CHAPTER 5

System Operation

5.1. Preparing the Scan Room and the System

Prepare the scan room and scanner before bringing the patient into the room. Verify that the items described in this chapter have been accomplished.

5.1.1. Preparing the Scan Room

Complete this checklist before you bring the patient into the room:

[ ] The scanner is warmed up and ready to scan

[ ] The patient table is properly positioned (retracted and in load position)

[ ] The room is clean and the patient table is ready to receive a patient -- any necessary pillows, braces, or other items as may be required for the patient are present

[ ] All supplies and accessories are in place

[ ] All emergency equipment is present, clear, and accessible

[ ] If a contrast agent will be used, all equipment, injectors, syringes, and related items are present and ready for use

Check the environment prior to system startup to ensure optimum image quality and performance (Table 5.1). Verify that the room has been stable within these parameters for at least 24 hours. If not, allow the system to stabilize for 24 hours prior to use.

TABLE 5.1. System Startup Environment

Environment	Requirements
Room Temperature	15 °C (59 °F) to 28 °C (82 °F) Recommended: 22 °C (72 °F) Max. Rate of Ambient Temperature Change: -3 °C (27 °F) to +3 °C (37 °F)
Room Humidity	30% to 75% non-condensing

DAILY QA NOTES: The system, upon startup, prompts you to perform a Daily QA. The prompt warns you about the potential for image degradation if Daily QA is not performed. The operator has the ability to accept or dismiss the prompt. If accepted, the Daily QA screen will appear. See section 5.2.2. “Air Calibration” for details.

WARMUP NOTES: The system automatically tells you if a warm-up is necessary. After initial operator confirmation, the warm-up proceeds and you can continue to schedule a patient and prepare for an exam. The system notifies you when warmup is complete. From a warm start, the system is typically ready for clinical scanning in less than five minutes. Times listed in Table 5.2 are typical scanning availability:

TABLE 5.2. System Warm-up/Time to Imaging

Startup Type	Time to Imaging (minutes)
Warm Startup	< 5
Cold Start	< 20
Cold Start Ready Time to Calibration	< 45
Emergency: cold power on to “Emergency Imaging”	< 5

CAUTION! X-RAY RADIATION HAZARD!

Perform all system warm-up and calibration actions before bringing the patient into the room. This will minimize exposure to any scattered radiation.

5.1.2. Patient Information and Scan Preparation

Select the desired patient on the Operator Console and verify patient information and scan protocol. This will ensure that you are ready to begin the scan and will eliminate delays prior to bringing the patient into the scan room.

You will need to re-verify all items and patient identification when the patient is positioned on table.

5.2. Powering On the System

The system is normally powered on at all times. However, this section describes how to power up the system when necessary.

To power the system on:

1. Turn on scanner power at either the Power Distribution Unit (PDU) front panel or the Gantry Control Box (GCB). The green light on the PDU front panel illuminates. The display panels on the gantry become active.
2. Turn on the Operator Console **c**omputer.
3. When the Operator Console Emergency Stop Confirmation screen displays, select it to confirm.

4. The Login screen displays (FIGURE 5.1). Enter your User name and Password and select LOGIN.

   NOTE: To operate the system in Emergency Access mode, see Section 5.10. “Performing an Emergency Exam on a Patient”

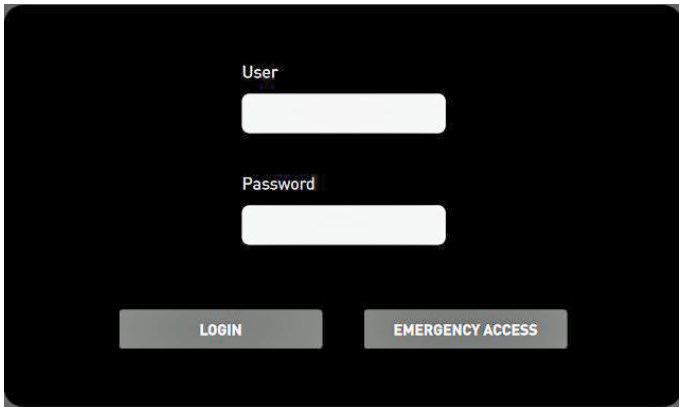


FIGURE 5.1 Login Screen

5. If the system needs to perform table homing, the Gantry control box MOVE key lights up. If it does not light up, skip step 6.
6. Press and hold MOVE until the key light turns off and the table In and Out keys light up. This indicates that the homing procedure is complete.

If you release MOVE before the homing operation completes, press and hold again. Continue to hold until MOVE is no longer lit.

NOTE: You must home the table after every power cycle (shutting down and powering up).

5.2.1. Initiating Tube Warm-up

The X-ray tube must be at normal operating temperature to ensure proper image quality.

To initiate tube warm-up:

1. Select the **Tools** icon in the lower-left corner of the main screen (FIGURE 5.2).

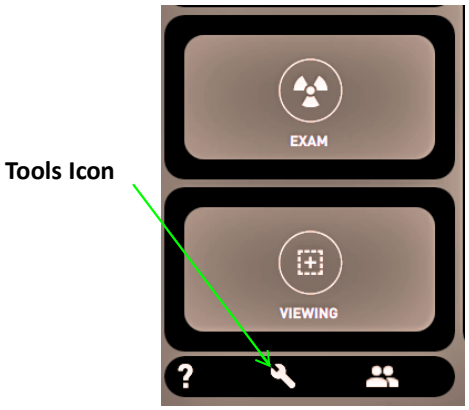


FIGURE 5.2 Main Screen – Tools icon

The Tools menu displays (FIGURE 5.3).

FIGURE 5.3 Tools Menu

2. Select **Daily Calibration**. The Tube Warmup and Air Calibration options display (FIGURE 5.4).

FIGURE 5.4 Tube Warmup and Air Calibration buttons

3. **IMPORTANT: VERIFY THAT NO ONE IS IN THE SCANNING ROOM AND THAT THE SCANNING ROOM DOORS ARE TIGHTLY CLOSED.**
4. Select Tube Warmup.
5. Select CONFIRM. The system initiates a tube warmup sequence.
   NOTE: To activate Tube Warmup there cannot be an exam in progress.

NOTE: The system automatically alerts you if X-ray tube heat storage is outside either the optimal or the permitted temperature range. If the temperature is outside of either of these ranges the system advises either a warm-up or cool-down of the X-ray tube before performing air calibration.

5.2.2. Air Calibration

Perform an air calibration each day of use. Typically, you perform this procedure at the end of the day.

DURATION (typical): 20 minutes

1. Before you perform an air calibration, verify that:
   - The gantry tilt is 0
   - Nothing is in the gantry (the patient table is fully retracted)
   - The scan window is wiped clean
2. If you have not performed an Air Calibration in the past 24 hours: When warmup is complete, navigate to the Tube Warmup and Air Calibration portion of the screen (FIGURE 5.4).

3. Select Air Calibration.

To load an air calibration profile, select the Air Calibration button. The calibration settings grid displays (FIGURE 5.5).

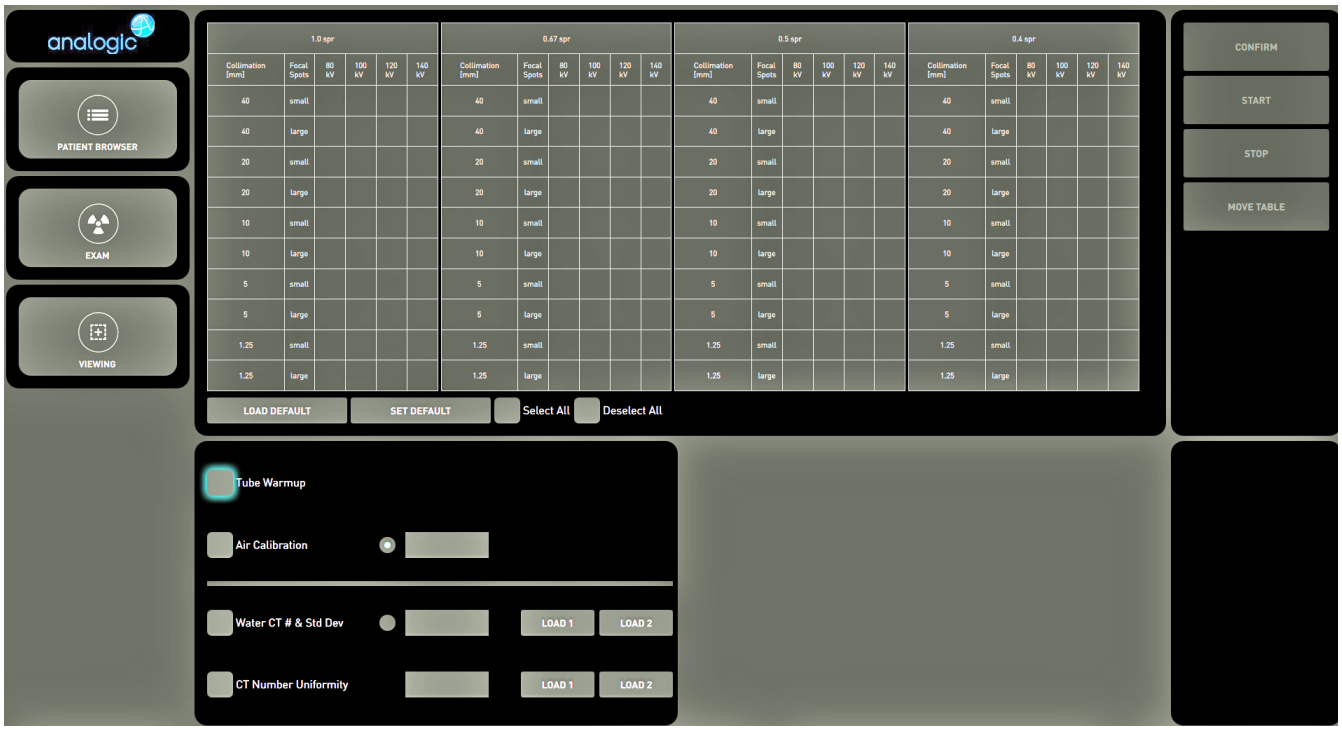


FIGURE 5.5 Patient Scheduler – Air Calibration Grid

4. You can load the desired values in any of three ways:
   - Select Load Default to load the default settings
   - Manually input the settings by selecting each desired setting
   - Select all values by selecting Select All
5. Select **Confirm** to begin the air calibration. The system displays a countdown to alert you when it is ready for imaging.

