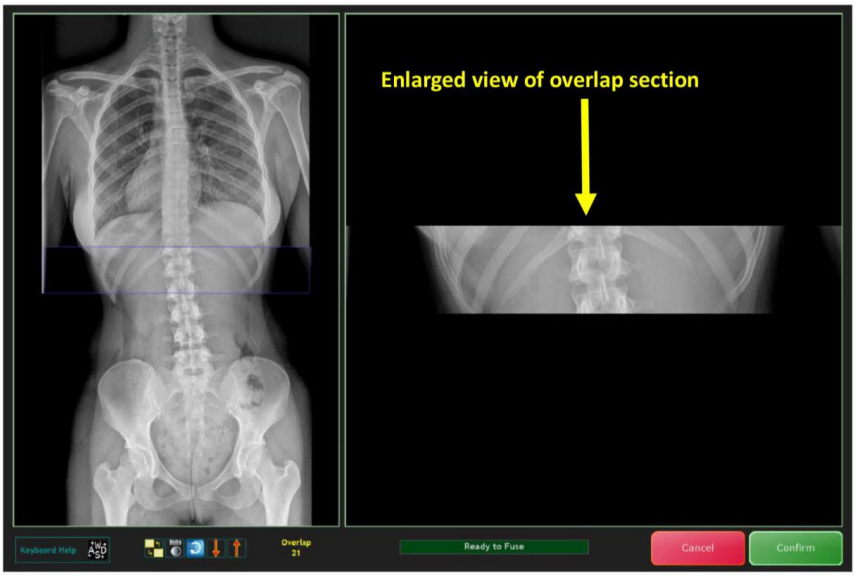
5. After setup, direct the patient to remain still and take the first exposure. The first image is displayed on the screen.

6. Review the image to make sure you have all necessary anatomy.

   Note: When reviewing images, if any are not properly exposed, click **Retake**, adjust the technique, and expose again.

7. If the image is good, press and hold the **Move** button on the remote until the LED turns green, indicating that it is in the correct position to take the next exposure.
8. When the next position is reached, take the next exposure.

9. Check the images, and ensure all desired views are taken. If another image is needed, repeat steps 7–8.
10. If the images are satisfactory and all desired anatomy is present, click the **Launch Stitch** button.
11. Make any final adjustments in the following window:



- Click on an image to drag it
- Use the **A**, **S**, **D**, and **W** keys on the keyboard to move the image in small increments
- Use the buttons on the Stitching Toolbar to make further adjustments (see the table at the beginning of this section.)

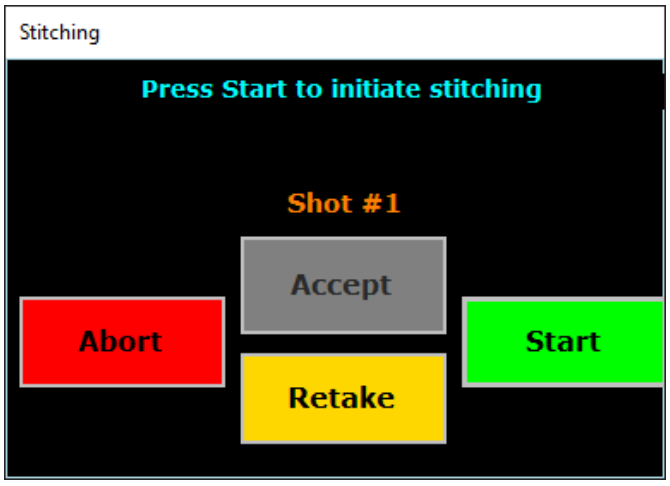
12. When the stitching alignment is set, click **Confirm**. The final stitched image is displayed in the Acquisition screen where you can make additional adjustments (window level, shutter, etc.).
13. Accept the stitched image or re-stitch the 2–4 images together again if they are not lined up correctly (see the following sections).

Auto Stitching a Scoliosis Study – Flex OTC

The collimator must use its full horizontal aspect when processing stitching functions.

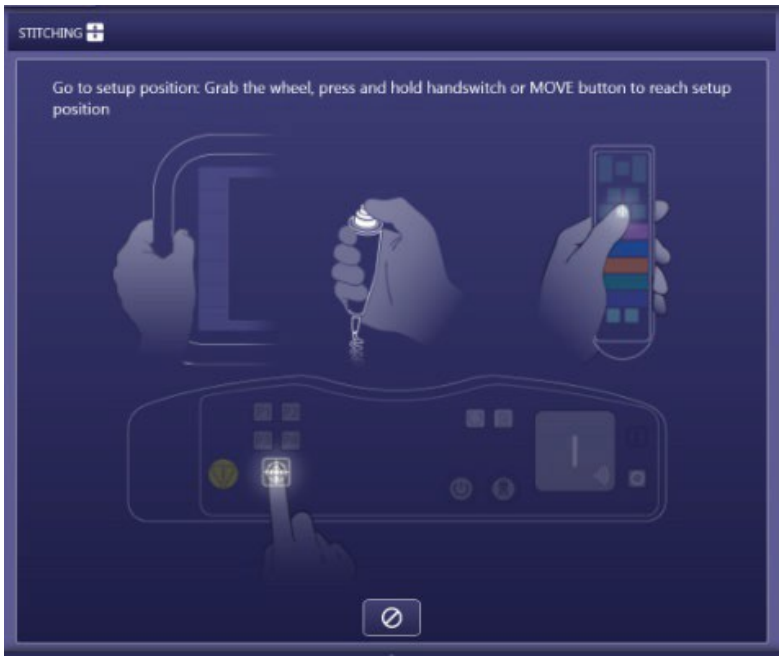
When using a rectangular panel, such as the 14”x17” AeroDR Panel, users must designate a panel orientation

1. If necessary, select the panel orientation in the Push Start Stitch area.
2. Click **Start** to begin the exam.



3. Press and hold the **Move** button until the tube reaches its initial stitching position.

4. Place the stitching stand/patient in front of the Wall Bucky.



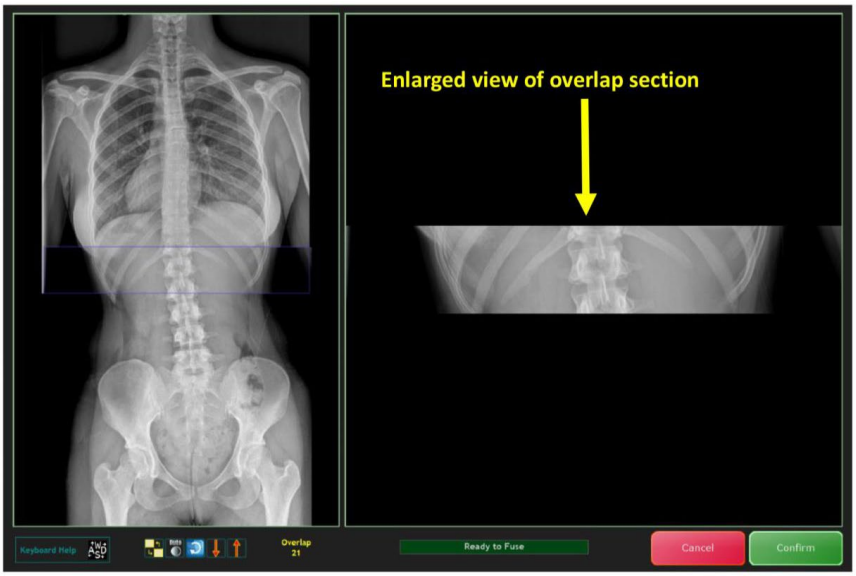
5. When the tube has reached it programmed position, angle the tube head up or down to establish the start point (depending on patient height), then click **Start Point** on the tube head screen.

6. Press and hold the **Move** button to set up the tube head for the first scoliosis exposure.
7. After setup, direct the patient to remain still and take the first exposure. The first image is displayed on the screen.

8. Review the image to make sure you have all necessary anatomy.

   Note: When reviewing images, if any are not properly exposed, click **Retake**, adjust the technique, and expose again.

