KONICA MINOLTA

Ultra

Version 5.3.11.0

Operator's

Manual

Table of Contents

Revision History

Revision	Date	Reason for Change
A	12/31/2023	New manual for Ultra software version 5.3.11.0

KONICA MINOLTA

Distributed by:

Konica Minolta Healthcare Americas, Inc.
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Garner, NC 27529
1-800-366-5343

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 designed to increase patient throughput while minimizing data input errors. Ultra is made up of multiple components that increase efficiency while minimizing errors. The main components of Ultra are the Worklist, Acquisition Interface and Configuration Utility. These components combine to 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 Exam 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

- System Icons

- 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 which does not necessarily relate to possible injury or damage to equipment.

Example: Examples illustrate information to further elaborate on how to perform 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 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. Instead of X-ray film, digital radiography uses a digital image capture device.

Definitions	
Flat Panel Detector (FPD)	The panel used in digital radiography to capture X-ray information and convert 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 Work List (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 which 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.
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).

Definitions	
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
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 equipment 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 utilizing stitching stands for contiguous long leg and scoliosis exam images. And a series of images can be merged into one image before being 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!	
⚠	Operator 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 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 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

Ultra Worklist Screen

Ultra Tabs

Ultra Icon Glossary

The following icons are displayed at various times when using the Ultra software.

Icon	Icon Name	Icon Description
	Ion Chamber Icon	Indicates that the exposure mode is phototimed.
	Technologist / Initials Icon	Displays the initials of the selected technologist of record for the exam.
	DR Panel Battery Indicator Icon	Displays the charge level of the DR Panel battery. (Wireless DR panels only)
	DR Panel Battery Dead Icon	Displays when a wireless DR panel battery is fully discharged or when the panel is turned off. (Wireless DR panels only)
	Grid In/Grid Out Icon	Select the appropriate icon depending upon whether to include grid suppression filtering.
	Groups Icon	Displays multiple Technologists so that each acting Technologist can be selected individually.

Icon	Icon Name	Icon Description
	Options Icon	Launches the Options menu to configure settings for Ultra and attached devices. A password is required.
	Exit Icon	Logs off the Ultra software.
	Home Icon	Clears all search filters and returns the display to the default unfiltered view.
	Refresh Icon	Refreshes the Ultra Worklist screen.
	Questionable Status Icon	Indicates a decision to accept or reject an image is required.
	Accept Image Icon	Accepts the selected image.
	Reject Image Icon	Rejects the selected image.
	Reset Icon	Removes all applied post-processing to an image and resets it to its original raw image state.
	Missing Image Icon	Indicates that an image is missing for a selected exam.
	Annotations Icon	Provides the ability to annotate an image.
	Rotate Annotation Icon	Rotates the image annotation 90 degrees clockwise.
	Alternate Grid Suppression Icon	Enables users to apply a secondary filter to suppress gridlines if configuration allows.
	Stitching Icon	Manually stitches multiple images into one image.
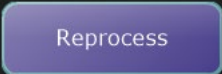
Icon	Icon Name	Icon Description
	Window/Leveling Icon	Enables users to manually enter the window level for an exposure.
	Auto Window / Leveling Icon	Automatically inputs the approximate optimal window level for the exposure.
	Invert Image Icon	Inverts the current image.
	Reset Image Icon	Resets the current image.
	Image Overlap Icons	Increases or decreases the current overlap number.
	Rotate Image Icons	Rotates the image 90 degrees in the specified direction.
	Free Rotate Image Icon	Rotates the image slightly using the mouse.
	Flip Image Icons	Flips the image either vertically or horizontally.
	Crop Image Icon	Crops the current image.
	Merge Images Icon	Merges images into a single image.
	Combine Images Icon	Combines many images into a single image.
	Positioning Guide Icon	Opens the *Positioning and X-Ray Technique Guide*.
	View/Edit ROI Icon	Enables the user to edit the region of interest.

Icon	Icon Name	Icon Description
	Pan Icon	Enables the user to pan the image within the image view area.
	Trim Image Icon	Generates a new image sequence using only the currently selected portion of the frame sequence.
	Trim Subimage Icon	Generates a new image instance of the currently displayed frame sequence.

Ultra Button Glossary

The following buttons are displayed at various times when using the Ultra software.

	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.
	EMERGENCY	Enables users to complete a patient exam without entering any patient information. Generic info will populate into the fields. (These fields will need to be filled in with correct patient information before sending the completed emergency exam to a PACS server.)
	QUERY	Performs a MWL Query for any configured modality worklist provider and populates the Ultra Worklist screen with any resulting patient exams.
	MORE	Launches the More options menu to enable users to either 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 **UAI Acquire** screen and populates the appropriate acquire fields with the selected exam information.
	REPROCESS	Initiates a reprocess request.

Logging into Ultra

Depending upon how Ultra is configured, registered users can log into Ultra as follows:

- Select their name on the worklist screen

  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 into Ultra by scanning your assigned RFID badge.

When no users are registered in Ultra, the technologist icon is displayed on the Ultra Worklist screen with question marks.

After users are registered in Ultra, their names and initials are selectable in the Acting Radiologic Technologists dialog.

When multiple technologists are necessary for a procedure, click the multiple technologist icon.

When a user is logged into Ultra, the technologist icon is displayed on the Ultra Worklist screen with their initials.

When multiple users are logged into Ultra, the technologist icon is displayed on the Ultra Worklist screen with their initials.
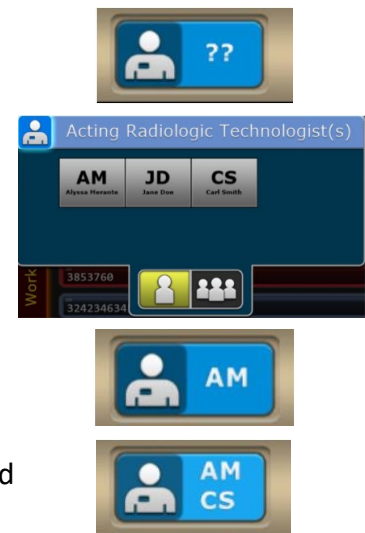
Logging Off Ultra and Shutting Down the Ultra PC

To log off or shut down Ultra, do the following:

1. Click the **Exit** icon.

2. Do one of the following:

    a. Select **Log Off** to log off the Ultra PC without shutting down.

    b. Select **Shut Down PC** to log off Ultra and shut down the Ultra PC.

    c. Select **Cancel** to continue in Ultra.

Powering Off or Rebooting the OTC Flex System

From the KDR OTC Flex System

When using the KDR OTC Flex system, the System Reset and Power Off buttons (indicated below) will initiate an entire system power off sequence. When the button is pressed, a confirmation message is displayed on the tube console and in Ultra. The user must select **OK** either on the tube console or in Ultra to initiate the shutdown.

To power off or reboot the OTC Flex system from the KDR OTC Flex system:

1. Select either the **System Reset** or **Power Off** button on the control panel.

2. From the tube console, click **OK** to continue with the selected power sequence.

From the Ultra Software

To power off or reboot the OTC Flex system from within Ultra:

1. Select either the **System Reset** or **Power Off** button on the control panel.

2. In Ultra, one of the following messages will open. Click **OK** to continue with either the power off or the reboot sequence.

Navigating the Ultra Worklist Screen

Adjusting the Size of the Worklist Screen

Change the display size of the exam views within the **Worklist** screen by holding down the **CTRL button** and either pressing **+** to increase the size or pressing **–** to decrease the size of the exam views.

Worklist Screen Colors

Each worklist exam entry is color coded based on the current 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 in 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:

Configuring the Worklist

The Ultra software provides the ability to configure how patients are displayed and sorted on the Modality Worklist (MWL) and Completed tab. Each tab can be sorted by alphabetical order, completed time, or scheduled time.