5.2.3. Daily Quality Assurance Procedures

Refer to Section 11.2. “Daily QA” for daily QA procedures.

5.3. Performing an Emergency Stop

In the event of an emergency which requires an immediate system stop, press a system Emergency Stop button (FIGURE 5.6).

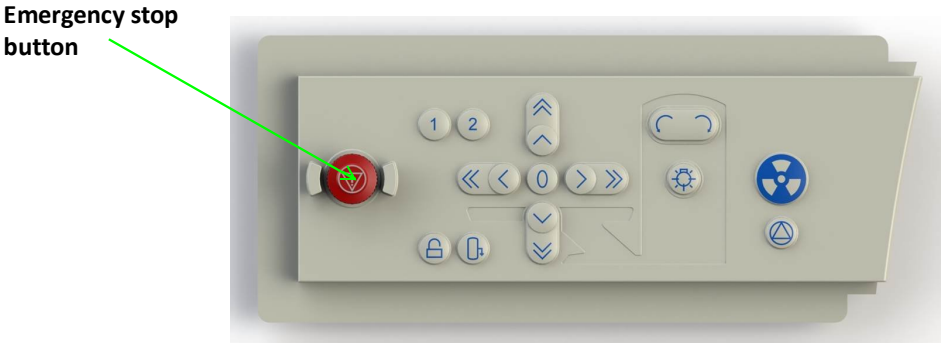


FIGURE 5.6 Table Control Panel

Emergency Stop buttons are located

- On the four gantry keypads (two each, on the front and back of the gantry)
- On the gantry control box
- Recommended (optional) exam room emergency stop
- Recommended (optional) control room emergency stop

5.3.1. Emergency Power Off

In the event of an emergency you can use the facility's emergency power off switch to power down the gantry.

WARNING! DAMAGE TO EQUIPMENT – LOSS OF DATA

Use Facility Emergency Power Off buttons only as a last resort when an emergency shutdown is required. If facility Emergency Off buttons cause an immediate and complete shutdown of power to the entire system, data from scans in progress may be lost and damage to the X-ray tube may occur.

5.4. Logging In to the System

There are two types of system login:

- Normal login - log in normally when you are going to use the system to scan registered patients
- Emergency login - use the emergency login option when you must quickly log in to deal with a patient who is in an emergency situation

5.4.1. Performing a Normal Login

The system login screen provides a secure, password-protected login for individual users. User logins and passwords are set in the Administrator tools screen.

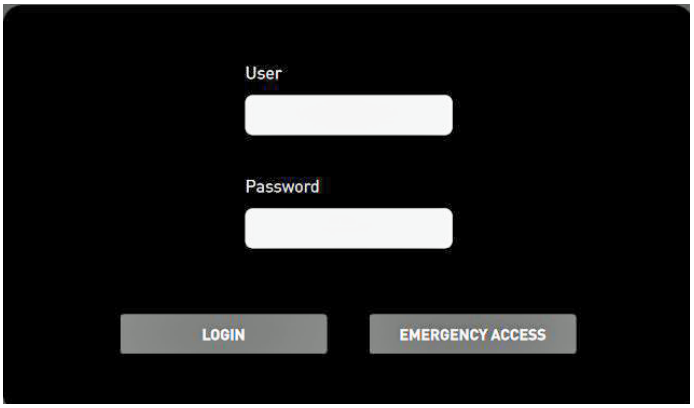


FIGURE 5.7 - System Login Screen

To log on to the system:

1. Enter your User name and Password into the fields on the System Login screen (FIGURE 5.7). Contact your system administrator if necessary to confirm your User name and Password.
2. Select LOGIN. The Patient Scheduler screen displays (FIGURE 5.8).

Y

FIGURE 5.8 - Patient Scheduler Screen, PATIENT SCHEDULER Selected

You can now proceed to either

- Editing patient information (Section 5.7. “Editing Patient Information”)
- Scanning a patient (Section 5.9. “Scheduling an Existing Patient for an Exam”)

5.4.2. Performing an Emergency Login

The system allows a qualified user to log in by entering his or her name without password authentication. This logs the user into the system with clinical role-based access so that patient scanning can be performed. The system logs this emergency-type login, including the operator-provided name, with a time and date stamp. By default, the system requires the operator to re-enter his or her name prior to performing a sixth exam. The system then resets the exam counter upon name entry.

NOTE: A user with ADMIN privileges can change this setting so that the emergency operator need not login after every 5th patient.

TO PERFORM AN EMERGENCY LOGIN AND EXAM: Select EMERGENCY ACCESS on the System Login screen (FIGURE 5.7). You can then perform an emergency exam for this patient. See Section 5.10. “Performing an Emergency Exam on a Patient” for instructions.

5.5. Preparing a Patient for an Exam

5.5.1. Confirming Table Parameters

Before you bring the patient into the examination room, confirm these table parameters, ensure that the patient's weight does not exceed the table weight.

5.5.2. Initial Patient Positioning

NOTE: you can bring the patient into the scanning room and prepare him or her at any time after the system has powered up.

1. Verify that the room and all necessary items are present and the scanner is prepared (warmed up, calibrated, etc.) prior to bringing the patient into the scan room (Section 5.1. "Preparing the Scan Room and the System").
2. After determining the desired patient position on the table, verify that the table is in the load position.
3. Verify the patient's identification and scan procedure.
4. Transfer the patient to the table: guide or physically move the patient into the desired position.
5. Apply any required straps, braces, or other items as may be required to help hold the patient in position. Make final adjustments after you use the patient laser alignment system.
6. Verify that any blankets, straps, and other items, including IV tubes, etc., will not interfere with table motion. Items must be clear and not touch the gantry or otherwise obstruct movement or interfere with the imaging plane (which may result in artifacts in the scans).

5.5.3. Final Patient Positioning

1. From the gantry controls, turn on the laser alignment light.
2. Use the table controls (up/down, in/out) to position the patient such that the lasers intersect at the center of the correct anatomical reference (neck, head, chest, etc.).

IMPORTANT: **Do not position the patient with the laser lights in his or her eyes.**

3. Extend the table into the scanner bore and verify that the patient remains properly positioned. Deflection of the table due to the patient's weight may occur, with a resulting shift in position.

IMPORTANT: For critical scans, you MUST use the CT alignment lights to ensure that the patient is properly positioned.

4. Check the Auto Voice and intercom volumes.
5. Re-verify the patient's identification and scan procedure before proceeding.
6. Confirm both audio and visual communication with the patient.
7. Proceed with the exam.

5.5.4. Moving the Patient During a Power Failure or E-Stop

CAUTION: Take great care when removing the patient in the event of an emergency.

In the event of a power failure or E-Stop:

1. The table stops automatically, if moving, and free floats.
2. Using the molded handle at the back of the table, pull the table out of the Gantry.
3. Assist the patient as needed.

5.5.5. Post-Scan Procedure

1. Communicate with the patient. Ensure patient comfort and safety.
2. Review the scan information. Confirm the quality and scope of the images at time of scan.
3. End the exam. Assist the patient in getting off the table and remove him or her from the exam room.
4. Transmit the images from the exam to the hospital system for diagnostic viewing.

5.6. Adding a New Patient

You can add a new patient to the system database and optionally proceed directly to an exam for that patient.

NOTE 1: To perform an emergency exam on a patient, go to Section 5.10. “Performing an Emergency Exam on a Patient”.

NOTE 2: The ability to register a patient using a barcode reader may be available on certain systems. Refer to supplemental manuals provided with the optional scanner and software. Typically, once a patient’s barcode is scanned the patient’s information displays in the LOCAL DATABASE where it can be confirmed.

To add a new patient:

1. Select PATIENT SCHEDULER. The PATIENT SCHEDULER screen displays (FIGURE 5.9).

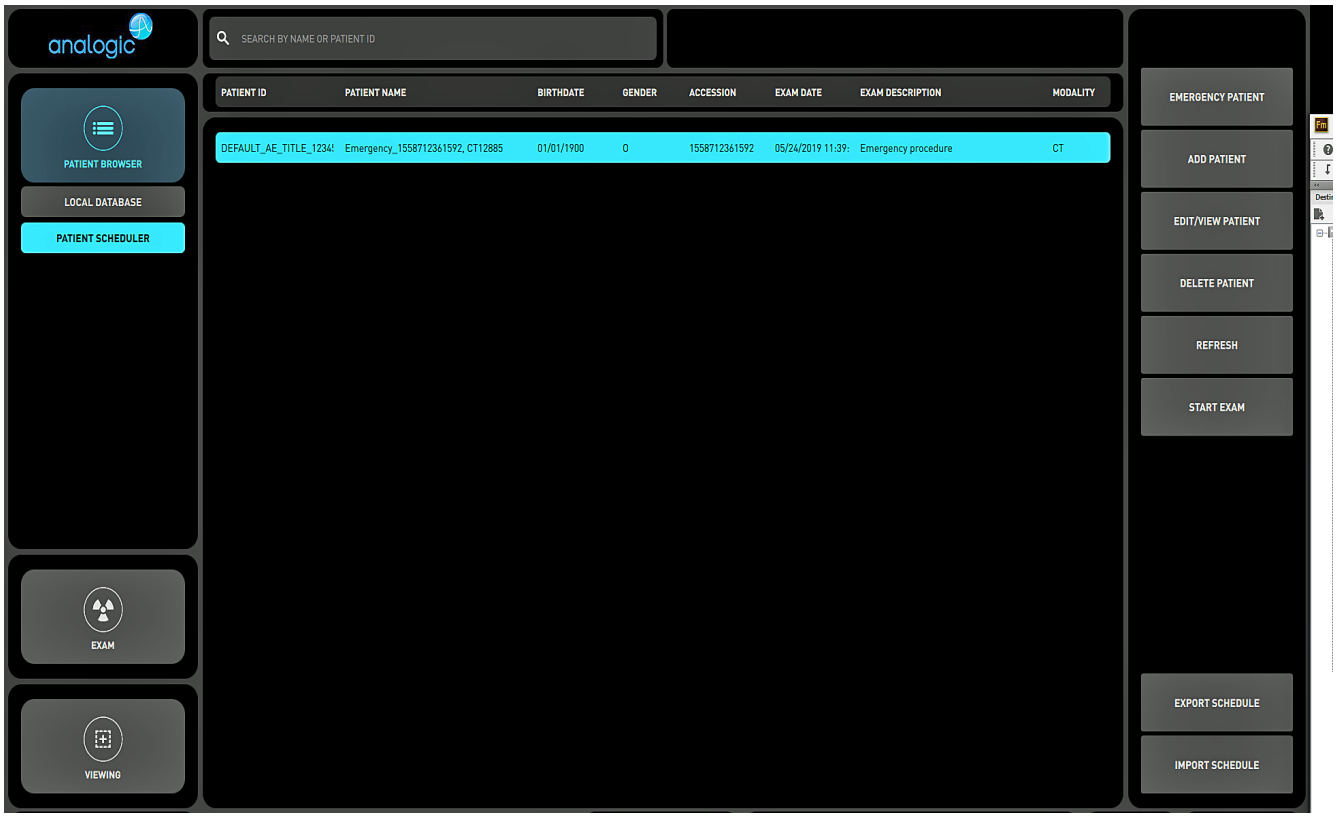


FIGURE 5.9 PATIENT SCHEDULER Screen

2. Select ADD PATIENT. The ADD PATIENT screen displays (FIGURE 5.10).
3. Enter the patient and physician information.

FIGURE 5.10 ADD PATIENT Screen – Register

4. Enter a date and time for the exam.
5. You can either save the patient information only, or both save it and proceed directly to an exam:
   - Select REGISTER to save the patient information in the database without proceeding to an exam
   - Select SAVE AND LOAD TO EXAM to save the patient information in the database and proceed directly to an exam. Section 5.11. “Performing an Exam on a Registered Patient” describes the exam procedure.

5.7. Editing Patient Information

You can edit an existing patient's personal information, exam information, and scheduled exam date and time.

NOTE: You can only edit non-MWL (Modality Work List) registered patients from the operator console.

You can edit patient information either

- From the LOCAL DATABASE screen
- From the PATIENT SCHEDULER screen

5.7.1. Editing Patient Information from the LOCAL DATABASE Screen

To edit patient information from the LOCAL DATABASE screen:

1. From the LOCAL DATABASE screen, select EDIT PATIENT. The EDIT PATIENT Screen - Register displays (FIGURE 5.11).

FIGURE 5.11 EDIT PATIENT Screen – Register

2. Verify, edit, or enter the patient's data.
3. Select SAVE AND LOAD TO EXAM to go directly to the Exam screen (Section 5.9. "Scheduling an Existing Patient for an Exam").

5.7.2. Editing Patient Information from the PATIENT SCHEDULER Screen

1. From the PATIENT SCHEDULER screen, select EDIT PATIENT. The EDIT PATIENT screen displays (FIGURE 5.11).
2. Verify or enter the patient's data, exam information, and exam date and time.
3. Select SAVE AND LOAD TO EXAM to go directly to the Exam screen (Section 5.9. "Scheduling an Existing Patient for an Exam").

5.8. Deleting a Patient from the System

You can delete a patient from either

- The PATIENT SCHEDULER
- The LOCAL DATABASE

NOTE: If you delete a patient's records, all patient information is permanently lost.

5.8.1. Deleting a Patient from the PATIENT SCHEDULER

To delete a patient from the PATIENT SCHEDULER:

1. Select the patient you want to delete from the PATIENT SCHEDULER list (FIGURE 5.12).

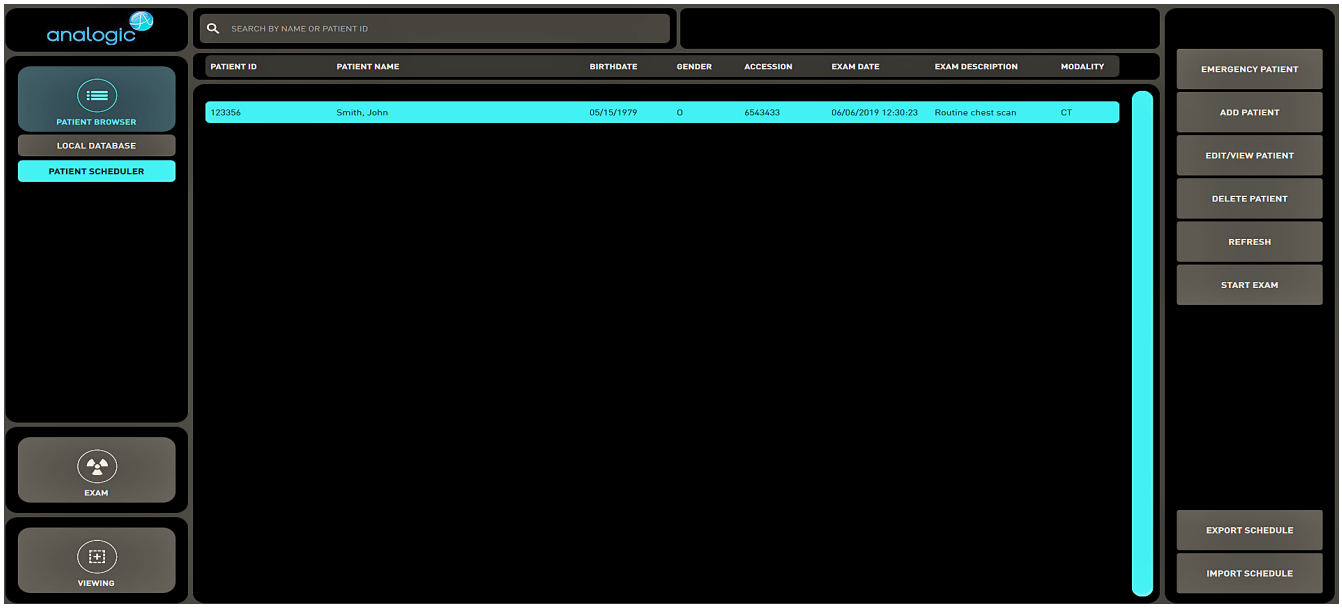


FIGURE 5.12 Deleting a Patient from the PATIENT SCHEDULER

2. Select DELETE PATIENT. The REMOVE SCHEDULED EXAM screen displays (FIGURE 5.13).

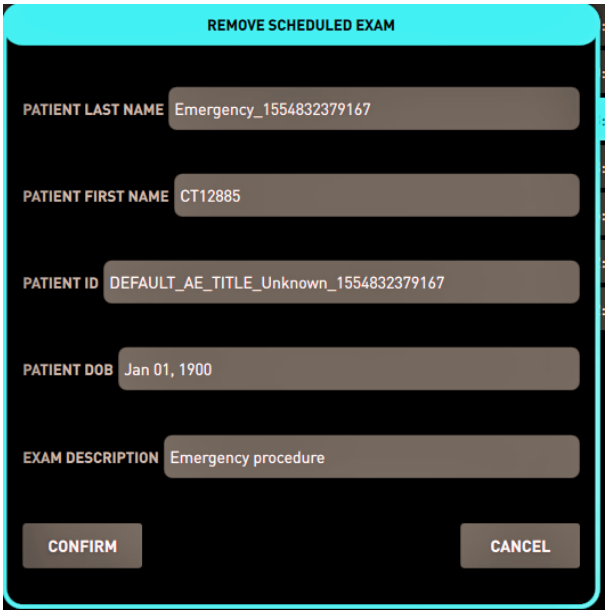


FIGURE 5.13 REMOVE SCHEDULED EXAM

3. Verify the data in each field.
4. Select CONFIRM to delete the patient.

5.8.2. Deleting a Patient from the LOCAL DATABASE

To delete a patient from the LOCAL DATABASE:

1. Select the patient you want to delete from the LOCAL DATABASE list (FIGURE 5.14).

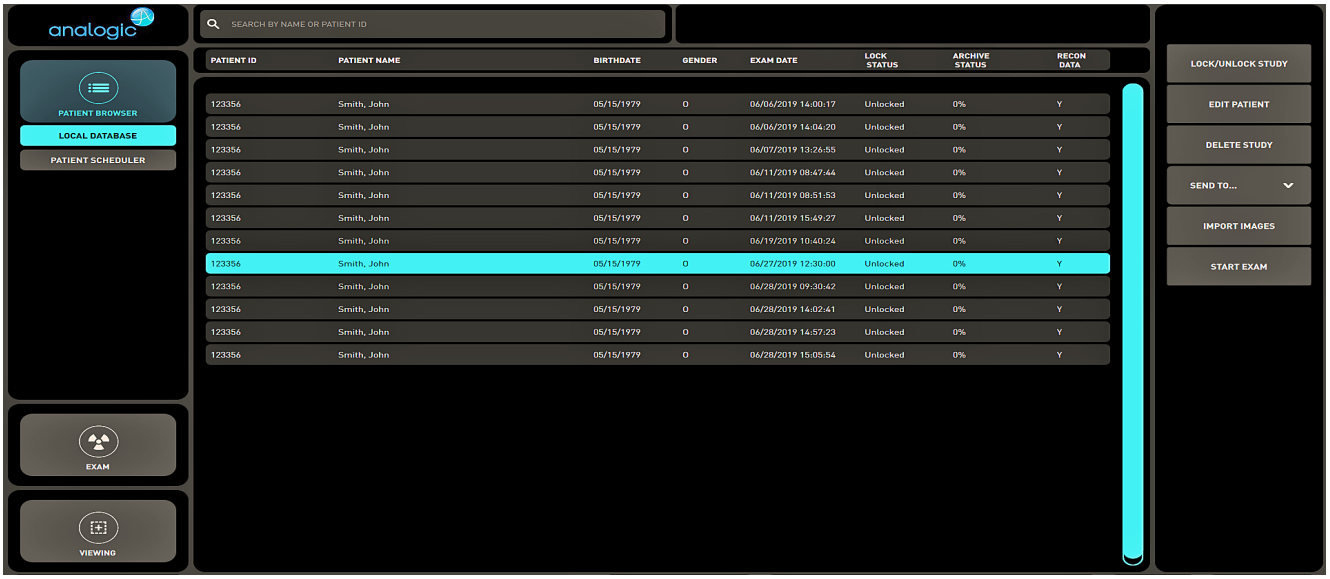


FIGURE 5.14 Deleting a Patient from the Local Database

2. Select DELETE STUDY.
3. Select CONFIRM to delete the patient.

5.9. Scheduling an Existing Patient for an Exam

NOTE: TO SCHEDULE A PATIENT FOR AN EMERGENCY EXAM, SEE SECTION 5.10.

To schedule an existing patient for an exam:

1. Select the patient from the PATIENT SCHEDULER screen (FIGURE 5.15).

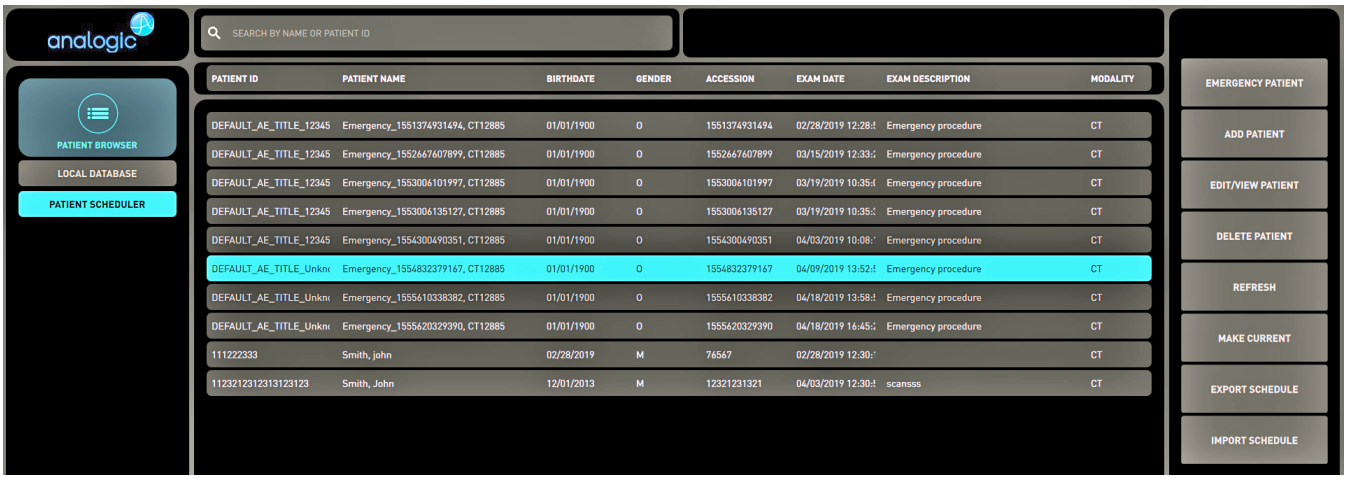


FIGURE 5.15 Selecting a Patient from the Patient Scheduler Screen

2. Select EDIT/VIEW PATIENT. The EDIT PATIENT screen displays (FIGURE 5.16).

FIGURE 5.16 EDIT PATIENT Screen

3. Edit patient information as needed.
4. Enter a date and time for the exam.
5. Select SAVE AND LOAD TO EXAM. The PATIENT EXAM screen displays (FIGURE 5.17).

NOTE: The default PATIENT TYPE is pre-selected to be either ADULT or PEDIATRIC, depending on the patient's age. You can change this if desired.

FIGURE 5.17 Patient Exam Screen

6. Proceed to Section 5.11. “Performing an Exam on a Registered Patient”.

5.10. Performing an Emergency Exam on a Patient

When an emergency patient requires a scan there may be either insufficient time to enter data or the patient’s name and personal information may not be known.

To perform a scan on an emergency patient:

1. Select PATIENT SCHEDULER to display the Patient Scheduler screen.
2. Select EMERGENCY PATIENT.

   The system assigns an Emergency Patient coded name and ID.
3. Proceed with the instructions in Section 5.11. “Performing an Exam on a Registered Patient”.

5.11. Performing an Exam on a Registered Patient

To perform an exam on a registered patient:

1. From the PATIENT BROWSER screen, select either:
   - LOCAL DATABASE to select a patient from the list of all registered patients

     OR

   - PATIENT SCHEDULER to select a patient from the list of patients with scheduled exams

     FIGURE 5.18 shows patient selection from the PATIENT SCHEDULER screen.

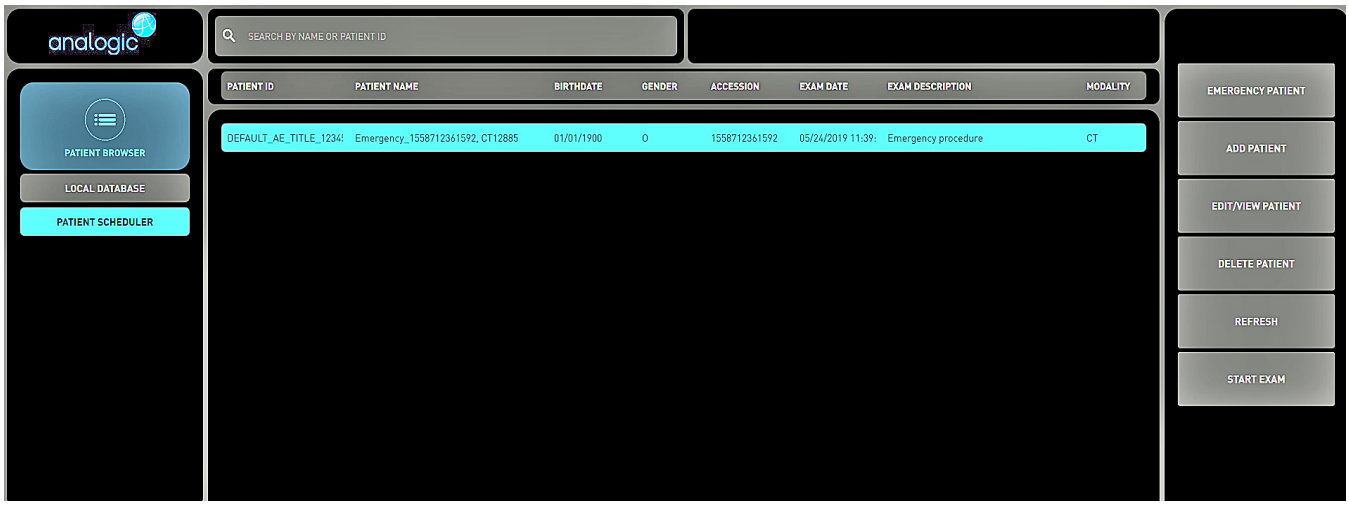


FIGURE 5.18 - PATIENT BROWSER screen, PATIENT SCHEDULER selected

2. Select START EXAM. The Exam screen displays. The screen shows PATIENT INFORMATION and PATIENT DETAILS for this patient (FIGURE 5.19).