9. If the image is good, click **Accept**.
10. Press and hold the **Move** button until the system is in the correct position to take the next exposure.
11. When the next position is reached, take the next exposure.
12. If the second image is good, click **Accept**.
13. Check the images, and ensure all desired views are taken. If another image is needed, repeat steps 10–11.
14. If the images are satisfactory and all desired anatomy is present, click **Launch Stitch**.
15. Make any final adjustments in the following window:



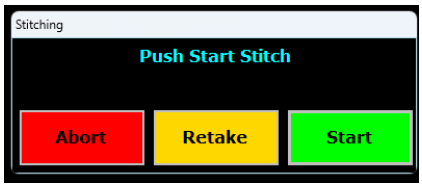
   - Click on an image to drag it
   - Use the **A**, **S**, **D**, and **W** keys on the keyboard to move the image in small increments
   - Use the buttons on the Stitching Toolbar to make further adjustments (see the table on page 62.)

16. When the stitching alignment is set, click **Confirm**. The final stitched image is displayed in the Acquisition screen where you can make additional adjustments (window level, shutter, etc.).

17. Accept the stitched image or re-stitch the 2–4 images together again if they are not lined up correctly (see the following sections).

Auto Stitching a Leg Study - KDR AU and KDR Primary

1. When you are ready to begin the exam, click the green stitching **Start** button. The Ultra software indicates that it is ready to take Shot 1.



2. Press and hold the **Move** button on the remote to move the U-Arm into the first position. The LED light on the U-Arm turns green when it is in the correct position.

3. When you reach the first position, go into the room, and position the patient on the stitching stand. Position the stand at least a fist's width away from the detector.

   Note: Collimation should be completely open on the top and bottom.

4. Manually move the U-Arm up or down to adjust the height to the desired start position.

   Note: The first position always starts at the bottom of the patient and moves towards the top.

5. After setup, direct the patient to remain still and take the first exposure. The first image is displayed on the screen.

6. Review the image to make sure you have all necessary anatomy.

   Note: When reviewing images, if any are not properly exposed, click **Retake**, adjust the technique, and expose again.

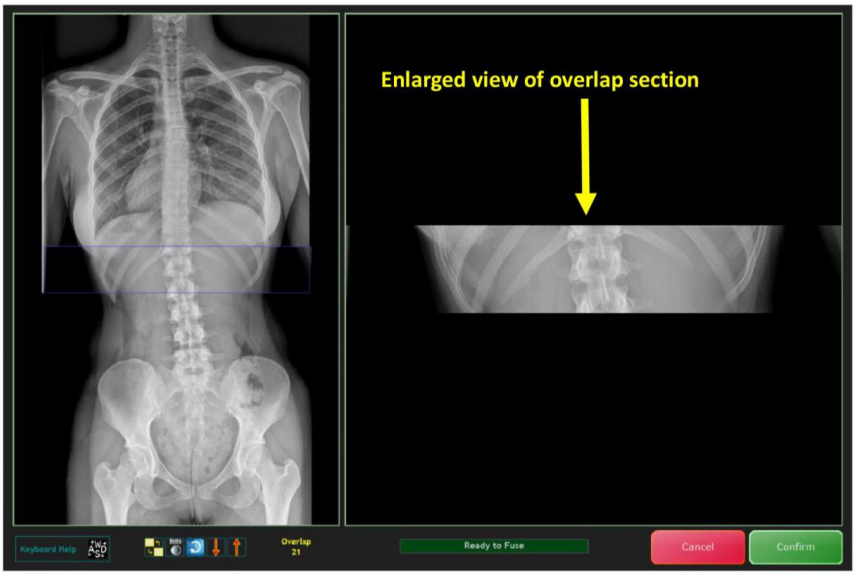
7. If the image is good, press and hold the **Move** button on the remote until the LED turns green, indicating that it is in the correct position to take the next exposure.

8. When the next position is reached, take the next exposure.

9. Check the images, and ensure all desired views are taken. If another image is needed, repeat steps 7–8.

10. If the images are satisfactory and all desired anatomy is present, click the **Launch Stitch** button.

11. Make any final adjustments in the following window:



- Click on an image to drag it
- Use the **A**, **S**, **D**, and **W** keys on the keyboard to move the image in small increments
- Use the buttons on the Stitching Toolbar to make further adjustments (see the table on page 62.)

12. When the stitching alignment is set, click **Confirm**. The final stitched image is displayed in the Acquisition screen where you can make additional adjustments (window level, shutter, etc.).
13. Accept the stitched image or re-stitch the 2–4 images together again if they are not lined up correctly (see the following section).

Restitching a Leg Length Study – KDR AU and Primary

1. Click on the first image, then right-click the **Stitch** button. 

2. Click on the second image, then right-click the **Stitch** button.

3. After all images are selected (noted by the number in the bottom left corner of each image), click the **Stitch** button to launch stitch.

4. Adjust as needed, then click **Confirm**.

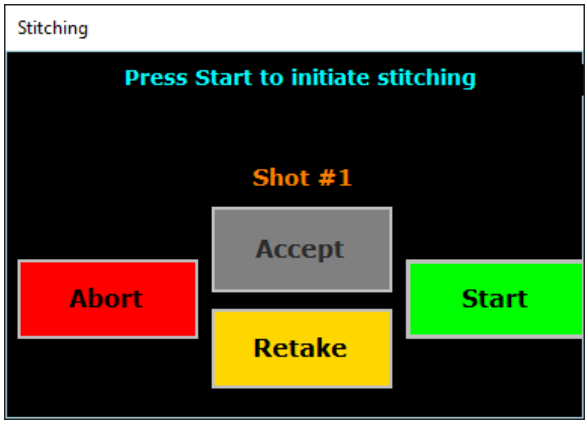
   Note: Images can be re-stitched as many times as needed.

Auto Stitching a Leg Study – Flex OTC

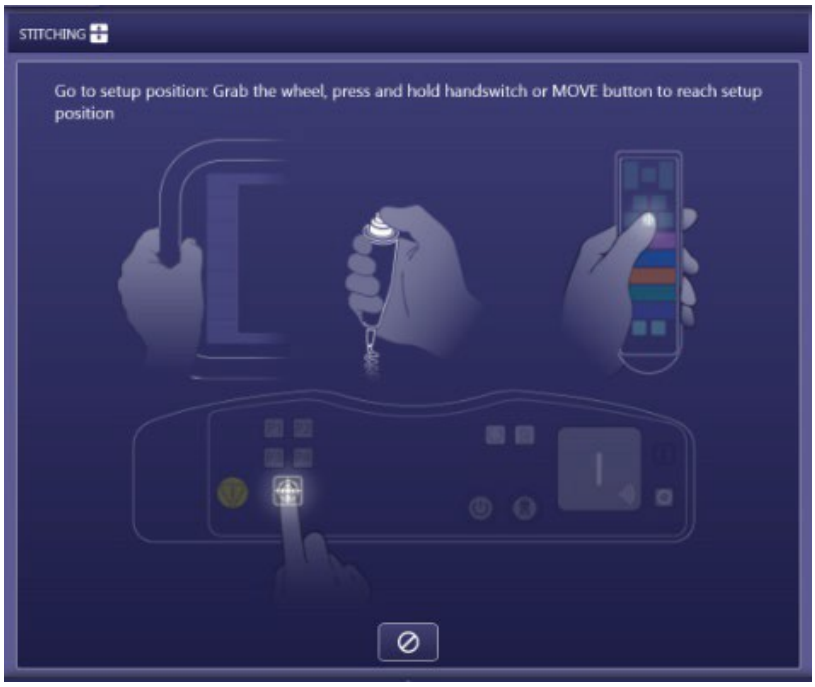
The collimator must use its full horizontal aspect when processing stitching functions.

When using a rectangular panel, such as the 14”x17” AeroDR Panel, users must designate a panel orientation

1. If necessary, select the panel orientation in the Push Start Stitch area.
2. Click **Start** to begin the exam.



3. Press and hold the **Move** button until the tube reaches its initial stitching position.
4. Place the stitching stand/patient in front of the Wall Bucky.



5. When the tube has reached it programmed position, press and hold the **Move** button while the tube head positions itself for the first ankle exposure.