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

- Last Name

- First Name

- Accession Number

- Scheduled Date

- Open Date

Configure these options in **Configuration> User Interface**.
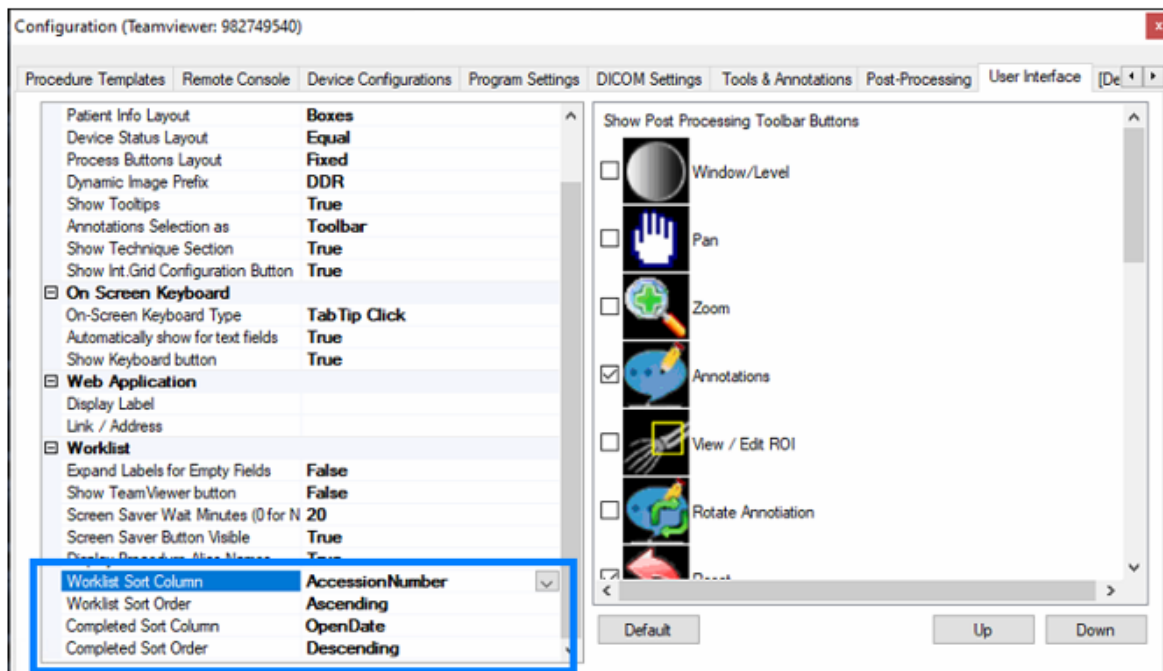
Performing an Exam in Ultra

Retrieving Exams from the MWL

New patient exams from a configured Modality Worklist server are displayed in the Ultra Worklist screen after the **Query** button is selected.

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

> **Note:** Refer to Ultra Icons for examples of icons used within the software.

Selecting a Technologist

1. Click the Technologist icon.

2. Select the Technologist(s) for the exam.

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

3. Click **Patient Holder** and enter the Patient Holder in the **Enter Patient Holder Name** field, if applicable to the exam, and click **OK**.

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

   Note: A Patient Holder is usually a designated family member or guardian to assist with patients that cannot maintain the physical or mental demands of being stationary during an exposure. The Patient Holder is temporary and applies only to the current exam.
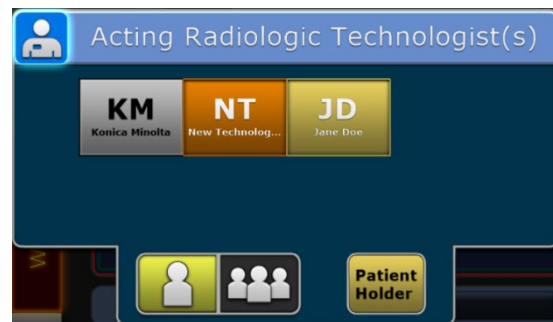
Creating a New Exam without the Worklist

1. Click **New** to create a new exam.

2. Enter the patient's information in the required fields.

3. Press **Tab** or click in the **Accession Number** field, and type in the exam's Accession Number (optional).

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 enter the name.

7. Do the following, if necessary:

   a. (optional) Enter a Station Name, if necessary.

   b. If a note is needed, click the yellow **Note** icon, enter the notes, and click **Confirm**.

   c. If another exam is needed, click **[add exam]** and select another procedure.

Acquiring DR Images

1. Select a patient and click **Acquire** to launch the Universal Acquisition Interface (UAI).

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 that enable you to select the appropriate workstation.

In the following image, 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.

2. Select the appropriate workstation for the desired exam.

3. Ensure the status of the detector is displayed as **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. Select 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.
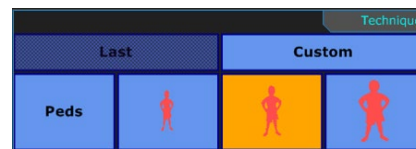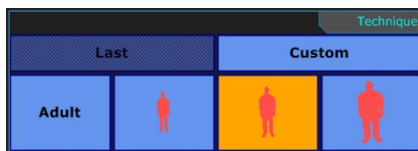
6. Select the **Grid In** icon to enable grid suppression filtering when using a grid. Otherwise, select **Grid Out**.

7. Select 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.

Changing Technologists on the Acquire Screen

Technologists can be changed from within the Acquire Screen.

1. Click the **Technologist** icon on right top corner of the screen.

2. In the pop-up screen, select the Technologists and enter the password.

Editing Patient Information from the Acquire Screen

This feature enables a technologist user to edit the current patient's information from the Acquisition screen. Clicking the Patient Info box on the Acquisition screen displays a window that enables the user to edit the current patient's information. Information that can be updated includes:

- Patient Name

- Patient ID

- Patient Date of Birth

- Patient Gender

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

1. Select the patient information area of the Acquisition screen for any patient.

    A new window opens displaying the patient information with editable fields that enables the user to update the patient's information.

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

   The window closes and the patient information is updated.

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, the user can merge the two patients together by selecting the Merge icon 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** icon displayed next to the patient's name, DOB, and ID.
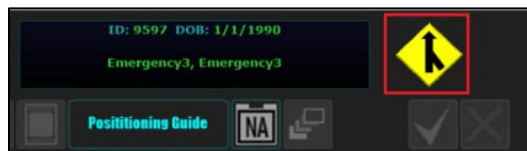
   The **Choose the correct patient** window displays the patients in the worklist. The Merge button is inactive until a patient is selected.

   Note: When the Choose the Correct Patient 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.
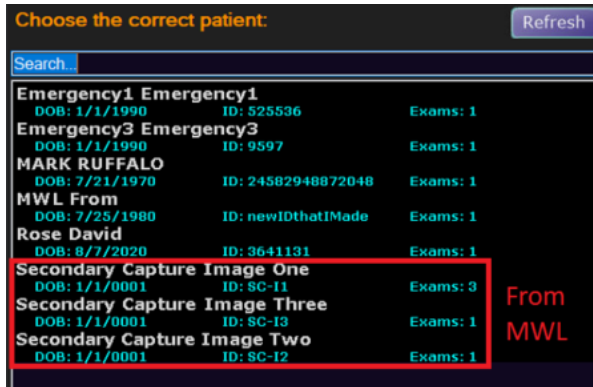
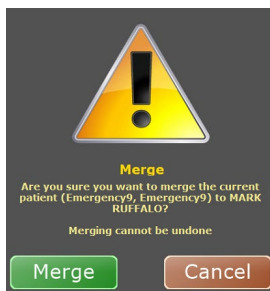For each patient, the following information is displayed.

o   Patient Name

o   DOB

o   Patient ID

o   Number of Exams

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

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

After clicking **Merge**, the following confirmation window opens.

4. Click **Merge** again to confirm the action.

    After merging, the Acquisition screen remains in focus having updated 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 Screen

To merge a trauma patient from the Worklist Screen:

1. On the Worklist screen, select the trauma patient data on the MWL.

    After selecting a patient on the MWL, a **[Merge To…]** button is displayed so you can merge 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.

3. Select the desired target patient from the worklist and click **Merge**.
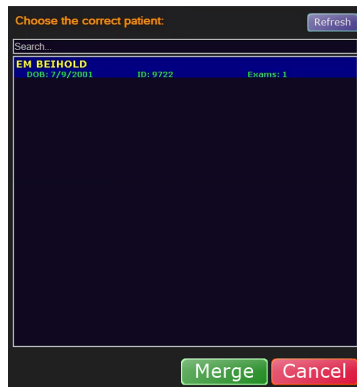
    When the Choose the Correct Patient window opens, it automatically queries the configured MWL and updates the displayed patient list.

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

After clicking **Merge**, the following confirmation window opens.
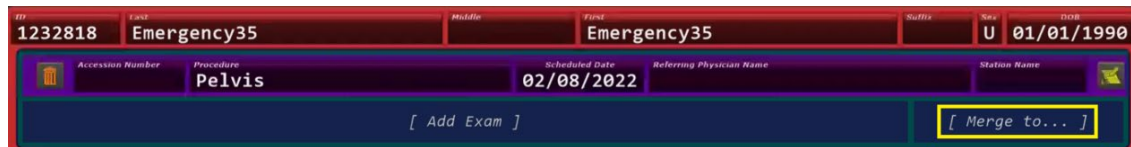

4. Click **Merge** again to confirm the action.

After merging, the Acquisition screen remains in focus having updated the display information to the Target patient. The Trauma patient is no longer present on the MWL.
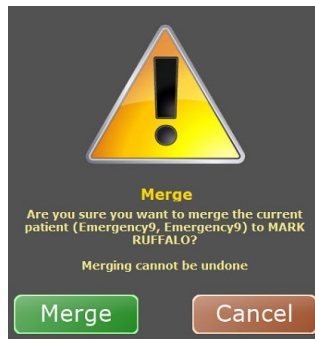
Applying Post Processing to Images Before Accepting Them

The following post-processing options are available to images:

- Reshuttering the image

- Window/leveling the image

- Adding annotations to the image

- Rotating or flipping the image

To apply post processing to an image:

1. After you have acquired all required images, select each image thumbnail to perform post processing, as necessary.

2. Use the **Ultra Toolbar** located at the top of the scanned image to perform post processing, such as reshuttering, window/leveling, adding annotations, rotating and flipping the images.