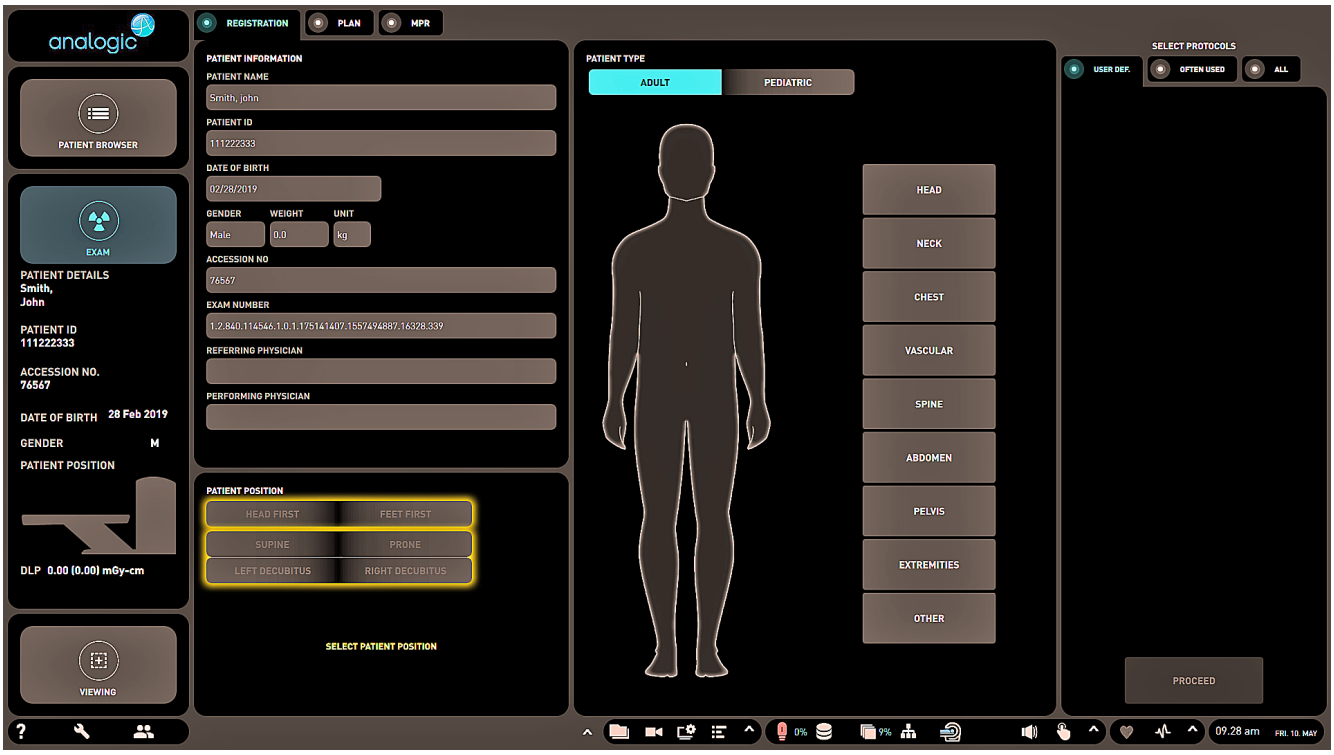


FIGURE 5.19 - Exam Screen

3. PATIENT TYPE is pre-selected based on the patient's age. PATIENT TYPE places a filter on the displayed protocols to help prevent the use of adult protocols on pediatric patients.

   NOTE: You can optionally change the pre-selected PATIENT TYPE.

   IMPORTANT: Adult protocols represent significant increases in radiation dose to almost all pediatric patients. Younger patients, with less mass and area, must receive significantly less radiation exposure with the programmed pediatric protocols.

4. Select an Exam Protocol:
   a. Select the anatomical region you want to scan (FIGURE 5.20). When you do so a list of possible protocols for the selected patient type and anatomical region displays under SELECT PROTOCOLS.
   b. Select the desired protocol from the SELECT PROTOCOLS list.
      - In FIGURE 5.20 the PATIENT TYPE is ADULT
      - The selected region to scan is CHEST
      - The SELECTED PROTOCOL is ROUTINE CHEST

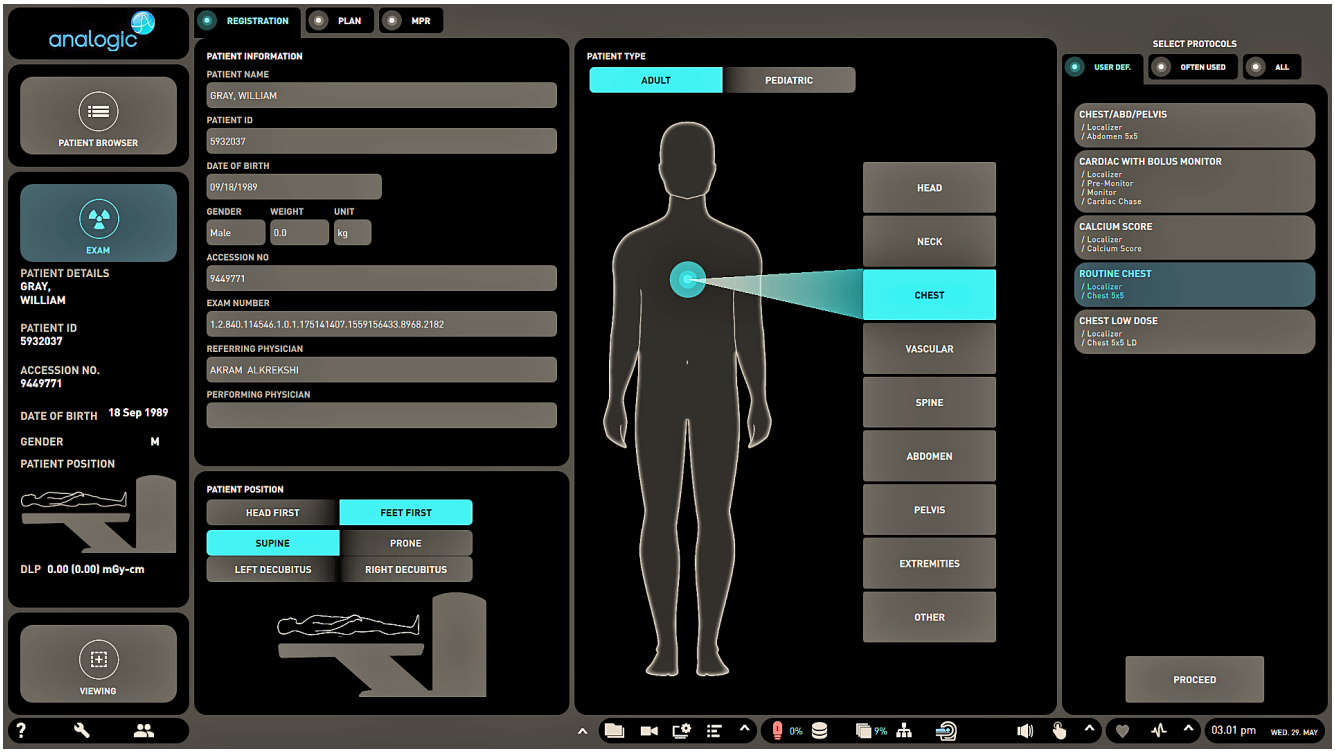


FIGURE 5.20 Protocol Selection based on Anatomical Region to Scan

5. The system selects PATIENT POSITION -- in this example, FEET FIRST, SUPINE.

   NOTE: You can optionally change PATIENT POSITION.

6. You now have the option to either Replace, Append, or Cancel the scan. Select the selected protocol to see these options (FIGURE 5.21).
   - **Replace:** Causes the originally selected protocol and its entire timing group, including any timing groups that may have been appended to it, to replace the currently selected protocol
   - **Append:** Causes the selected protocol's timing groups to be appended to the end of the originally selected protocol and its timing groups
   - **Cancel:** Performs no action. The previously selected protocol remains the active protocol. Tapping or selecting anywhere on the screen has the same effect as selecting Cancel.

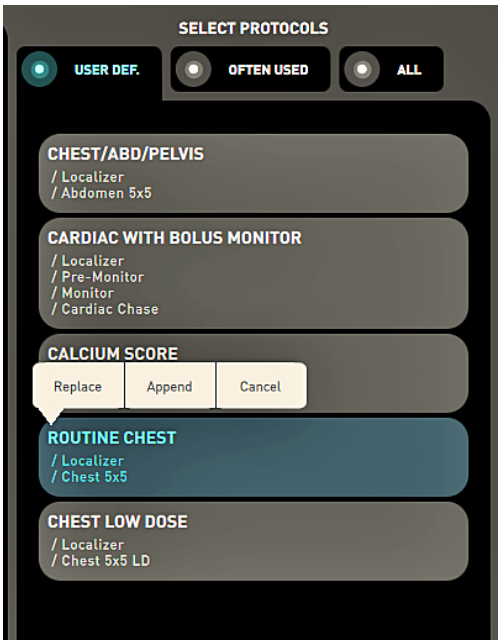
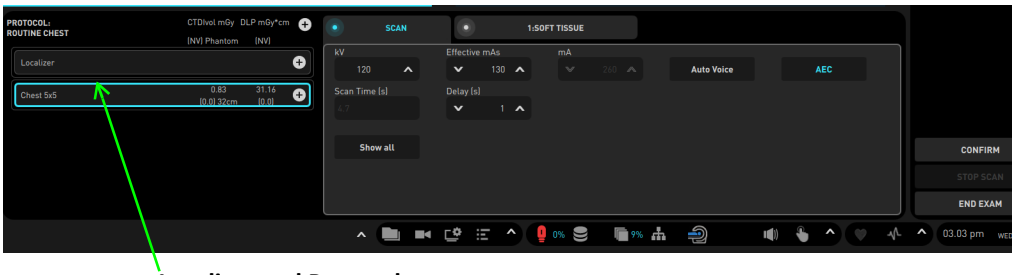


FIGURE 5.21 Replace, Append, or Cancel a Scan

7. Select PROCEED**.** The EXAM screen displays, showing the scheduled Localizer and Protocol scans in the lower left portion of the screen (FIGURE 5.22).



Localizer and Protocol Scans

FIGURE 5.22 EXAM Screen - Lower Left

The scanning process consists of a Localizer scan and one or more Protocol scans.

Both the Localizer scan and the protocol scan you created appear where indicated on the EXAM screen (FIGURE 5.22). The content of the current protocol transfers from the REGISTRATION screen to the EXAM screen.

Localizer scan

The Localizer scan is a very low-dose scan that determines the exact scan and exposure region of the patient on the table. You use this scan to set the exact exposure field to ensure that the correct target area is scanned and that no extraneous areas are exposed to the scan process.

When you begin scanning the Localizer scan runs first, followed immediately by the Protocol scan.

Protocol scans

In FIGURE 5.20, a Routine Chest protocol was selected. Note that this protocol appears beneath the localizer scan in FIGURE 5.22.

Dose Checking

In FIGURE 5.23, 49.29 is the calculated dose for the Routine Chest scan series. The (0.0) value represents the system's pre-configured limit. Any scan which exceeds this limit generates a Dose Alert.