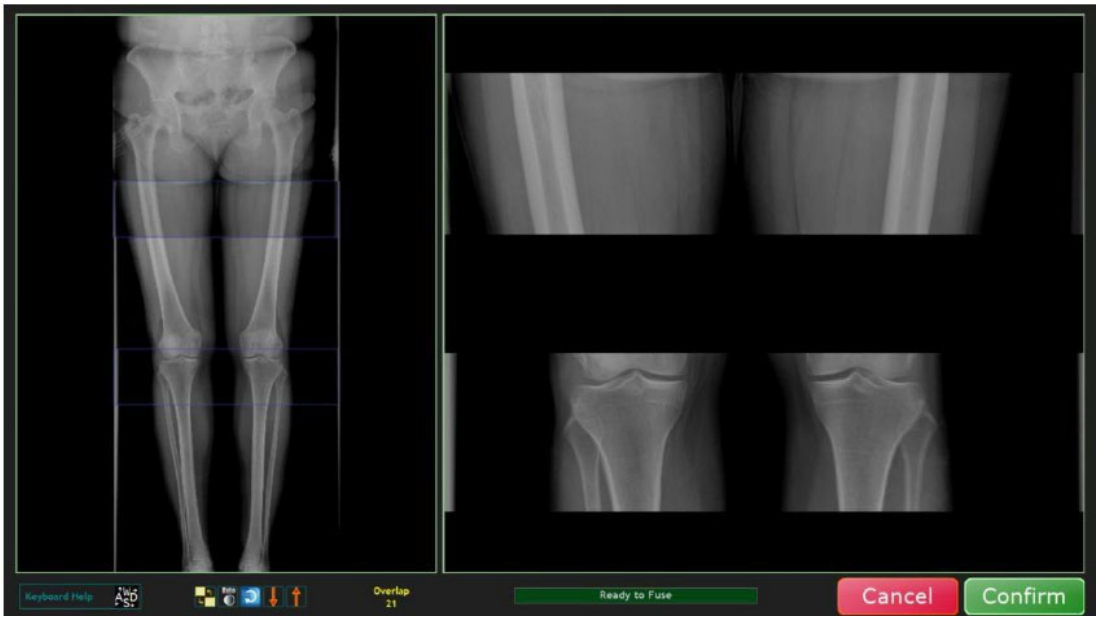
   Note: Unlike scoliosis stitching, you will not select a Start point.

6. Direct the patient to remain still and take the first exposure. The first image is displayed on the screen.
7. Review the image to make sure you have all necessary anatomy.

   Note: When reviewing images, if any are not properly exposed, click **Retake**, adjust the technique, and expose again.
8. If the image is good, click **Accept**.

9. Press and hold the **Move** button until the system is in the correct position to take the next exposure.
10. When the next position is reached, take the next exposure.

11. If the second image is good, click **Accept**.
12. Check the images, and ensure all desired views are taken. If another image is needed, repeat steps 10–11.
13. If the images are satisfactory and all desired anatomy is present, click **Launch Stitch**.
14. Make any final adjustments in the following window:



- Click on an image to drag it

- Use the **A**, **S**, **D**, and **W** keys on the keyboard to move the image in small increments
- Use the buttons on the Stitching Toolbar to make further adjustments (see the table on page 62.)

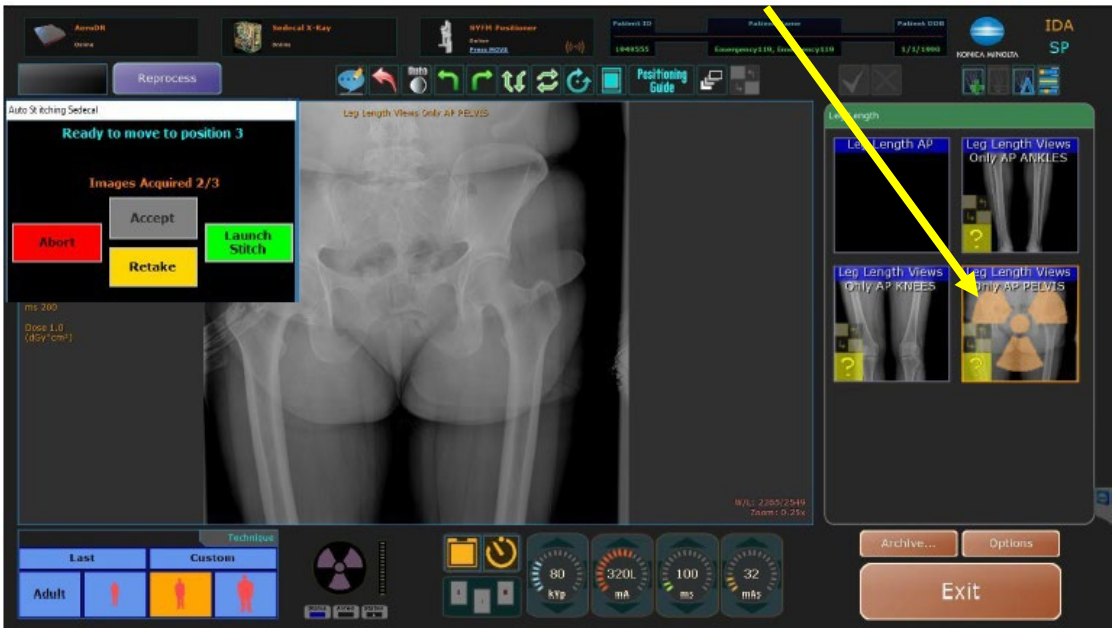
15. When the stitching alignment is set, click **Confirm**. The final stitched image is displayed in the Acquisition screen where you can make additional adjustments (window level, shutter, etc.).
16. Accept the stitched image or re-stitch the 2–4 images together again if they are not lined up correctly (see the following sections).

Restitching a Leg Length Study – Flex OTC

1. Click on the ankle image, then right-click the **Stitch** button. 

2. Click on the knees image, then right-click the **Stitch** button.

3. Click on the Pelvis image, then **left click** the **Stitch** button.



4. Adjust as needed, then click **Confirm**.

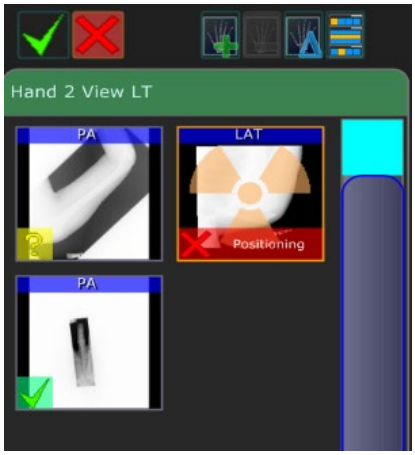
   Note: Images can be re-stitched as many times as needed. If they have already been sent to PACS, repeat this process to send another edited stitched image.

Accepting and Rejecting Images

Before you can send images to a PACS destination, all images must be marked as either accepted or rejected. You can individually reject images during an exam or collectively when you exit the exam.

> **Note**: It is good practice to reject images during the exam. Then when you exit the exam, you can **Accept All Unmarked** images.

If you do not accept or reject all images during the exam, you are prompted to accept or reject any remaining images that have a questionable status when you exit the Acquisition screen.



Accepting Individual Images

1. Select an image.
2. Click the **green check** icon to accept the selected image.

Recalling Accepted Images

If **Send on Accept** is enabled by your Administrator, you can recall an image that you may have accepted inadvertently.

After you click **Accept**, a countdown timer will appear over the **Accept** button; you have until that timer runs out to click **Accept** again, which will undo the action and prevent the image from being sent.

Note: Please be aware that if you use the Send on Accept feature to accept images as you go, you **cannot** edit those images after they are sent. Even if you immediately recall the images, your editing tools are limited to the following:

- Window Level
- Auto Window Level
- Invert

Rejecting Individual Images

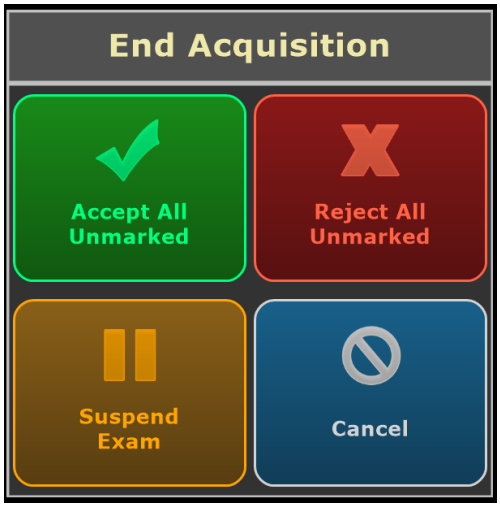
1. Select an image.
2. Click the **red X** icon to reject the selected image.
3. Select a reason for rejecting the image.

Rejecting and Accepting Unmarked Images

If you did not approve all images during an exam, you are prompted to accept or reject all unmarked images with a questionable status when you exit the Acquisition screen.