1. Annotations
2. Reset Entire Image
3. Auto W/L (Resets W/L Only)
4. Alternate Grid Suppression
5. Rotate 90 Degrees to the Left
6. Rotate 90 Degrees to the Right
7. Flip Image Vertically
8. Flip Image Horizontally
9. Rotate Image Slightly
10. Auto Shutter
11. Positioning Guide
12. Merge Images into One Image
13. Manual Stitching

3. Configure the display options of the Toolbar using the **Configuration> User Interface** tab.
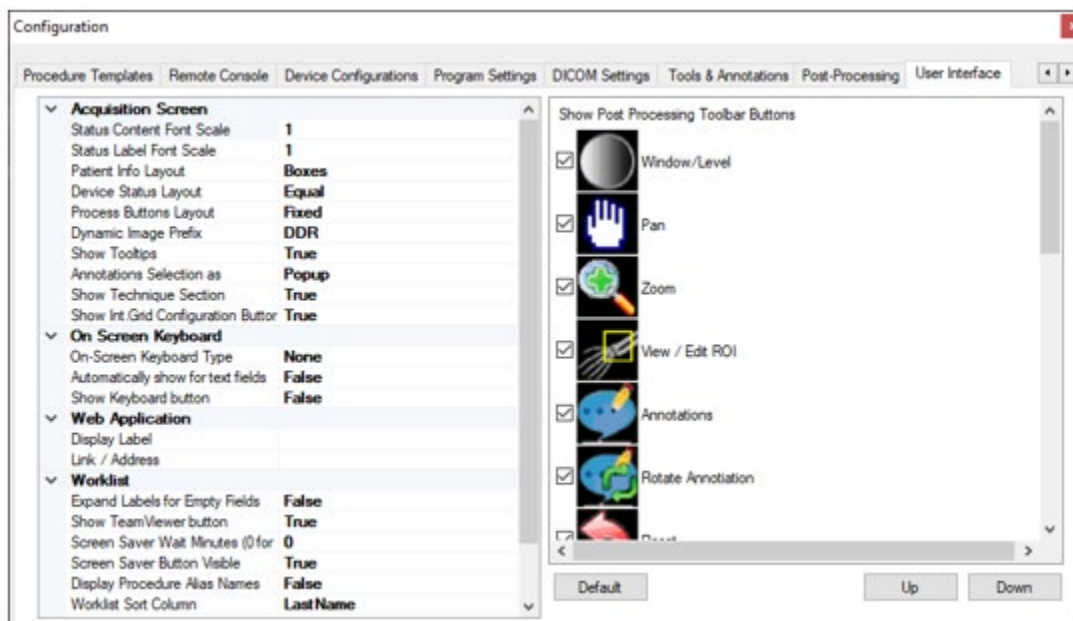
4. Select the buttons to display on the Ultra toolbar. To reorder the buttons, select a button and click **Up** or **Down**, then click **Apply**. An example Ultra toolbar is shown below.

Performing Post Processing Functions

The following Post Processing options can be applied to any unaccepted image.

> **Note**: Be aware that after an image has been accepted, no further changes can be.

Applying Annotations to Images

1. After acquiring an image, click the **Annotations** icon to add annotations to the image.

2. Select the annotation(s) that you want to apply to the image.

3. After selecting an annotation, move the cursor to where you want to place it on the image and left click. For the following annotations:

   o **Arrow:** Right click two points to draw an arrow from the first point to the second (see "Annotations," "A.")

   o **Timestamp:** Right click the desired area to add the current date and time (see "Annotations," "B.")

   o **Length:** Right click two points to add a measurement of length in millimeters (see "Annotations," "C.")

   o **Angle:** Right click three points to add a measurement of angle in degrees (see "Annotations," "D.")

   o **X Table, L, R, STANDING, SUPINE, FLEX, EXT, WB, NON WB, INT**: Right click the desired area to add this annotation.
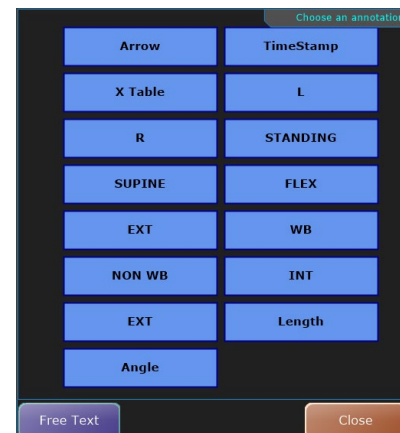
4. When the **Rotate Annotation** icon is enabled, select the annotation, and click the **Rotate Annotation** icon.

An example of an annotated image:

Rotate annotation: Right click on the annotation, each click rotates the annotation 90 degree clockwise.
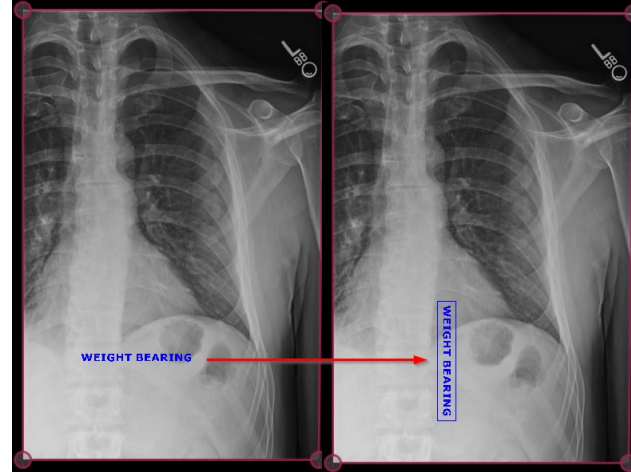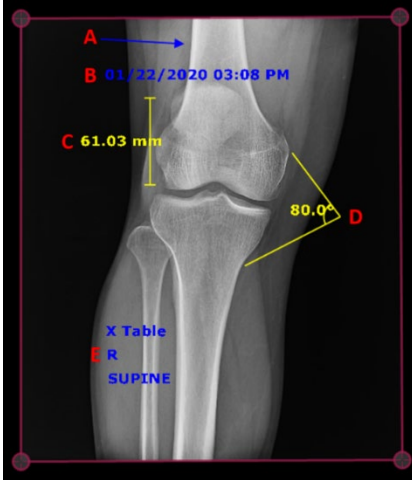
Note: An option is available to enable the annotation menu to remain open while placing annotations.

When this option is enabled, the Annotation menu remains docked to the left of the image and multiple annotations can be selected at once.
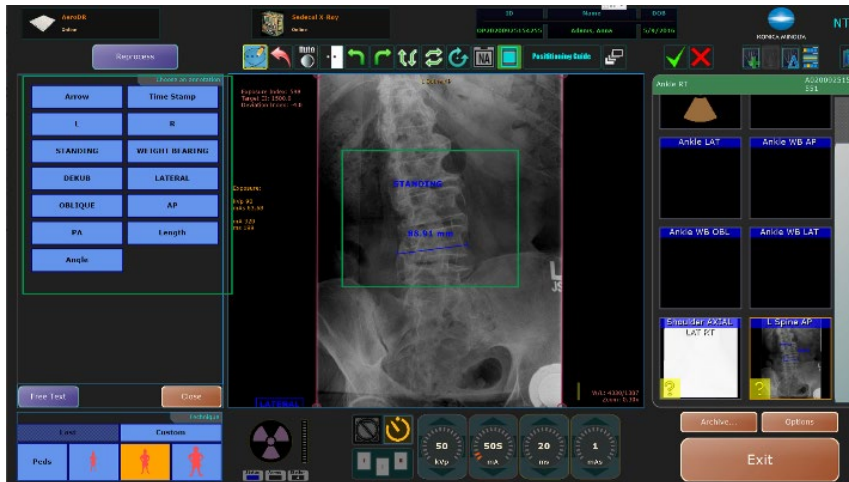
Note: The **Tech (My) Initials** option is available in the Choose an Annotation options window, while adding an annotation to an image in Acquire screen. Click **Tech (My) Initials** to dynamically generate the current technician's initials as a text annotation.

Resetting the Entire Image to Remove All Applied Post Processing

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

Mouse Functions

- **Zoom In:** Scroll wheel up.

- **Zoom Out:** Scroll wheel down.

- **Pan:** Click and hold the wheel, then move the mouse.