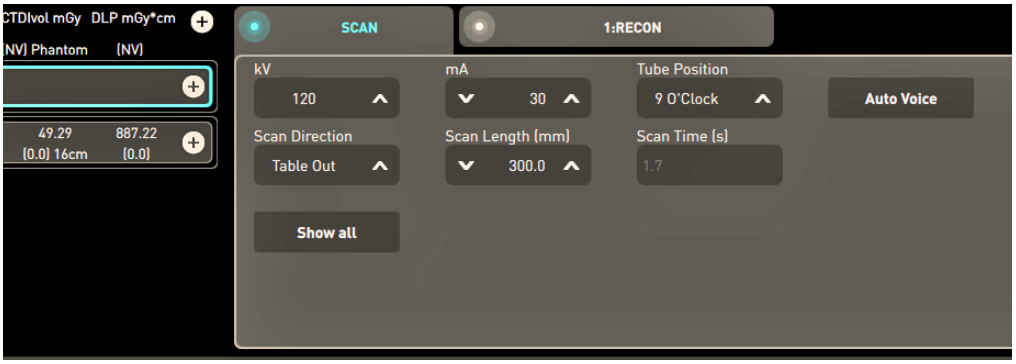


FIGURE 5.23 Dose Checking

NOTE: If a Dose Alert appears, refer to Section 5.14. "Interpreting a Dose Alert".

CAUTION: Inform patients not to move during scanning. If at any time during the scan the patient begins to move, ask him or her to stop moving. If the patient continues to move, a method such as restraints may be required per site protocol.

8. With the patient properly positioned on the scan table, select **CONFIRM** to begin the scan. (FIGURE 5.24)

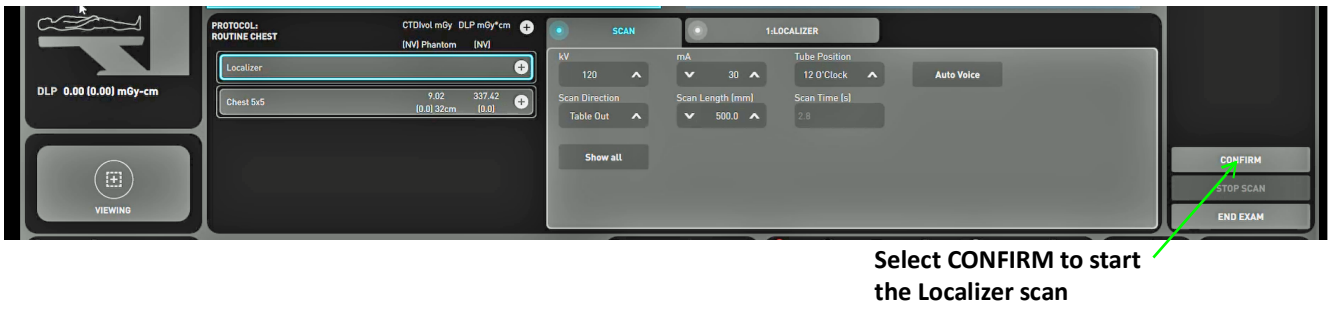


FIGURE 5.24 Begin the Localizer Scan

9. If the Table Move screen displays, press and hold the MOVE TABLE button on the Gantry Control Box (GCB) until the table stops moving. The table automatically moves to the correct programmed position for the selected anatomical region.

   IMPORTANT: TABLE MOVEMENT REQUIRES CONSTANT OPERATOR ATTENTION TO ENSURE PATIENT SAFETY. Wait while the system takes a few moments to pre-

pare the various sub-systems, then select the **START SCAN** button when prompted to begin the scan. The Localizer scan completes.

The system now selects the exam protocol and the Range Box appears immediately (FIGURE 5.25).

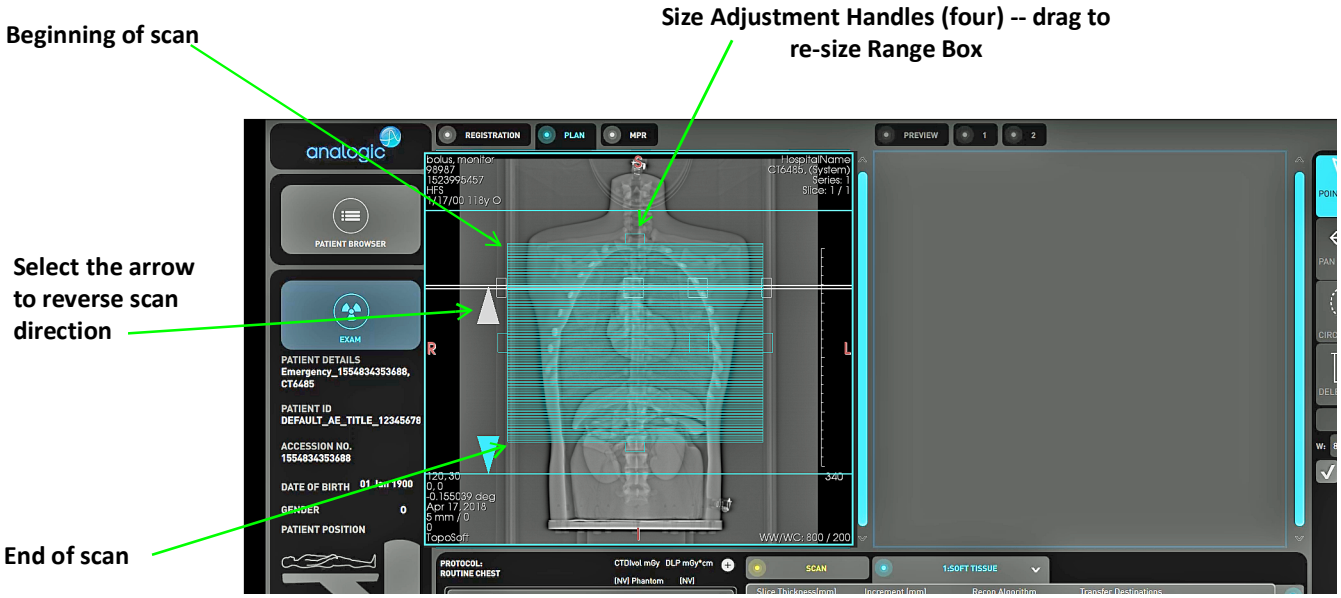


FIGURE 5.25 Range Box

10. The Range Box determines the area which will be scanned. It shows the thickness of the slices and the distance between slices. Adjust the Range Box size and the scan direction as shown in FIGURE 5.25.
11. Select CONFIRM to begin the protocol scan.

When the protocol scan completes, the image representing the preview scan appears in the right-hand display area (FIGURE 5.26).

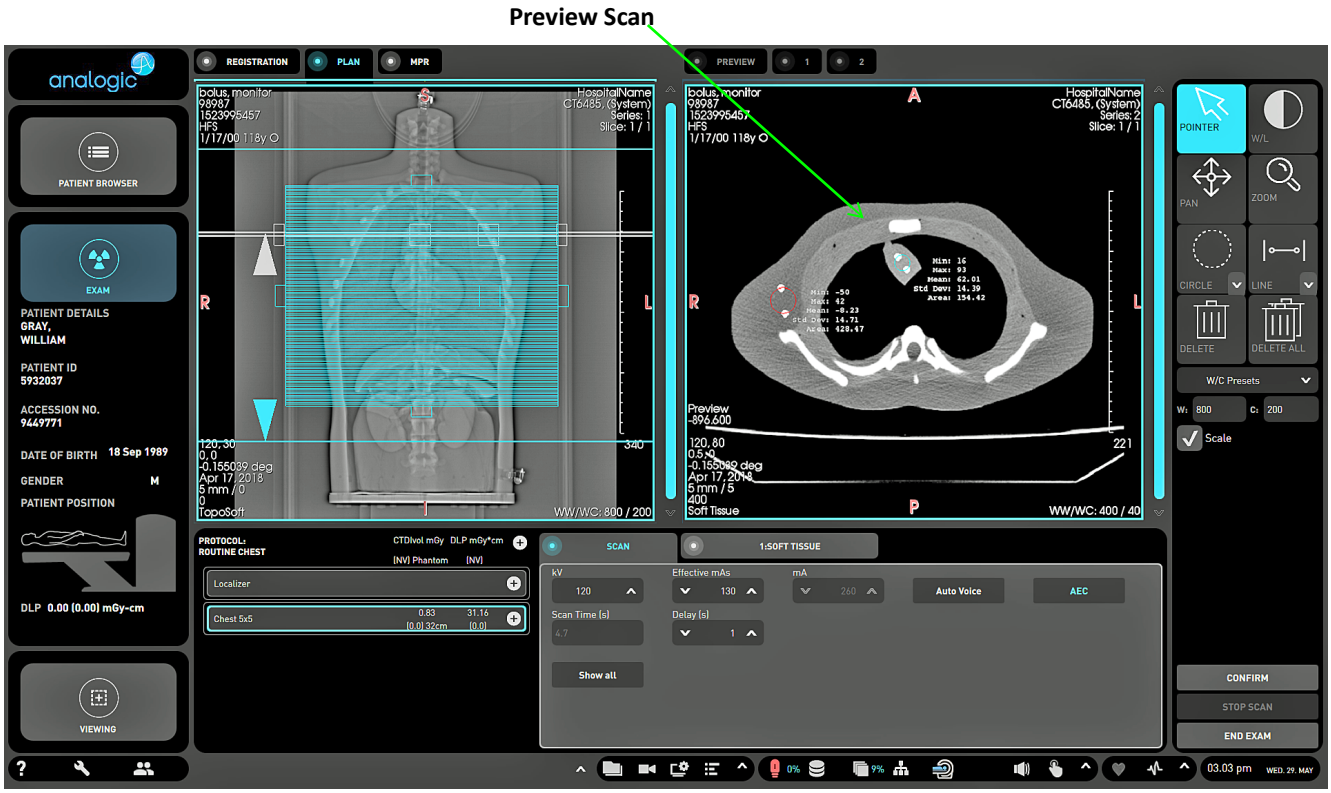


FIGURE 5.26 Protocol Exam Result - Preview Scan

12. Review the preview images to ensure complete coverage.
13. Multi-Planar Reformation (MPR) is available to review or plan new reformats. Section 5.12. “Creating and Viewing MPRs” describes how.
14. Select END EXAM to complete the exam.