You also have the option to suspend the exam to approve images later. However, you must accept or reject all images to send the exam to PACS.

If there are any images with a questionable status, you will be prompted with the following options:



Accept All Unmarked:	Accepts and sends all images that still have a question mark in the bottom corner of the thumbnail.
Reject all Unmarked	Requires the user to provide a reason for the rejection of each image. Nothing will be sent to PACS.
Suspend Exam	Pauses the exam and returns to the Worklist. Edit patient or study information before sending to PACS.
Cancel	Returns to the acquire screen. Nothing is accepted or rejected.

Resource Materials

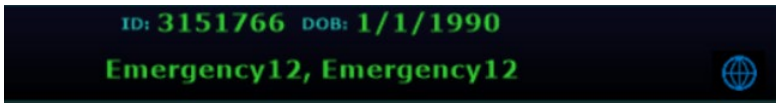
Patient Guide

The Patient Guide is a set of instructions displayed on a monitor in the exam room that helps the patient understand how to position themselves for the current exam. The system administrator will configure this feature if desired.

Note: The Patient Guide is available for both the KDR AU and the KDR Flex OTC systems.

To change the language of the Patient Guide for the current patient:

1. Click the **World** icon in the patient information box.



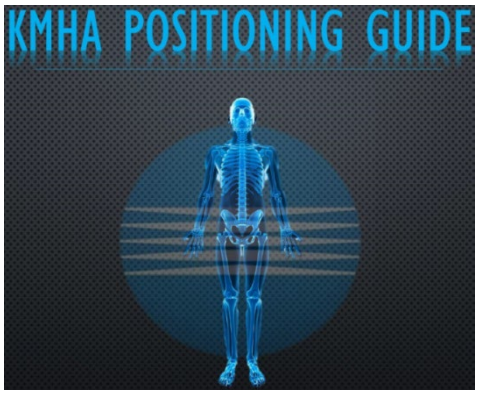
2. Click the desired language in the pop-up box:
   - English
   - Spanish
   - Greek
   - Polish

Positioning Guide

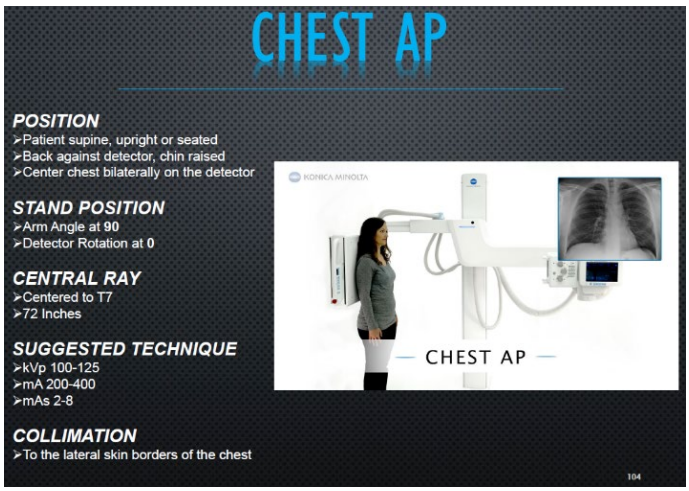
The Positioning Guide can be used as a reference for typical technique ranges, patient positioning for each body part view, and stand positioning.

The Positioning Guide can be configured so that when you click the Positioning Guide button, it will automatically open to the page of your currently selected view.

1. Click the **Positioning Guide** button on the Acquisition screen toolbar.



2. Scroll to the **Table of Contents** and click a link to go to a page for the view for each type of exam.



3. Click the **red X** at the top left corner to close the document.

Displaying Positioning Guide Images on the Acquisition Screen

You can opt to display Positioning Guide images on the image area of the Acquisition Screen during an exam. To enable this feature, complete the following steps:

1. On the Ultra Worklist, click the **Options** button, then the **User Interface** tab.
2. Under Acquisition Screen, set the **Pos Guide Show on Preview** option to **True**.
3. Click **Apply**.

Storing and Sending Images

Manually Sending Images to a PACS Destination

Ultra can obtain two types of image data:

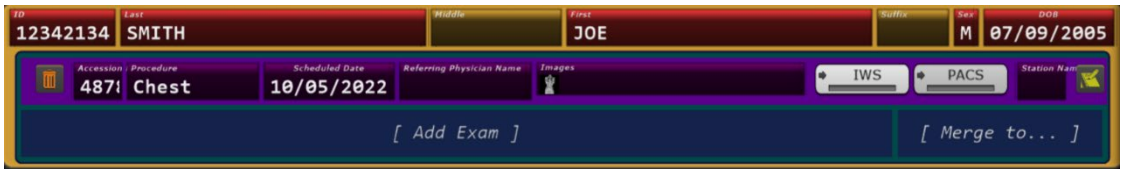
- **GIMG:** Image data with only basic corrections and grid removal
- **CIMG:** Image data with basic corrections, grid removal, noise reduction, and logarithmic conversion

Traditional PACS destinations accept CIMG image data, but IWS servers also accept GIMG data to allow for its own processing. Images acquired in Ultra that meet the criteria for sending to IWS will have GIMG image data temporarily stored and sent to IWS.

The system can be configured to **automatically** send images to a PACS destination after accepting the image and exiting the exam; or they can be **manually** sent after an exam is complete.

To manually send images:

1. Select a patient exam from the **Completed** tab in the Worklist.
2. In the expanded exam view, locate the **Send Destination icon(s)** displayed to the right of the list of exams.



For systems with multiple send destinations configured, multiple icons are displayed.

3. Click on the destination PACS icon(s) you are sending the study to. The button changes to blue and a progress bar is displayed on the icon while the transfer is in progress.

The destination icon(s) turns green after the images have successfully been sent to their destination PACS server(s).

Note: Destination Icons have the following status colors:

- **Gray** – Not sent to PACS.
- **Blue** – Send in progress.
- **Green** – Sent successfully.
- **Red** – Send failed.

PACS Send Error

Ultra can be configured so that if an error occurs or if images fail to send to PACs, the Completed tab is outlined in red, and a gear error icon is displayed on the tab itself.

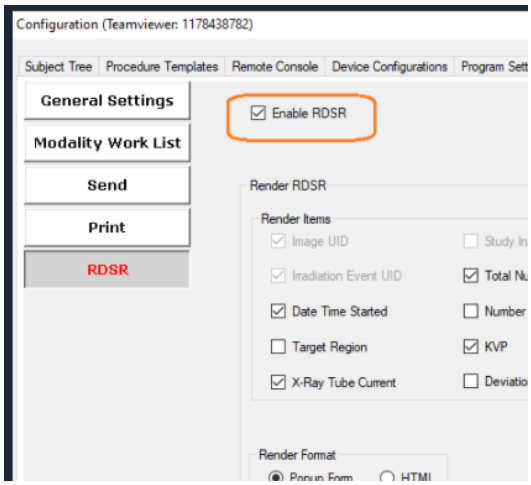
Note: The Completed tab is outlined in blue if Ultra has been configured to restrict red UI usage.

Radiation Dose Structured Reporting (RDSR)

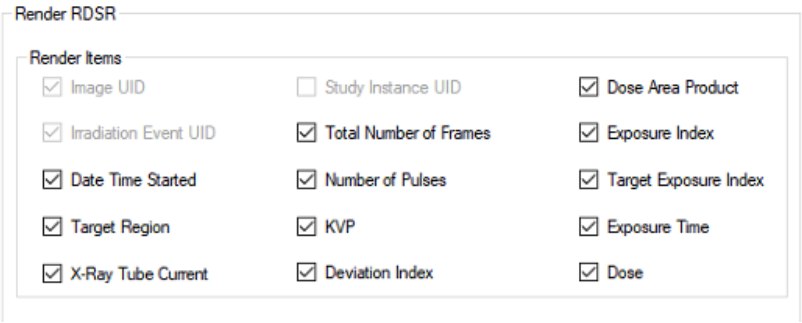
Ultra can be configured to send a Dose Structured Report to a PACS system in a DICOM file. The report can also be rendered in ULTRA.

Configuring RDSR

1. Click the **Options** button, then the **DICOM Settings** tab.
2. Click the **RDSR** button.
3. Check the **Enable RDSR** box.