Auto W/L

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

Note: Ultra automatically applies window and leveling filters to images based on the body view you have selected (ex., Chest AP). Unlike Reset Entire Image, **Auto W/L** resets manually applied window and leveling back to the original W/L filtered image only for that view. All the other applied post-processing will not be 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.

WINDOW/LEVEL – Left or Right-Click

Increase Brightness
the whole image will get brighter

Increase Contrast
the white pixels will get more white and the dark pixels will get darker

Decrease Contrast
the white pixels and dark pixels will change to make image more gray

Decrease Brightness
the whole image will get darker
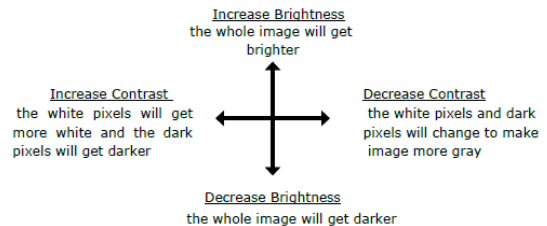
Applying Intelligent Grid (Optional with Aero Panel)

A floating toolbar with Intelligent Grid processing controls on screen is available if IG is **On** for the current Image.
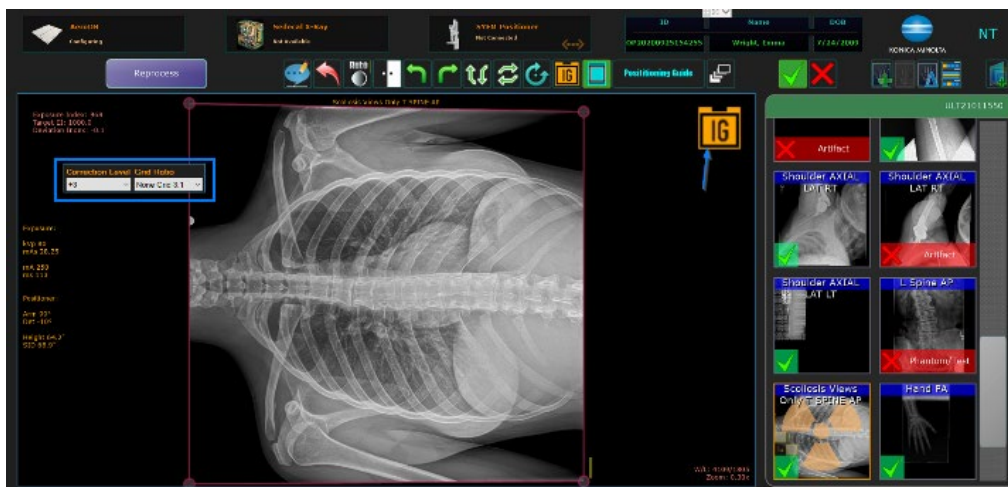
An IG icon is displayed on the View area of Acquisition screen. Click this icon to toggle between displaying the floating toolbar with IG option or hiding it.

When this icon is available, users can click the icon to display the Intelligent Grid processing controls on the screen.


Note: You can relocate the floating screen anywhere within the view area by clicking and holding the left mouse button on any blank area of the pop-up and dragging it to a new location.

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

IG processing controls on screen can be configured to display additional buttons. The configuration needs to be set to True by an 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.

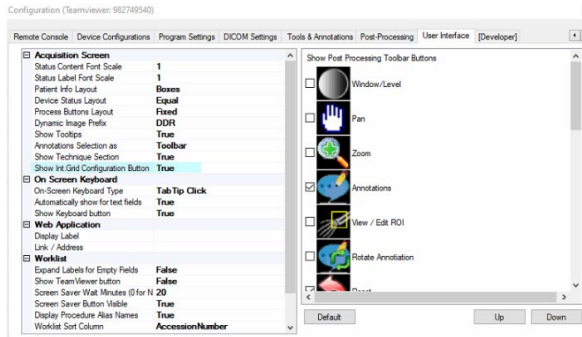- **kVp:** Increments/decrements by 1 volt per click.
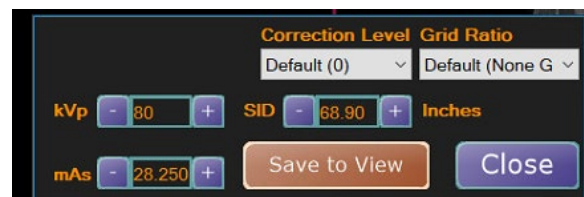
Note: The values for each of these options can also be entered manually.

Setup:

1. Select **Configuration> User Interface**.

2. In the Acquisition Screen section, set Show Int. Grid Configuration Button to **True** (Show icon) or **False** (Hide Icon).

Rotating and Flipping Images

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

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

Rotating Images Slightly

You can manually rotate images in small degrees when you need to slightly rotate an image.

1. Left click once on the **Rotate Images Slightly** icon to activate the function. The background of the icon will turn green when it is activated.

2. Left click 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 to 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 **Rotate Images Slightly** icon changes back to inactive after you lift the finger off the mouse button. If you need to rotate the image some more, click the **Rotate Images Slightly** icon again.

Shuttering Images

If **Auto Shutter** is not enabled, you can activate shuttering per exam, by clicking the **Shutter** icon 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 shutter box** by right-clicking the **Shutter** icon, then clicking the 3 corner dots in a clockwise or counter-clockwise direction.
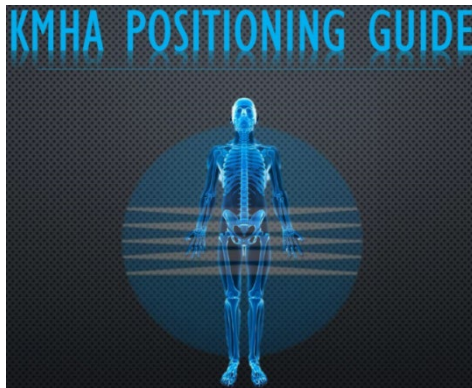

4. Click the **Reprocess** button to reprocess the image for missing parts.
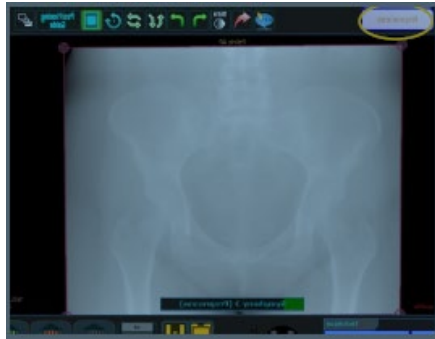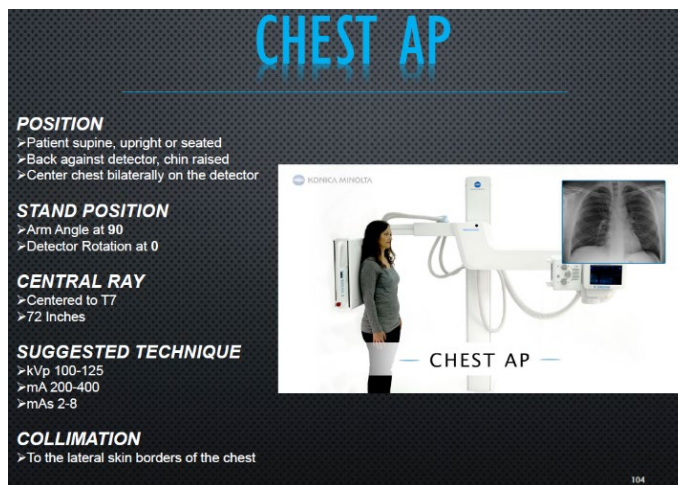
Opening the Positioning Guide

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

1.   Click the **Positioning Guide** icon to launch the Positioning Guide PDF document.

The **Table of Contents** page has links for each type of exam. Click a link to be taken to the page for that view.

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

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 as needed during the exam. Therefore, when you exit the exam, you can select the option to 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 Acquire.
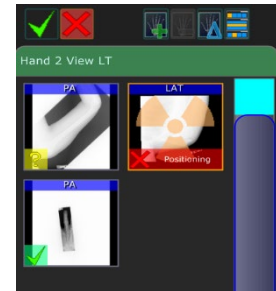
Accepting Individual Images

1. Select an image.

2. Click the green check icon to accept the selected image.

### 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

During an exam, you can individually accept and reject images. If you did not approve all images, you are prompted with the option to accept all unmarked images or to reject all unmarked images that still have a questionable status when you exit Acquire.

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.

After completing the exam procedures, click **Exit** to return to the Worklist view.
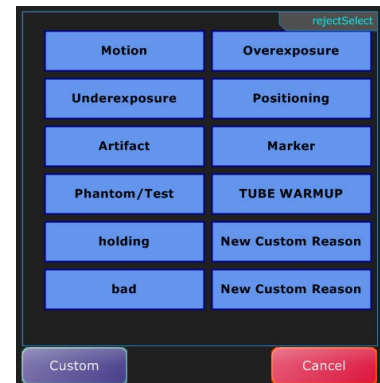
If there are images that still have a questionable status, an **End Acquisition** dialog provides the following options:

- **Accept All Unmarked:** Accepts and sends all images that have a question mark icon in the bottom left corner of the thumbnail.