Now you can create multiple image sets (RECONS). Section 5.11.1. “Creating Multiple Image Sets (RECONS) From One Patient Scan” describes how.

5.11.1. Creating Multiple Image Sets (RECONS) From One Patient Scan

You can program multiple reconstructions (RECONS) prior to scanning. The system adjusts the scan to acquire the image information required to produce as many reconstruction sets as you program.

For example, you can create a set of images with an image thickness of 0.625 mm and an image thickness of 0.500 mm, etc. The system automatically determines the number of slices to create and other factors needed to acquire data to reconstruct both sets of images.

To create a RECON set:

1. Press and hold the PLUS sign next to a scan set until a menu appears (FIGURE 5.27).

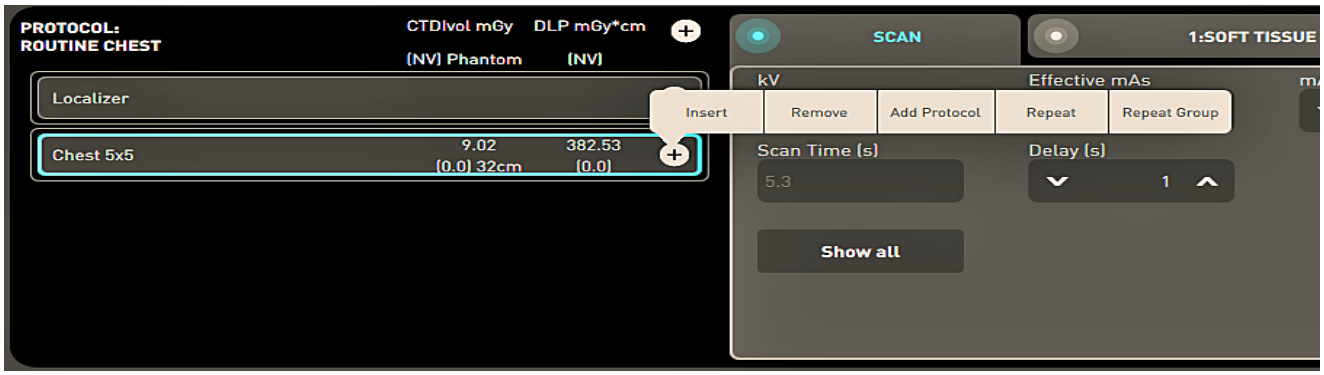


FIGURE 5.27 Creating Additional RECON Set

2. Select INSERT.
3. Select RECON.
4. Select INSERT.

The SELECT PROTOCOL ENTRY TYPE and SELECT A SCAN TYPE screen displays (FIGURE 5.28).

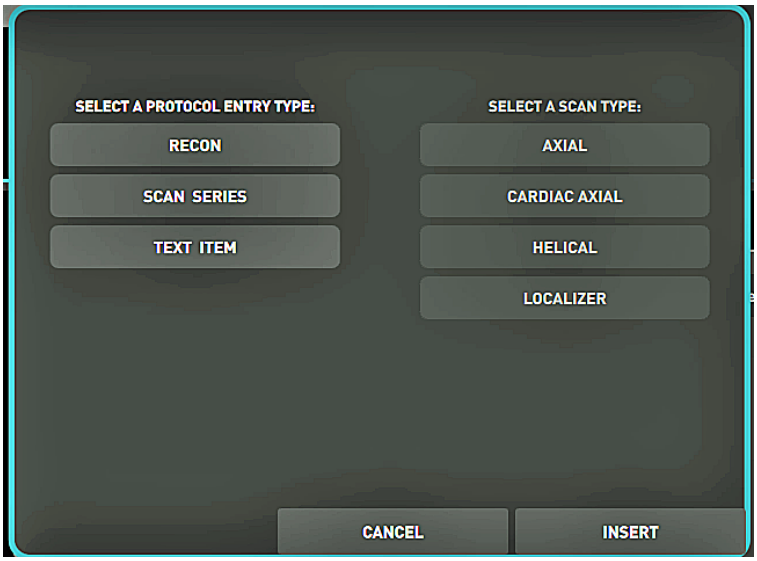


FIGURE 5.28 Select Protocol Entry Type

A second range box now displays to show that a second recon will be taken (FIGURE 5.29). The box displays the thickness of the slices and the distance between image slices.

NOTE: This display may vary based on the slices and distances chosen. If the slices are too close together for the monitor to display, an approximate shading area displays to represent the second reconstruction set.

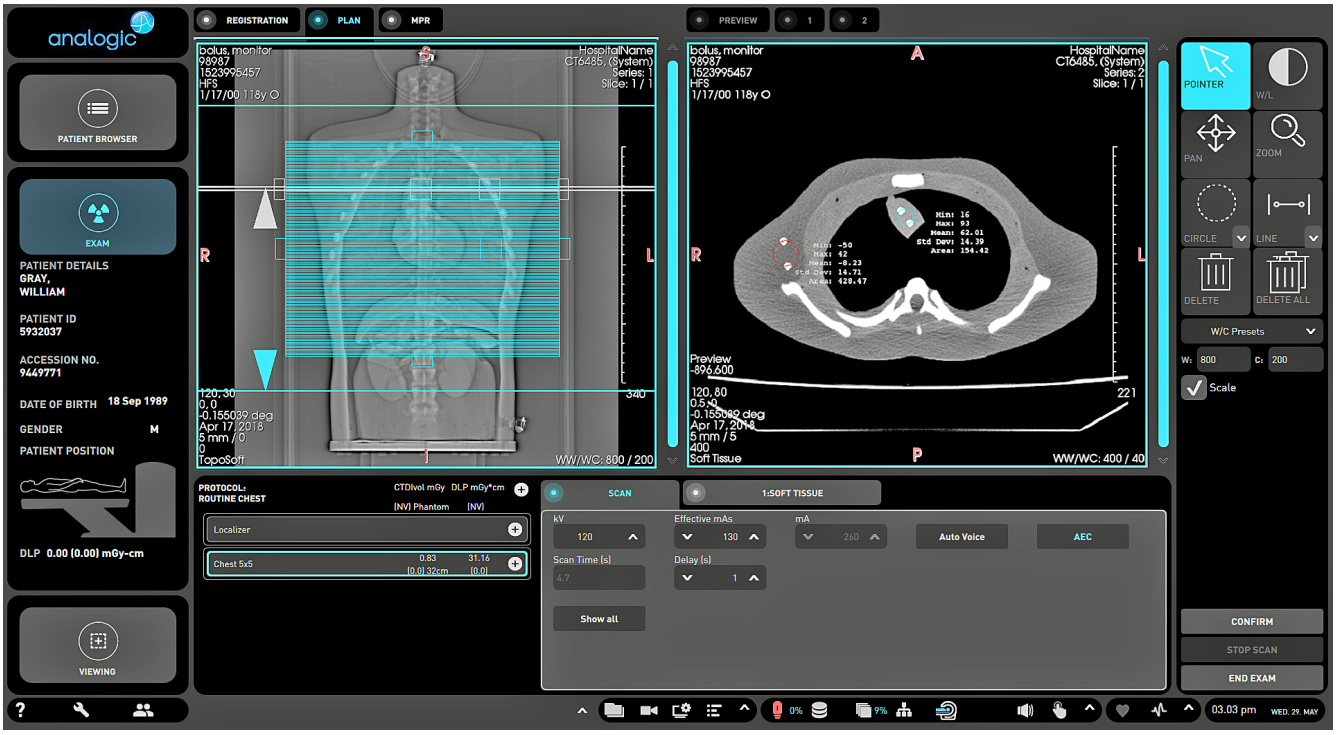


FIGURE 5.29 Second Reconstruction Set

5. Use the pointer to adjust the second range box size or select **RECON** to display the RECON sets, select a set, then make adjustments to the RECON parameters (FIGURE 5.30).