4. Check/uncheck **Render Items** options.

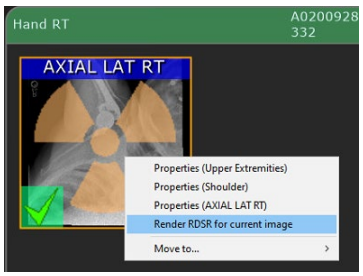


Note: Options that are grayed out cannot be selected; checked options are included in the report.

5. Under Render Format, click either **Popup Form** or **HTML**.

To render RDSR for an Image already captured:

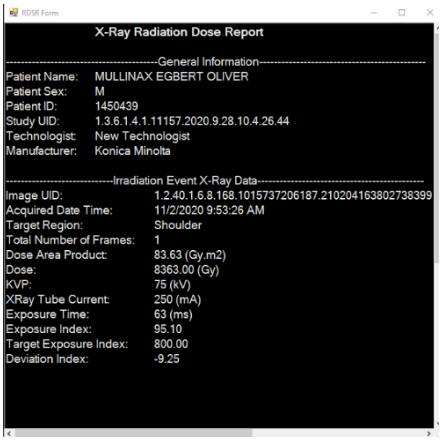
1. In the Acquisition screen, right click on the thumbnail of the image in the right pane.



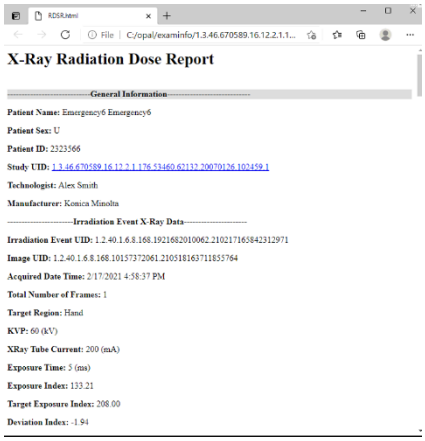
2. Select **Render RDSR for current image**.

The X-Ray radiation dose report opens as a pop-up or HTML.

Pop-Up

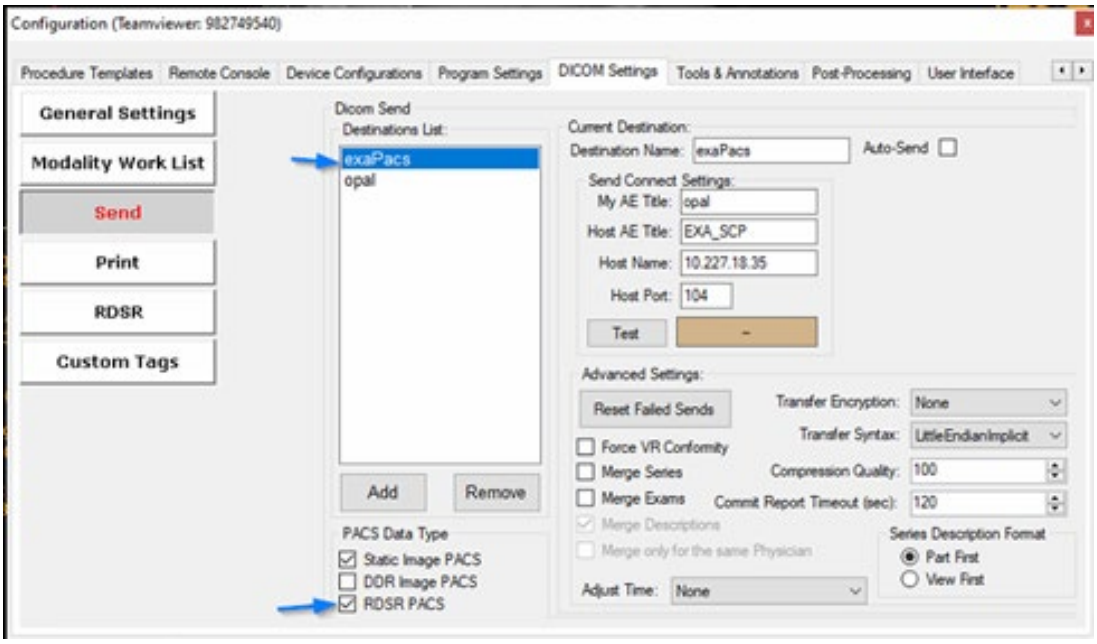


HTML



Enabling RDSR Feature to Send Dose Reports to RDSR-Designated DICOM PACS Destinations

RDSR DICOM files can be sent to PACS destinations. The option is configured on the DICOM Settings tab.



Note: RDSR must be enabled before configuring to send RDSR data to PACS. Refer to Configuring RDSR.

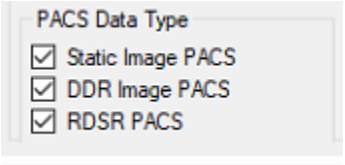
Configuring RDSR data to send to PACS

1. Click the **Options** button, then the **DICOM Settings** tab.
2. Click the **Send** button.
3. Select a Destination from the Destinations List.
4. Check the **RDSR PACS** box.

Configuring Different PACS Data to be Sent to Different PACS Destinations

Different PACS data (Static, DDR, RDSR) can be configured to send to different PACS destinations in the Configuration window.

1. Click the **Options** button, then the **DICOM Settings** tab.
2. Click the **Send** button.
3. Click on the Destination in the list.
4. For the selected destination, check one or more options: **Static Image PACS**, **DDR Image PACS**, **RDSR PACS**.



5. For additional destinations, select the destination and repeat steps 3–4.
6. Click **OK** or **Apply** to save the changes.

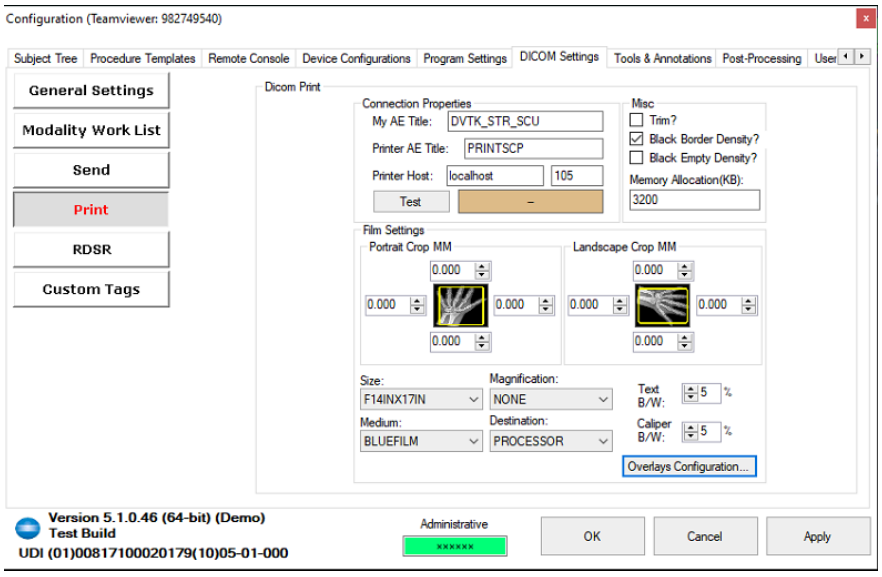
Configuring Print Settings

Prerequisite: DICOM printer is available and configured as per DICOM Printer manufacturer's instructions.

To configure the DICOM printer:

1. Click the **Options** button, then the **DICOM Settings** tab.

2. Click the **Print** button.

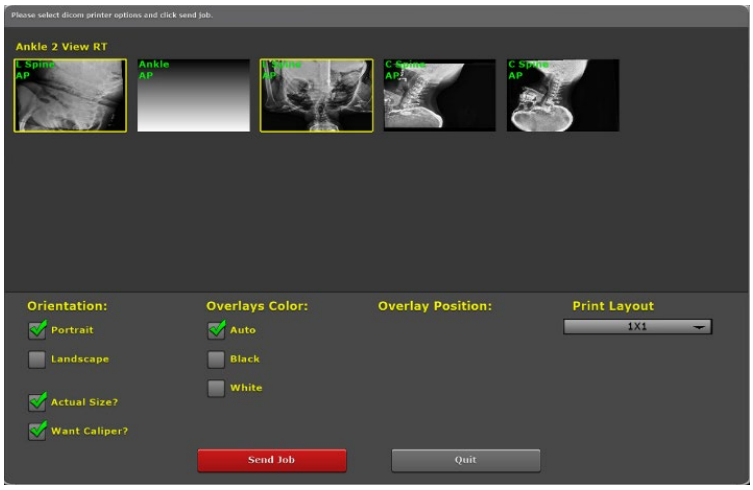


3. Under Connection properties complete the following fields:
   - **My AE Title**
   - **Printer AE Title**
   - **Printer Host:** <IP address of printer> or <hostname>
   - **Printer Host:** Port Number

   Note: Refer to the DICOM printer's configuration for these values.