- **Suspend Exam:** Pauses the exam and displays the Worklist. Patient or study information can be edited before sending to PACS.

- **Reject All Unmarked:** Rejects all images that have a question mark icon in the bottom left corner of the thumbnail. Users must provide a reason for the rejection of each image. If all images in an exam are rejected, no information is sent to PACS.

- **Cancel:** Returns to the Acquire screen. Nothing is accepted or rejected.

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.
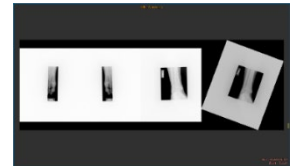
Merging Images Manually

1. Acquire the images for the exam.

2. Perform 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. Select the desired orientation and then select **Choose**.

4. Right-click the **Merge** icon. The Merge icon turns green in acknowledgement.

5. Click to highlight the second image to merge.

6. Select the orientation and then select **Choose** and right-click the **Merge** icon. The Merge icon turns green for the selected image.

7. Repeat this process until all the desired images are selected.
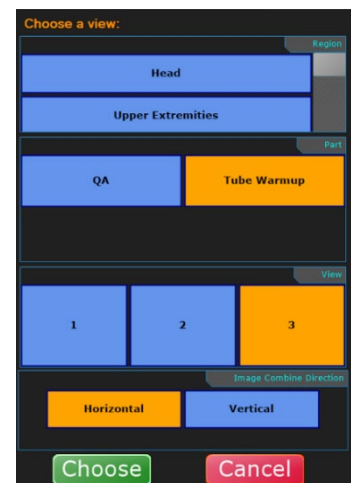
8. After all required images are selected, click the **Merge** icon to merge the selected images into one view.

9. Select a view to merge them under and click **Choose**. The merged view is then displayed as the chosen view.

Merging Images Automatically

Before you can merge images automatically, you must have already created an **Image Merge Group**. (Refer to 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 **Merge** icon to merge the images together 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: if you want 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 the **Merge** icon to automatically merge the 3 views into one view.
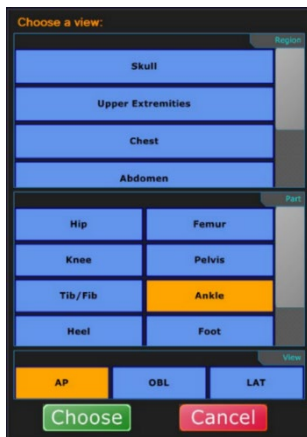
Working with Exams

Adding Additional Views to an Exam Procedure

1. Open a patient exam.

2. Click the **Add View** button 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.

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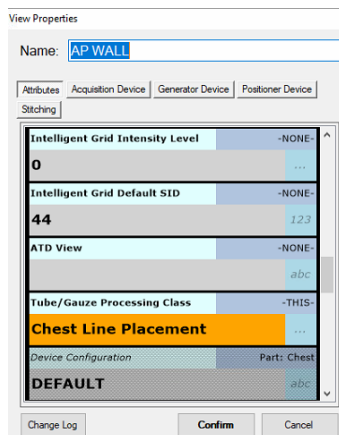
When Tube/Gauze property is configured for a view and the image is acquired using Aero Panel, or if Tube Gauze processing class can be applied to the image, a pop-up box displays the **Tube/Gauze** button.

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

Editing Patient and Exam Information

1. Select the patient you want to edit.

2. Click the field you wish to edit.

3. Edit the information.

Deleting Exams

1. In an expanded exam, click on the **Trash can** 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).

Adding an Exam Procedure to a Completed Patient Exam

1. Select a patient from the **Completed** tab of the Ultra software window.
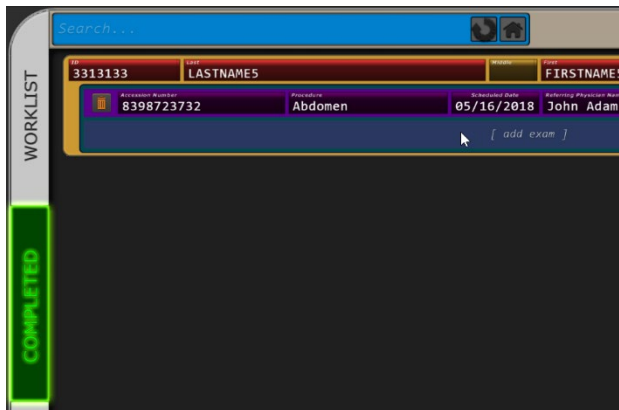
2. Click **[add exam]** below the patient's last exam.

3. Select the exam procedure 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 editing the exam.

Adding an Image to a Completed Exam

1. Select a patient from the Completed tab of the Ultra software window.

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 Ultra UAI Acquire window 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.
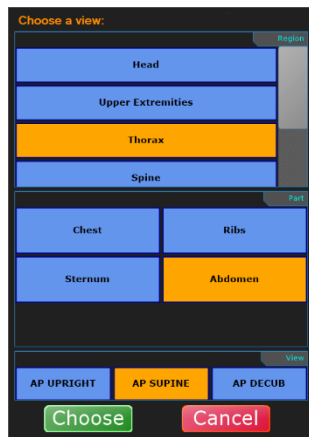
5. Select the new view and perform the necessary steps to capture the image.

Moving an Image to Another Exam

You can move images from an existing exam to another.

Note: This may be necessary if an image is acquired under the wrong patient study.

Note: When moving an image, you should 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 into the Acquire screen.

5. Click the **Archive** button. The **Image Archive** window opens.
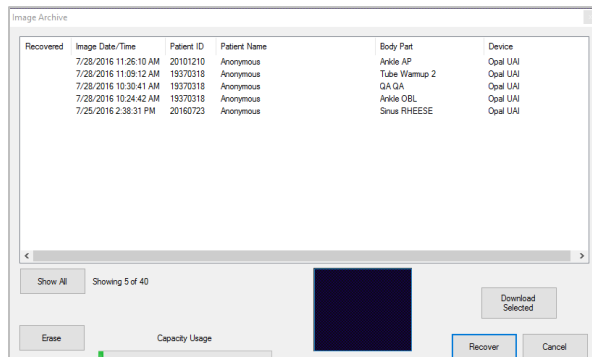
6. Select the image to recover and click **Recover**.

   Note: To select multiple images, select an image and hold 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: For situations where 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.

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(s) 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 Ultra UAI Window.

   In the expanded exam view, the **Send Destination icon(s)** appear to the right of the list of exams.
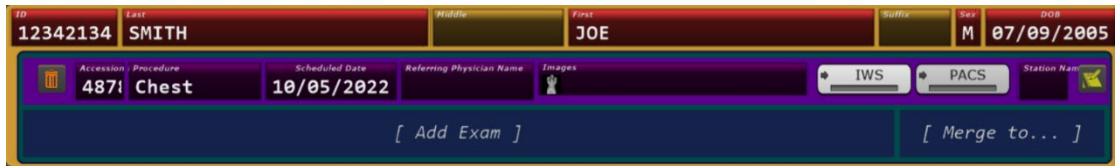
   For systems with multiple send destinations configured, multiple icons are displayed.

2. Click on the destination PACS icon(s) you want to send a study to. The icon changes to blue and a progress bar is displayed on the icon while the transfer is in progress.
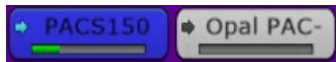
   The destination icon(s) turns green after the images have successfully been sent to their destination PACS server(s).

   Note: Destination Icons have the following status colors:

   o   **Gray** – Not sent to PACS

   o   **Blue** – Send in progress

   o   **Green** – Sent successfully

   o   **Red** – Send failed

Admin and Technologists

Ultra software is created with a single administrator account that can 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. Select **Configurations> Tools & Annotations**.

2. Click the **Add** button.

3. Enter the name of the Technologist(s).

4. Click **OK** or **Apply** to save the changes.
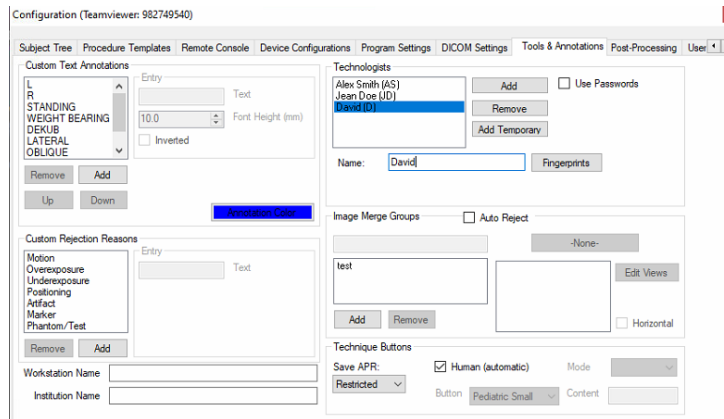
Adding a Technologist with Password Protection

1. Select **Configurations> Tools & Annotations**.

2. Click the **Add** button.

3. Enter or select the name of the Technologist(s).

4. Check the **Use Passwords** checkbox.

5. (Optional) Check the Timeout checkbox and set a duration before the technologist is logged out due to the Timeout.

   Note: If the Timeout box is not checked, technologists will never be logged out of Ultra due to inactivity.

6. Select the Technologist and click **Password: Change**.

7. Enter and confirm the password.

8. Click **Accept**.

9. Repeat to set a password for additional technologists.

Configuring a Policy for Password:

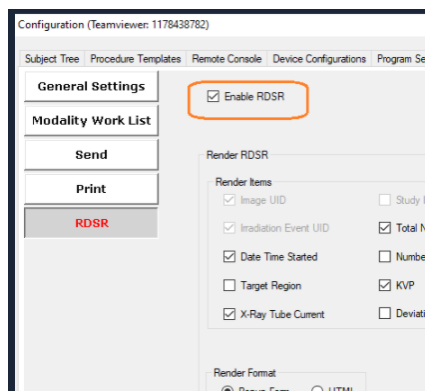1. Select **Configurations> Tools & Annotations**.

2. Check the **Use Passwords** checkbox.

3. Click the **Policy** button.

4. On the Password Policy pop-up, configure the following options:

    o   **Minimal Password Length:** Sets the minimum length of the password.

    o   **Password needs at least one special character:** Determines whether the password requires a special character.

    o   **Password needs at least one Alphanumeric character:** Determines whether the password requires an alphanumeric character.

    o   **Expire Password in _ day(s):** Sets the number of days before password expiration.

5. Click **OK** to save the changes or **Cancel** to exit without saving policy.

Radiation Dose Structured Reporting (RDSR)

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

Configuring RDSR

1. Launch Configuration.

2. Select the **DICOM Settings** tab.

3. Check the **Enable RDSR** checkbox.
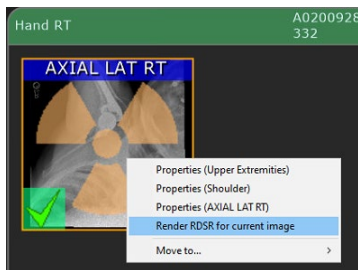

4. Check/Uncheck Render Items.

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

5. Select either **Popup Form** or **HTML** from the Render Format area.

To render RDSR for an Image already captured,

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

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

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

<div align="center">Pop-Up</div> <div align="center">HTML</div>

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

RDSR DICOM files can be sent to PACS destination.
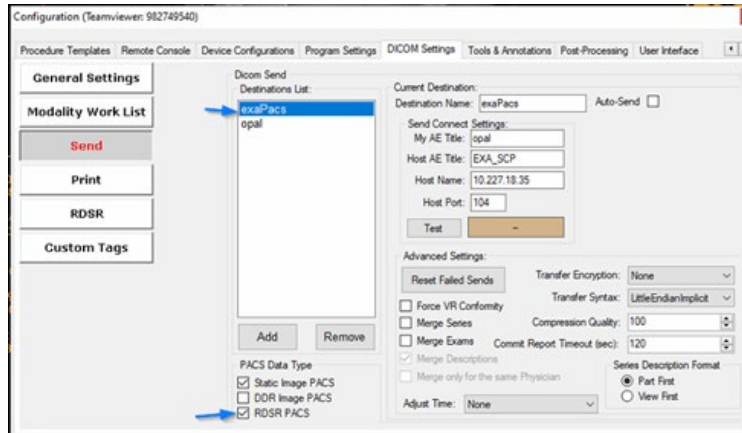
The option is configured in the Configuration window.

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

Configuring RDSR data to send to PACS:

1. Select **Configuration> DICOM Settings> Send**.

2. Select **Destination**.

3. Check **RDSR PACS**.

Configuring Different PACS Data to be sent to Different PACS Destination

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

1. Select **Configuration> DICOM Settings> Send**.

2. Select **Destination**.

3. For the selected destination, select one or more options: Static Image PACS, DDR Image PACS, RDSR PACS.
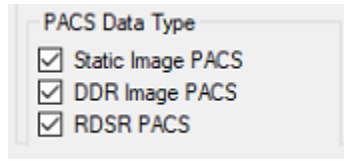
4. For additional destination, select another destination and repeat the previous steps.

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

Configuring Print Settings

Prerequisite: DICOM printer is available and configured as per DICOM Printer manufactures instructions.

To configure the DICOM printer,

1. Select **Configurations> DICOM Settings** and click **Print**.

2. In Connection properties add:
   - o My AE Title:
   - o Printer AE Title:
   - o Printer Host: *<IP address of printer>* or *<hostname>*
   - o Printer Host: Port Number

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

3. Adjust Film Settings.

4. Click **Overlays Configuration** to adjust DICOM Print Overlays.

5. Click **OK** or **Apply** to save the changes.
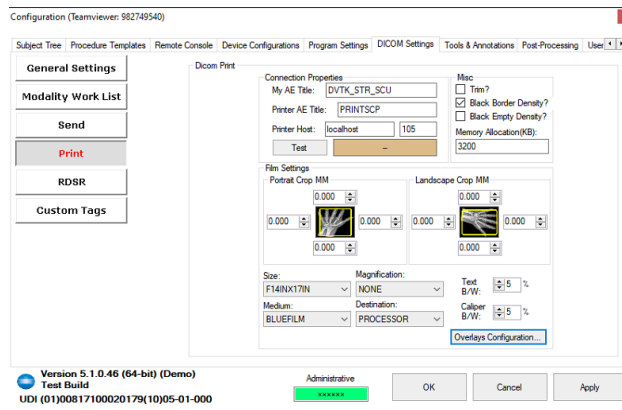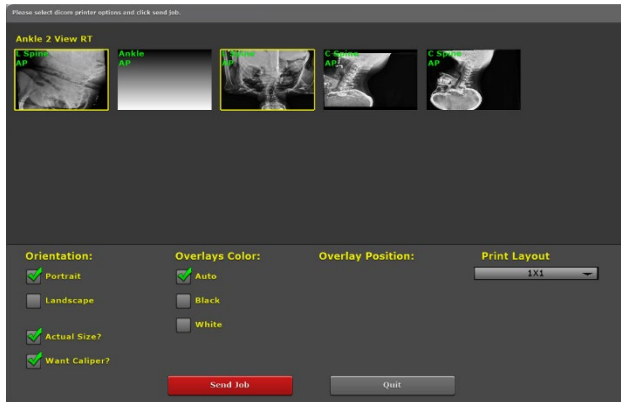
Printing and Saving Exam Studies to a Storage Device

Click the **More** button at the bottom of the Ultra screen 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**, by selecting an option from the More menu.

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

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

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

Burning a Study to a CD/DVD

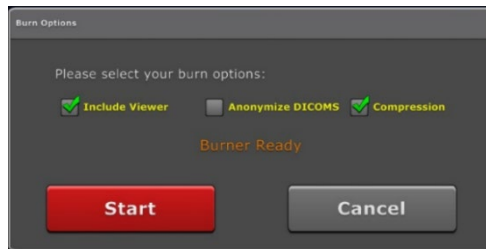1. Click the **Burn** button from the **More** menu.

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.

   o **Include Viewer** – Burns the CD/DVD with the Ultra Viewer executable included. Including the viewer makes viewing images easy from any computer. (selected by default)

   o **Anonymize DICOMS** – When selected, all patient demographic and personalized information is removed from the study and replaced with generic first and last names.

   o **Compression** – Saves the file in a compressed format, reducing the file size, which enables more storage.

4. Click **Start** to begin burning the disc. The progress indicator is displayed in the top left corner.

5. You can remove the CD/DVD after the progress indicator displays "Done".

Copying a Study to an External Drive

1. Click the **USB** button 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: Press **Start"**.

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

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

5. 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.