4. Adjust Film Settings.

5. Click **Overlays Configuration** to adjust DICOM print overlays.



6. Click **OK** or **Apply** to save the changes.

Printing and Saving Exam Studies to a Storage Device

Click the **More** button at the bottom of the Worklist to export studies and images to a selected media format. You can burn a completed study and images to a **CD/DVD**, copy to an **External drive**, or print to a **DICOM printer**.

1. From the **Completed** tab, select a completed study and click **More**.

   Each exam within the patient study will be included by default. All included exams will be highlighted in blue.

2. Right-click any blue highlighted exam to exclude it from burning, saving, or printing. Right-click an excluded exam again to include it.

Burning a Study to a CD/DVD

1. Click the **Burn** button from the **More** menu.
2. Insert a blank CD/DVD in the drive.

   Note: The “Please wait…” status message is displayed until a CD/DVD is recognized in the drive. After the disc is ready, the status message changes to “Burner Ready”.

3. Select **Burn Options** as needed. When saving images, you can include the Opal Viewer, remove patient demographics, or compress the saved images.
   - **Include Viewer** (default) – Burns the CD/DVD with the Ultra Viewer executable included. Including the viewer makes viewing images easy from any computer.
   - **Anonymize DICOMS** – Removes all patient demographic and personalized information and replaces it with generic first and last names.
   - **Compression** – Saves the file in a compressed format, which reduces the file size and enables more storage.
4. Click **Start** to begin burning the disc. The progress indicator is displayed in the top left corner.
5. Remove the CD/DVD after the progress indicator displays **Done**.

Copying a Study to an External Drive

1. Click **USB** from the **More** menu.
2. Insert an USB external drive.

   Note: Until an external drive is inserted, a status message displays “USB Drive Not Connected”. After the drive is ready, the status message changes to “USB Drive Connected”:

3. Select **USB Options** as needed. When saving images, you can include the Opal Viewer, remove patient demographics, or compress the saved images.

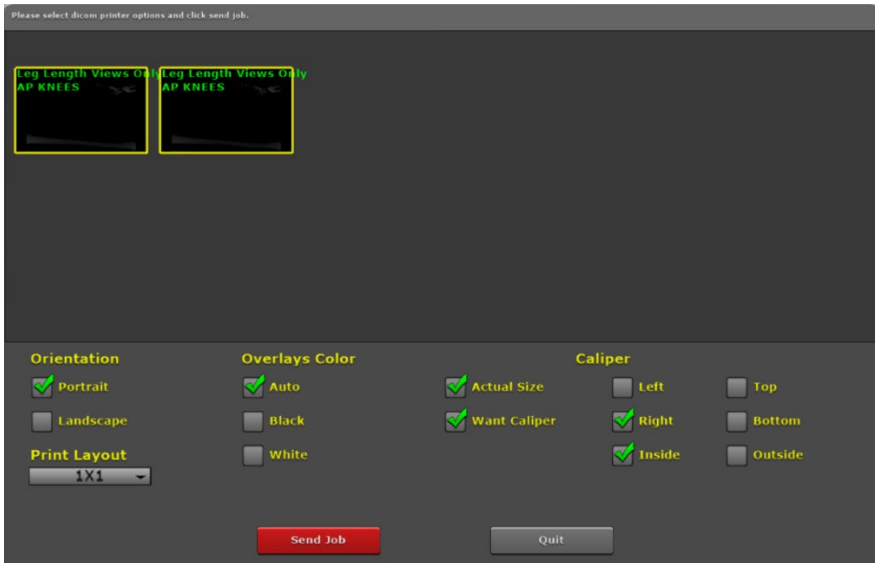
   If more than one USB drive is inserted, click the 3 dots button to navigate to the appropriate USB drive.

4. Click **Start** to begin copying the patient study and exam images to the USB drive. The progress indicator is displayed in the top left corner.
5. Remove the USB drive after the progress indicator displays **Done**.

Printing a Study to a DICOM Printer

1. Click the **Print** button from the **More** menu.

2. Click on the image(s) you want to send to a **DICOM printer**. A yellow border will surround each selected image.



3. Select **Print Options** as needed.
   - **Orientation** – Portrait or Landscape. (**Portrait** is the default)
   - **Print Layout** – Number of rows and columns. (**1x1** is the default)
   - **Overlays Color** – Auto, Black or White. (**Auto** is the default)
   - **Caliper** – Includes the following options:
     - **Actual Size** (default)– Prints the actual size of the image. Deselecting this option utilizes the Print to Fit feature.
     - **Want Caliper** (default)– Includes the measurement tool in the images.
     - **Caliper Positions:**
       - **Top, Bottom, Left or Right** – Right is the default.
       - **Inside or Outside** – Inside is the default.
4. Click **Send Job** to print the image(s). The progress indicator is displayed in the top left corner.

Tracking Changes

Change Logs can be used to determine who has made changes to the Image Processing properties and parameters.

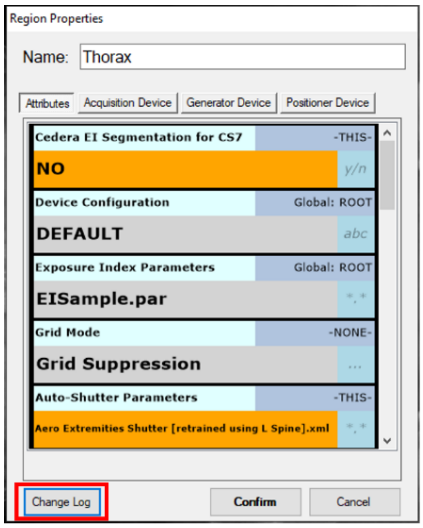
Note: Changes are not tracked by default. This functionality must be enabled. Refer to the Ultra Administrator's Manual for more information.

Viewing a Change Log

Changes to **Subject Tree** or **Image Processing** properties and parameters require the user to enter their Technologist name and password.

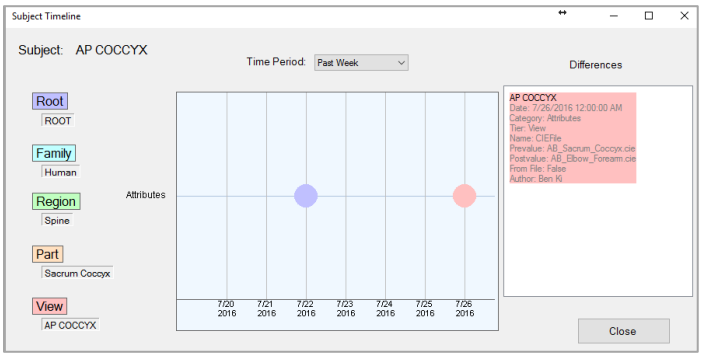
Note: When a Konica Minolta DR Apps team member makes any changes to the package or filters, they will enter their name and password under the Non-Technician section.

Changes are tracked and can be reviewed by selecting **Change Log** from the Image Processing properties.



1. Do one of the following:
   - Right-click on a view, part, region, family, or global section from the Subject Tree and select **Properties**.
   - Right-click on a view, part, or region from the Acquisition screen and select **Properties**.

2. Click **Change Log** in the bottom left corner of the properties window. The Subject Timeline opens.



The preceding screenshot is an example of changes made to selected Subject: AP Coccyx and color-coded Root, Family, Region, Part, and View.

The chart in the middle presents a timeline of changes that have been made associated with the selected level. In this example, the blue circle represents a change made to the Root properties on 7/22/2016. The red circle represents changes that were made to the View properties on 7/26/2016.

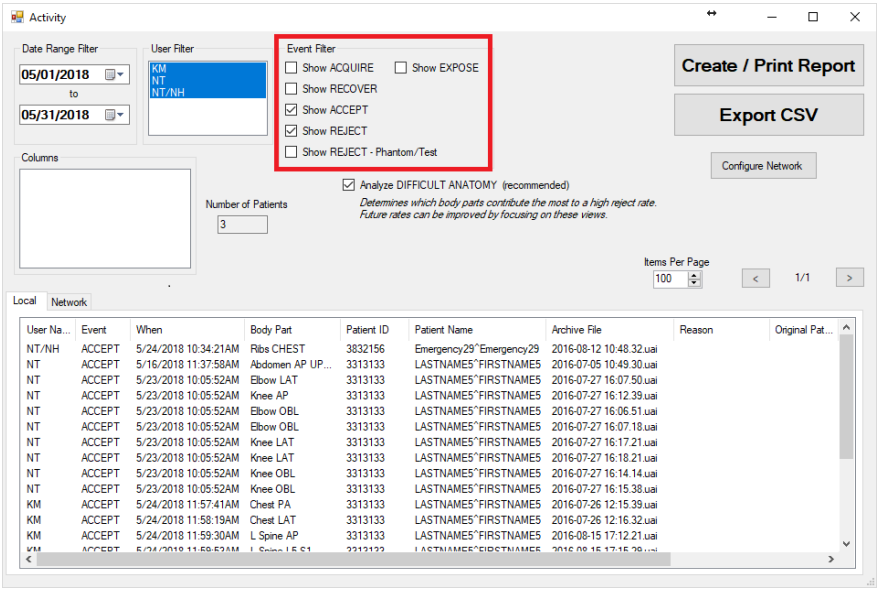
Note: Clicking on the blue or red circle populates the differences column.

Generating a Reject Analysis Report

Change Tracking logs can be used to generate a **Reject Analysis** report. This report can be created for an individual technologist or on a global scale.

1. From the Worklist, click the **Options** button, then the **Program Settings** tab.
2. Under System, click **Activity (old)** to open the Activity Log.

   The Activity log by default displays both Accepted and Rejected events. To create a **Reject Analysis Report**, check only the **Show Reject** box under Event Filter.



3. Adjust the date range, user, and event filters as needed.
   - **Date Range filter** – Specifies the range of dates to query.
   - **User filter** – Lists all technologists by default. Select one or more to filter by technologist.

- **Analyze Difficult Anatomy** – Generates a list of body parts that contributes the highest reject rate.
- **Items Per Page** – Displays 1-250 items per page.

The **Event List** has two tabs: **Local** and **Network**. When Ultra is configured with the IP addresses for other Ultra workstations, such as satellite offices, all events for all offices can be reviewed by clicking the **Network** tab. Refer to Ultra Administrator's Manual for more information.

Printing a Reject Analysis Report

1. Generate a Reject Analysis report.
2. Click **Create/Print Report**.
3. Select a printer and click **OK**.
4. In the Ultra Print Preview box, click the **Print** icon.

Exporting Report as a CSV File

1. Generate a Reject Analysis report.
2. Click **Export CSV**. A Save File dialog opens.
3. Select the folder location where you want to save the report.
4. Name the file and click **Save**.

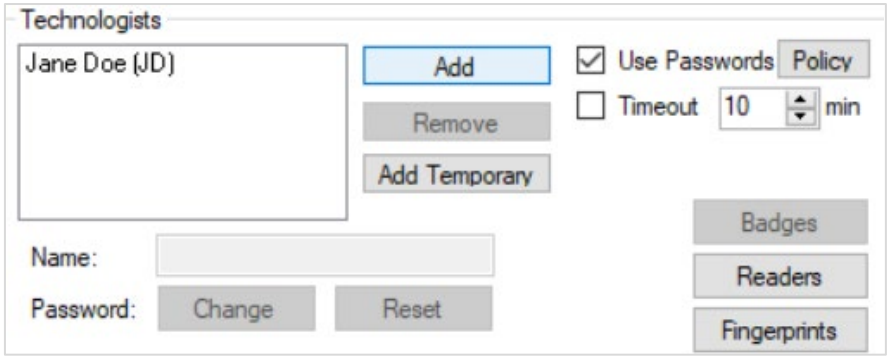
After saving the file, the file can be viewed, printed, or saved to an external drive as needed.

Admin and Technologists

Ultra software is created with a single Administrator account that can be used to set up and enter new technologists and adjust configured settings. The Technologist role can operate the software within the settings configured by the administrator. The User has the responsibility to maintain and/or restrict access to the Administrator account.

Adding a Technologist

1. Click the **Options** button, then the **Tools & Annotations** tab.
2. Under Technologists, click the **Add** button.
3. Enter the name of the Technologist.
4. Repeat steps 2–3 to add more technologists.
5. When you are done, click **OK** or **Apply** to save the changes.



Technologist Passwords

1. Click the **Options** button, then the **Tools & Annotations** tab.
2. Check the **Use Passwords** box.
3. Under Technologists, click the **Add** button.
4. Select the name of the Technologist.
5. Click **Password: Change**.
6. Enter and confirm the password.
7. Click **Accept**.

8. Repeat steps 4–7 to set a password for additional technologists.
9. Click **OK** or **Apply** to save the changes.

Configuring a Policy for Passwords

1. Click the **Options** button, then the **Tools & Annotations** tab.
2. Under Technologists, check the **Use Passwords** box.
3. Click the **Policy** button.
4. On the Password Policy pop-up, configure the following options:
   - **Minimal Password Length:** Sets the minimum required length of the password.
   - **Password needs at least one special character:** Determines whether the password requires a special character.
   - **Password needs at least one Alphanumeric character:** Determines whether the password requires an alphanumeric character.
   - **Expire Password in _ day(s):** Sets the number of days before the password expires.
5. Click **OK** to save the changes or **Cancel** to exit without saving the policy.

Adding Technologist Timeout Protection

Optionally, you can enable a feature so that a technologist will be logged out automatically after a specified period of inactivity. To enable this feature:

1. Click the **Options** button, then the **Tools & Annotations** tab.
2. Under Technologists, check the **Use Passwords** box.
3. Check the **Timeout** box.
4. Click the up and down arrows to set the number of minutes of inactivity (up to 60) before the technologist is automatically logged out.

   If the **Timeout** box is not checked, the technologist login will never time out.

Settings and Adjustments

Adjusting the Annotation Order in Settings

The order of annotations displayed in the annotations dialog of the Acquisition screen can be configured in the settings page.

1. Click the **Options** button, then the **Tools & Acquisitions** tab.
2. Select an annotation from the list under **Custom Text Annotations**.
3. Click the **Up** or **Down** buttons to move the annotation up or down in the list.
4. Click **Apply** to apply the changes.
5. Click **OK** to close the Configuration screen.

Adjusting the Annotation Text Color in Settings

The text color of annotations displayed after adding them to the image in the Acquisition screen can be configured in the settings page.

1. Click the **Options** button, then the **Tools & Acquisitions** tab.
2. Click **Annotation Color**.

3. Select a color from the color grid and click **OK**.
4. Click **Apply** to apply the changes.
5. Click **OK** to close the Configuration screen.

Procedure Template Editor in Settings – Unassign, Remove Selected, and Copy

The **Unassign** button returns the selected procedures alias name to the Unassigned aliases list.

1. Click the **Options** button, then the **Procedure Templates** tab.
2. Under **Assigned Aliases** click the name of an alias.
3. (Optional) Click **Copy Name** to copy alias name to clipboard.

4. Click **Unassign**.

   The procedure is removed, and the assigned alias name is returned to the Unassigned aliases list.

5. Click **Apply** to save changes.

Proceed with the remaining steps if you wish to delete the alias name from the Unassigned alias list:

6. Select an alias name in the Unassigned Aliases list.
7. Click **Remove Unassigned**.

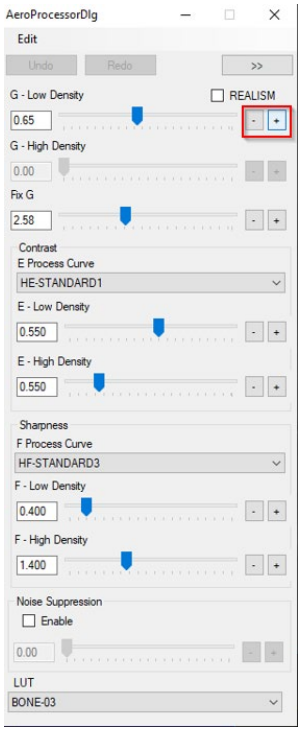
   The selected alias name in the **Unassigned Alias** list is removed.

8. Click **Apply** to save changes.

Regius Tuner Popup – Fine Tune

The Regius tuner popup can be used to adjust the density values in small increments.