6. 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.
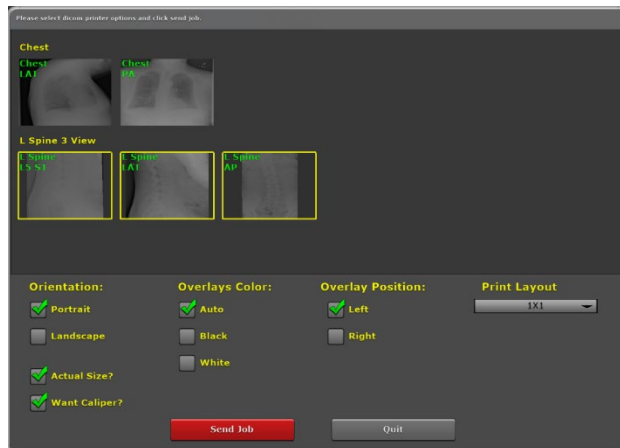
3. Select **Print Options** as needed.

   o **Orientation** – Portrait or landscape. (portrait is the default)

   o **Overlays Color** – Auto, black or white. (auto is the default)

   o **Overlay Position** – Left or right. (left is the default)

   o **Print Layout** – Number of rows and columns. (1x1 is the default)

- o **Actual Size?** – Prints the actual size of the image. Deselecting this option utilizes the Print to Fit feature. (selected by default)

- o **Want Caliper?** – Includes the measurement tool in the images. (selected by 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:

   - o Right-click on a view, part, region, family, or global section from the Subject Tree and select **Properties**.

   - o Right-click on a view, part, or region from the Acquire screen and select **Properties**.

2. Click **Change Log** in the bottom left corner of the properties window.

   - o The Subject Timeline opens.
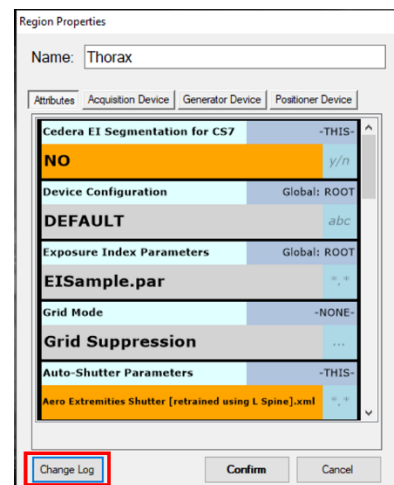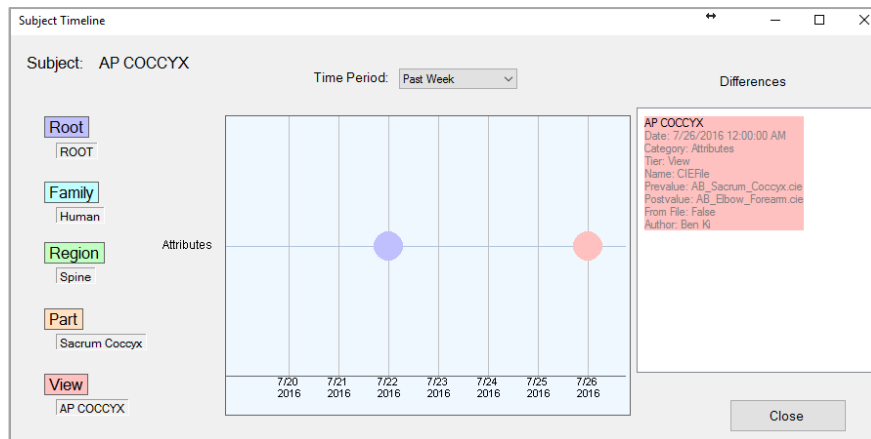
The window above is an example of changes made to selected Subject: AP Coccyx and color-coded Root, Family, Region, Part, and View.

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 Ultra Worklist screen, click the **Options** icon.

2. Select the **Program Settings** tab from the Options menu.

3. Click **Activity Log**.

    The Activity log by default displays both Accepted and Rejected events.
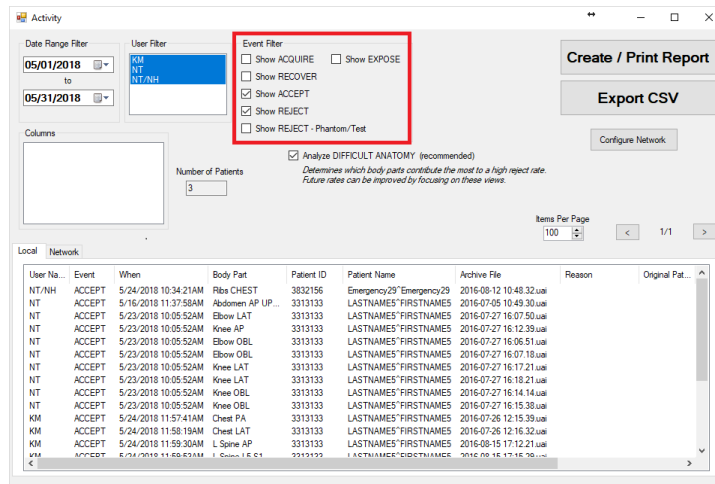
4. A **Reject Analysis Report** is created by checking only the **Show Reject** box, to display rejected events only.

5. Adjust the date range, user, and event filters as needed.

   o **Date Range filter** – Specifies the range of dates to query.

   o **User filter** – Lists all technologists by default. Select one or more to filter by technologist.

   o **Event filter** – Select the type of activity to include in the report.

   o **Analyze Difficult Anatomy** – Generates body parts that contribute the highest reject rate.

   o **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 selecting 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. 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**.

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

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** icon.

2. Select the **Tools & Annotations** tab from the Options menu.

3. Select an annotation from the list under **Custom Text Annotations**.

4. Click the **Up** or **Down** button to highlight the annotation up or down in the list.

5. Click **Apply** to apply the changes.

6. 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** icon.

2. Select the **Tools & Annotations** tab from the Options menu.

3. Click Annotation Color.

4. Select a color from the color grid and click **OK**.

5. Click **Apply** to apply the changes.

6. 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.

2. Select the Procedure **Templates tab** from the Options menu.

3. Select an alias name in the Assigned Aliases list.

4. Click **Copy Name** to copy alias name to clipboard. (Optional)

5. Click **Remove Selected**.

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

6. Click **Apply** to save changes.

   Proceed with the following steps if you wish to delete the alias name from the unassigned alias list.

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

8. Click **Remove Unassigned**.

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

9. 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.
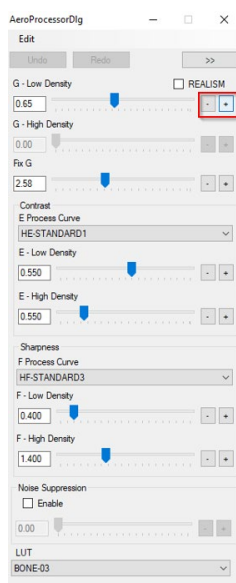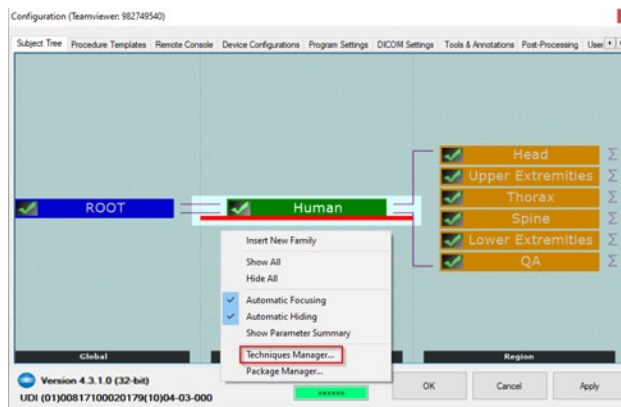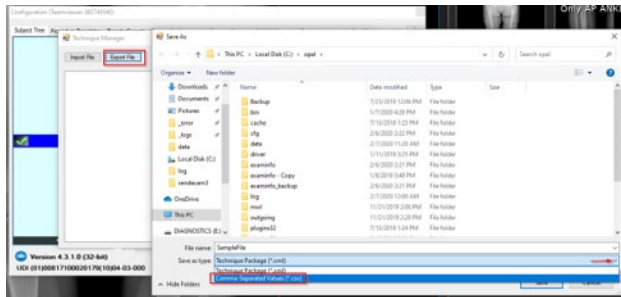
Exporting Techniques Manager to csv Format

The techniques manager can be exported to csv format.

1. Click the **Options** button.

2. Select **Subject Tree**.

3. Right-click on blank area and click in the popup dialog select **Techniques Manager**.

4. Select **Export File**, enter the filename and location, and Save as type csv.

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 acquisition screen, **Right Click** on the Annotation button. The QC toolbox is displayed.

3. 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.

4. Click on Button Mouse Tool ROI and click on a desired area of the image to draw a 51 x 51 mm ROI.
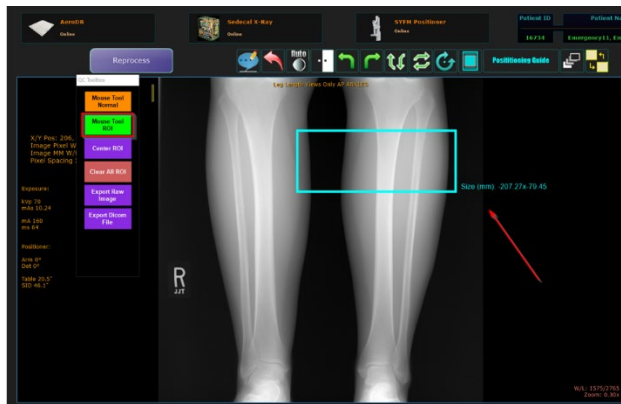
5. **Center ROI**: Click on **Center ROI** to automatically draw a 51x51 mm ROI at center of the image.
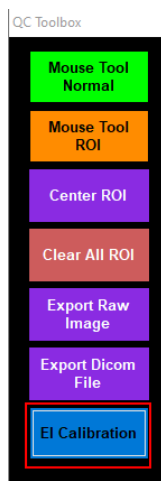
EI Calibration Tool

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:** This option is available only for advanced users.

1. Acquire an image.

2. In acquisition screen, right click the **Annotation** button.

   The QC toolbox opens.

3. Click **EI Calibration**.

   The EI Calibration window opens.

   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.

EI Calibration

☑ **Enable EI Scaler**

b. Select an EI Calculation Framework Library, Cedera or PixelRx.

Library   ○ **Cedara**   ⦿ **PixelRx**

c. Adjust the Calibrated Dosimeter Value (µGy)

Calibration Dose Entries (No Scaler)

Dosimeter Value   7.951   (uGy)

4. Click **Calculate**. The EI Calibration form updates.

○ **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.

EI Calibration Form   — ☐ ✕

EI Calibration

☐ Enable EI Scaler

Panel Serial No.   A20H-S0001

Library   ○ Cedara   ⦿ PixelRx

Scaler Value   0.936

Calibration Dose Entries (No Scaler)

Dosimeter Value   7.9541   (uGy)
Expected EI Value   795.41

Calculated EI Value   849.7674
Calculated Dose   8.497674   (uGy)

Reported EI After Applying Scaler

Reported Dose   0.0   (uGy)
Reported EI Value   0.0

Calculate   Save

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

Dynamic Mode (Optional)

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

Note: Static mode is the default mode. All other sections of this manual provide general instructions for operation which are applicable to both static and dynamic modes.

Note: During exposure in dynamic mode, a low frame rate preview is shown, the preview is not real- time and experience slight delays. The preview is not intended as a diagnostic tool.

Note: The system requires a preparation time of 5-20 seconds before a dynamic 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 dynamic mode, 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.
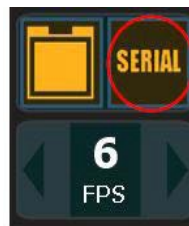
Operational Controls

1. Click the **photo-time** icon twice to enter dynamic mode.

Static Imaging Mode

Dynamic Imaging Mode

The generator controls, in the lower part of the screen, update.

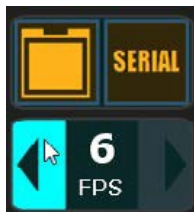**Static Mode Generator Controls**
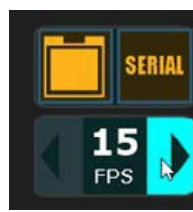
Dynamic Mode Generator Controls

2. In DYNAMIC Mode, serial exposures can be taken at 6 or 15 Frames Per Second (FPS).

Dynamic Mode 6 FPS

Dynamic Mode 15 FPS

3. Do one of the following:

    o Click the **left arrow** next to the FPS Capture Dial to set to **6 FPS**.

    o Click the **right arrow** next to the FPS Capture Dial to set to **15 FPS**.

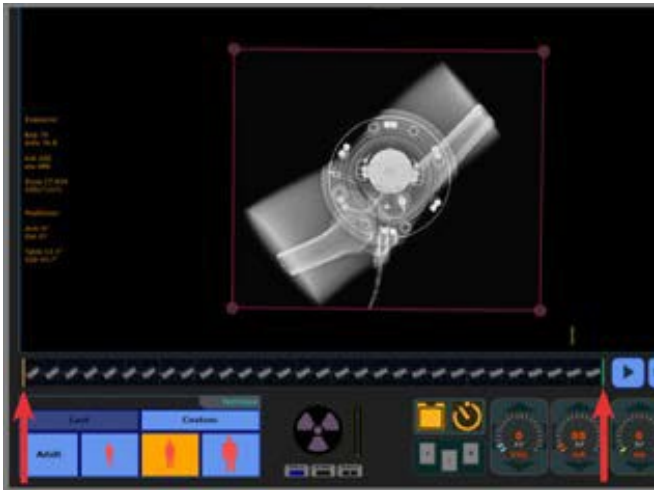## Adjusting a Video Recorded in Dynamic Mode

Click the **Play** icon to toggle between play and pause.

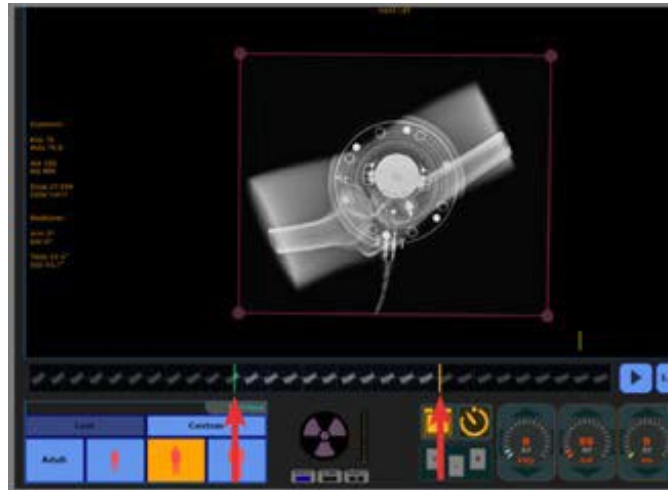## Adjusting the Frames Displayed in Video Playback

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

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

StartFrame and EndFrame

**StartFrame and EndFrame
Subsequence Selected**

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

   Note: If start and end frames are adjusted, 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 cursor keys of the keyboard.

Accelerating or Slowing Down Playback.

Click the **Playback Speed** icon 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

Displays an indicator on thumbnails view to discern which images are dynamic sequences.

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

| **Icon Depicting Image Stack**	**Thumbnail of a Sequence Containing 150 Frames**

Trimming a Subsequence

Selecting the Trim Subsequence function generates a new image sequence using only the current active portion, as defined by StartFrame and EndFrame markers.
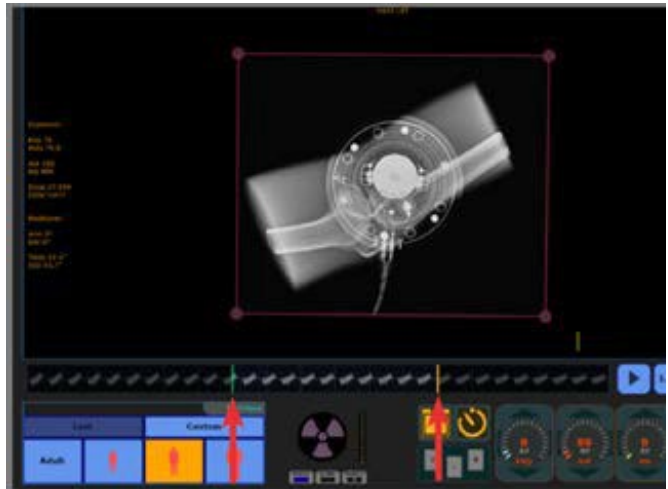
To Trim a Subsequence:

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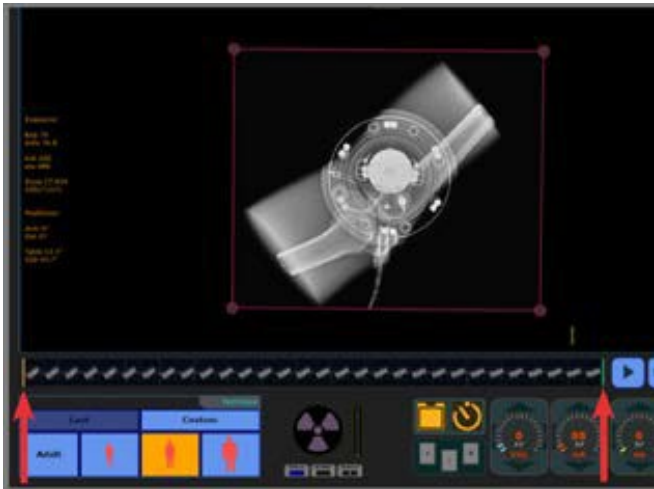
StartFrame and EndFrame	**StartFrame and EndFrame Subsequence Selected**

2. Click the **Trim Image** icon.

   Note: If start and end frames are adjusted, 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.

Generating a Screen Capture

Select the Screen Capture function to generate a new image instance of the currently displayed frame.

To generate a screen capture of a subimage:

1. Select the desired frame.

2. Click the **Trim Subimage** icon.