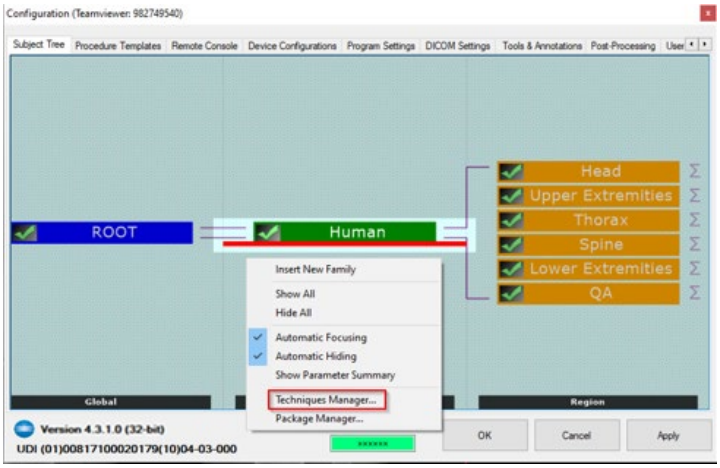
1. In the Acquisition screen, press **Ctrl+O** to launch Regius tuner popup.
2. To increase or decrease the density values in smaller increments (Fine Tune), click the **+ / -** buttons.



Exporting Techniques Manager to .csv Format

The techniques manager can be exported to csv format.

1. Click the **Options** button, then the **Subject Tree** tab.
2. Right click on the blank area and select **Techniques Manager**.



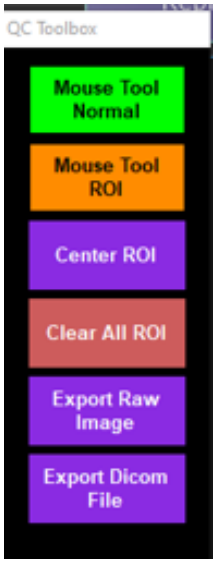
3. Click **Export File.**
4. Navigate to the location where you want to save the file. Enter the filename and select.**csv** as the type.
5. Click **Save**.

Physicist Mode - ROI

Physics tools are used for image diagnostics. These tools are designed for use by engineers or technicians only.

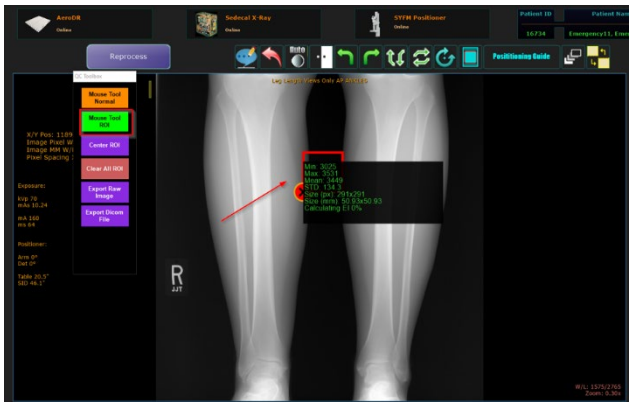
The ROI tool is a click and drag utility that enables you to draw a box around a portion of the image to determine the values of that selected area. As the box is resized, the dimension of the custom ROI being drawn is displayed.

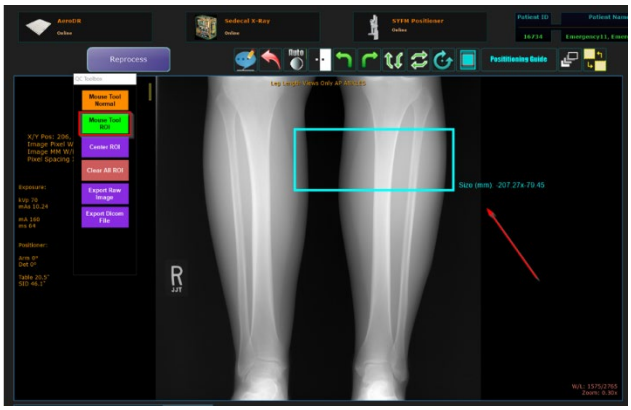
1. Acquire an image.
2. In the Acquisition screen, right-click the **Annotation** button. The QC toolbox opens.



- **Mouse Tool ROI**: The ROI tool is used to identify a Region of Interest in an image and review the values of that selected region.

  Click **Mouse Tool ROI** and click on a desired area of the image to draw a 51 x 51 mm ROI.





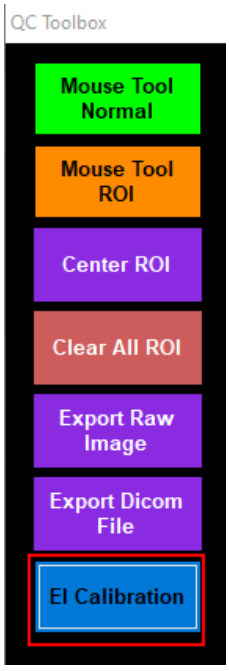
- **Center ROI**: Click **Center ROI** to automatically draw a 51x51 mm ROI at center of the image.

EI Calibration Tool

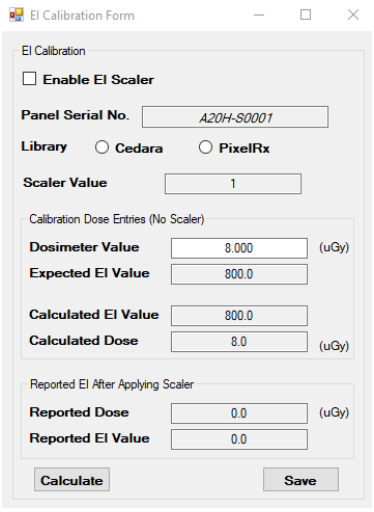
The EI Calibration Tool enables users to configure, maintain per-panel EI scaling capability and able to enter/modify fine-tune parameters per-panel.

Note: The setting Options> [Developer]> Restrict El Calibration must be set to **True**.

1. Acquire an image.
2. In the Acquisition screen, right-click the **Annotation** button. The QC toolbox opens.

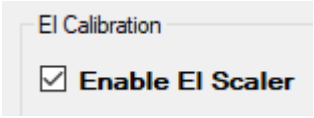


3. Click **EI Calibration**. The EI Calibration form is displayed.



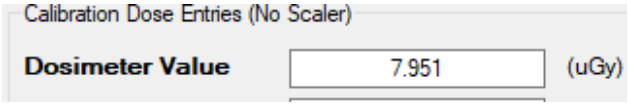
The dose/EI values of selected ROI are reported from Regius EI Calculation Framework for Aero panels. The dose/EI reported for the central ROI to perform EI Fine-Tune Calibration Per-Panel procedure for Regius EI Calculation Framework.

a. To Enable EI Scalar, check the **Enable EI Scaler** box.



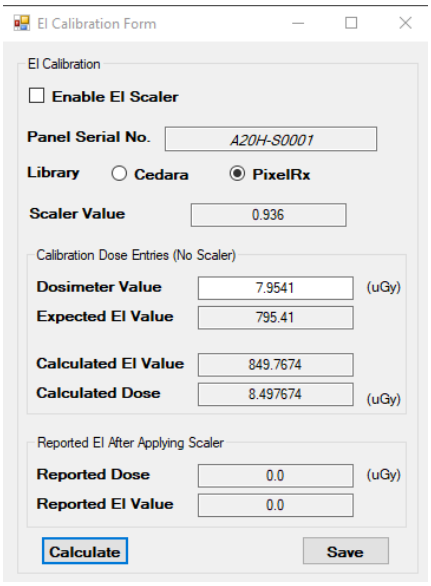
b. Click an EI Calculation Framework Library, Cedara or PixelRx.

c. Adjust the Calibrated Dosimeter Value (µGy).



d. Click **Calculate**. The EI Calibration form is updated.

- **Expected EI Value** of the calibrated dosimeter in units of EI (=100x µGy).
- **Calculated EI Value** of the fixed center ROI for the current connected panel when Scaler is OFF in units of EI.
- **Scaler Value** is the result of Expected EI Value of the calibrated dosimeter dividing Calculated EI Value of the fixed center ROI.
- **Reported EI Value** is the result of applying Scaler Value to Calculated EI Value.



4. Click **Save** to record all the parameters of EI calibration for the calibrated panel.