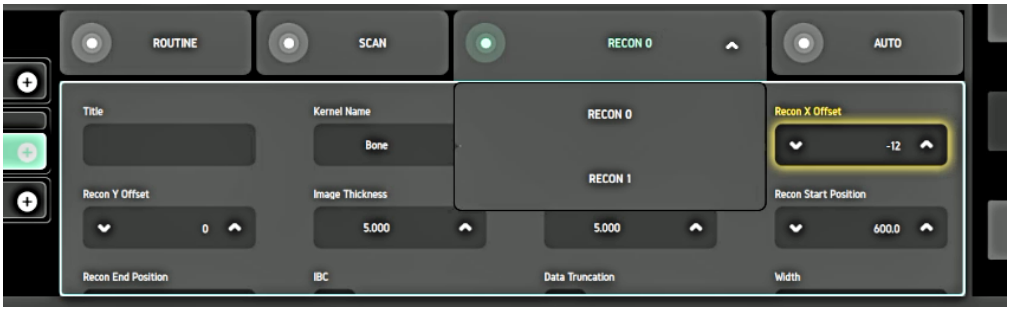


FIGURE 5.30 RECON Parameters Adjustment

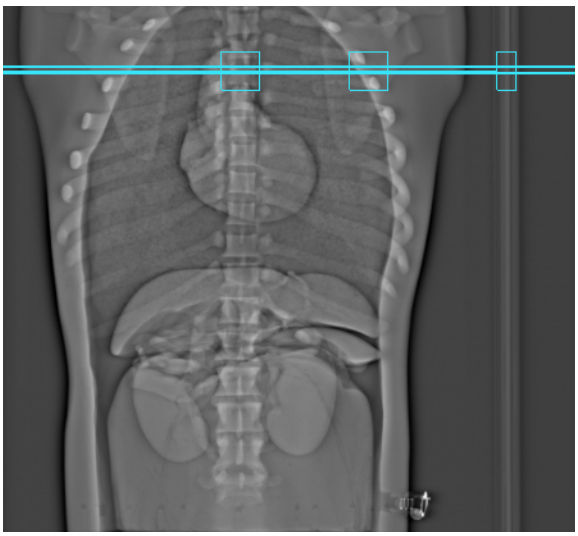
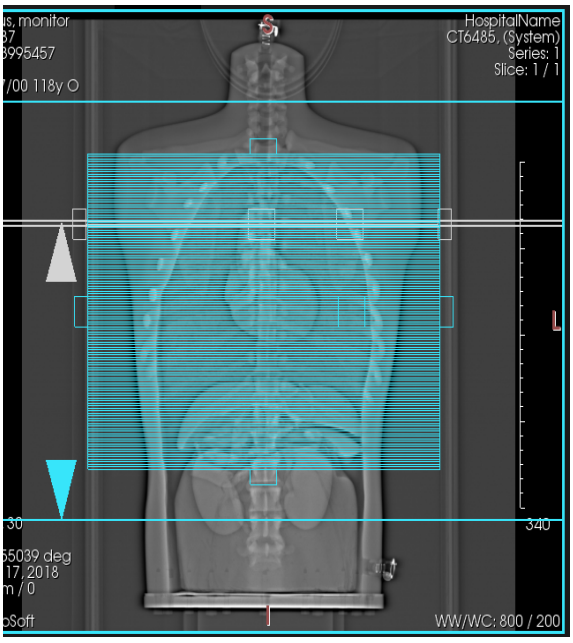
NOTE: The Recon Start and Stop positions will vary slightly from those shown on the parameters page, as the actual start and stop positions are done in whole-number increments. For example, a manual data entry of 244.79 translates to a position of 245.0. When adjusting the Range Box, the edges of the box automatically snap to whole-number increments.

5.11.2. Positioning and Sizing the Range Box

Use the pointer to position and size the Range Box over the desired image reconstruction area. Re-size the box by selecting the top, bottom, left, or right sides of the box to drag-resize the box.

SCAN DIRECTION: The arrow on the end of the Range Box displays the scan direction. Double-select on the arrow to change the scan direction.

TABLE 5.3. Range Box Locations & Sizes

The Range Box is initially small and is positioned on the upper part of the screen.	
Use the Pointer tool to move the Range Box to the position shown.	

5.12. Creating and Viewing MPRs

Multi-Planar Reformation (MPR) displays an orthogonal view of a scan and lets you scroll through that view while displaying the corresponding image slice on the screen.

There are two MPR modes:

- Automatic - automatically saves the MPR
- Semi-Automatic - you manually save the MPR

5.12.1. Creating an Automatic MPR

To automatically create and save MPR data during a scan:

1. Run a scan (FIGURE 5.31).

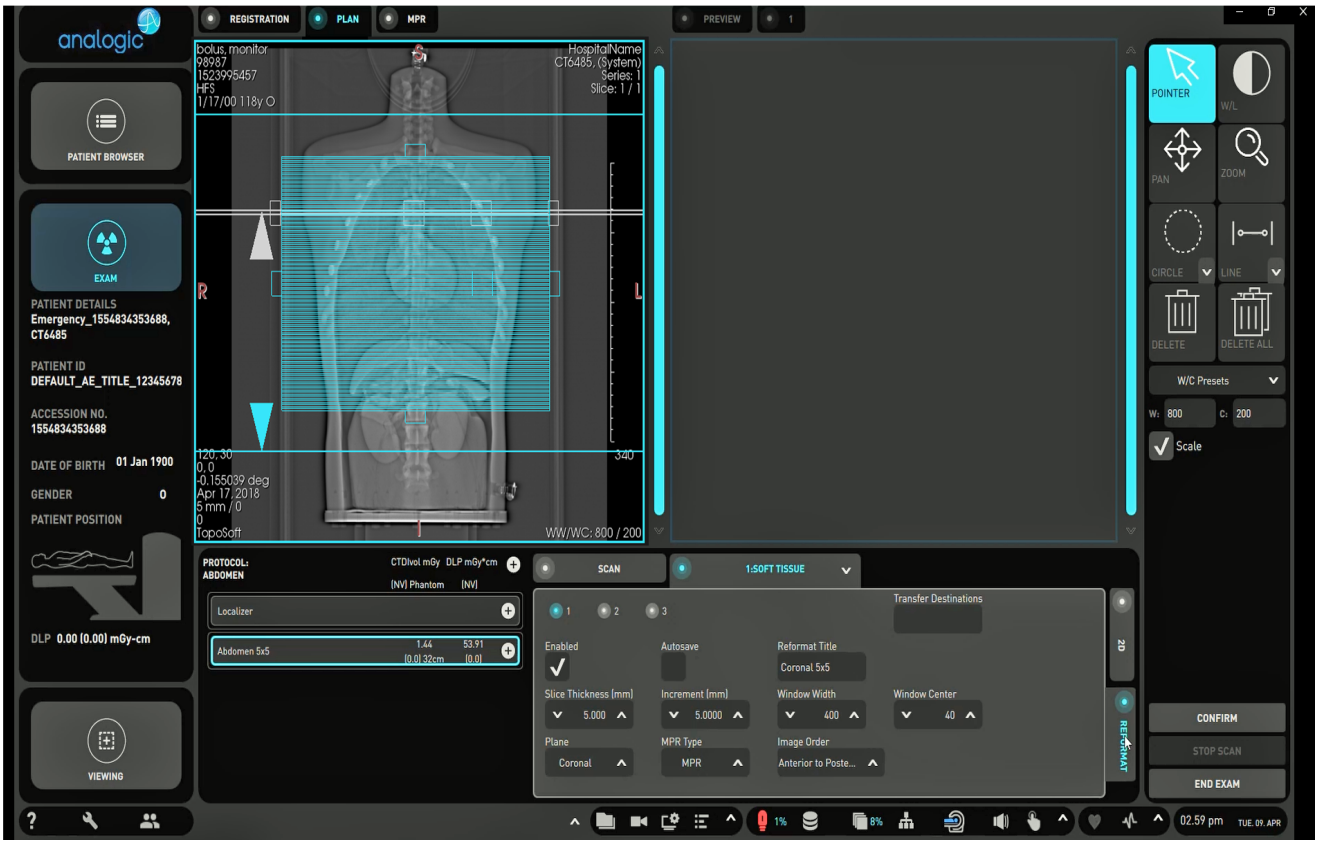


FIGURE 5.31 Initial Scan

2. From the Reconstruction (RECON) tab, there is a 2D and a REFORMAT tab. Select the REFORMAT tab (FIGURE 5.32).

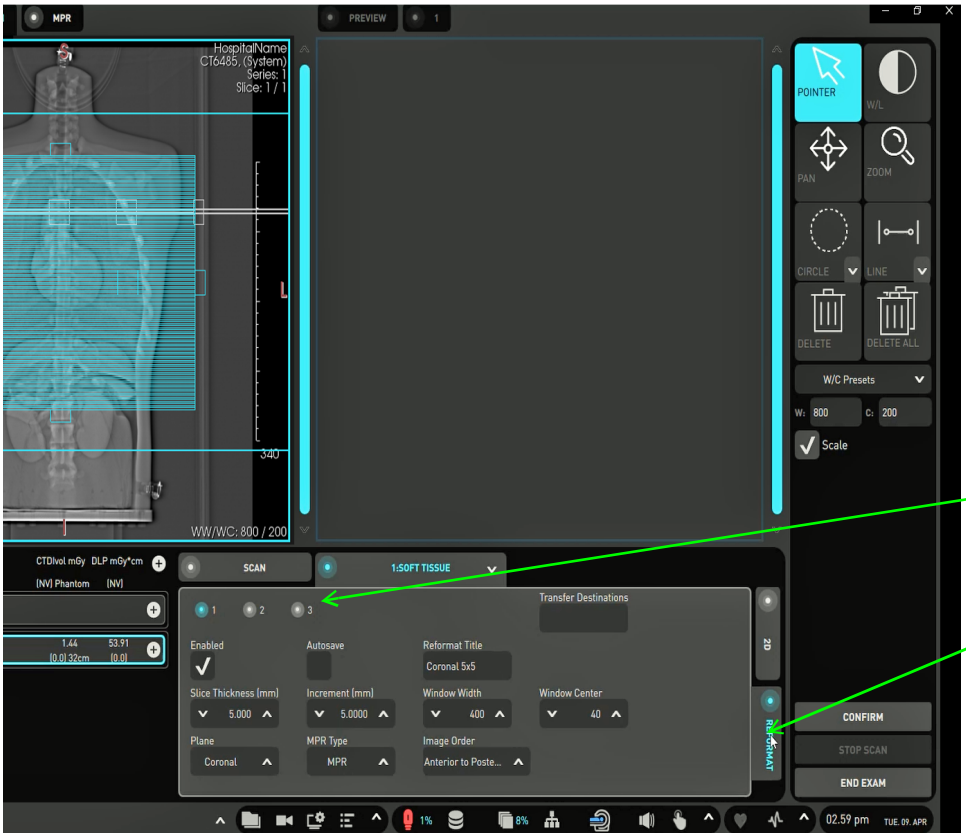


FIGURE 5.32 MPR Selection and Reformat Tab

The REFORMAT tab allows up to three possible MPR formats. In FIGURE 5.32, MPR 1 is set up to be a Coronal 5x5, for example. You can select the other parameters as well.

3. Select the SCAN tab.
4. Select CONFIRM to start the scan. The PREVIEW image appears (FIGURE 5.33).

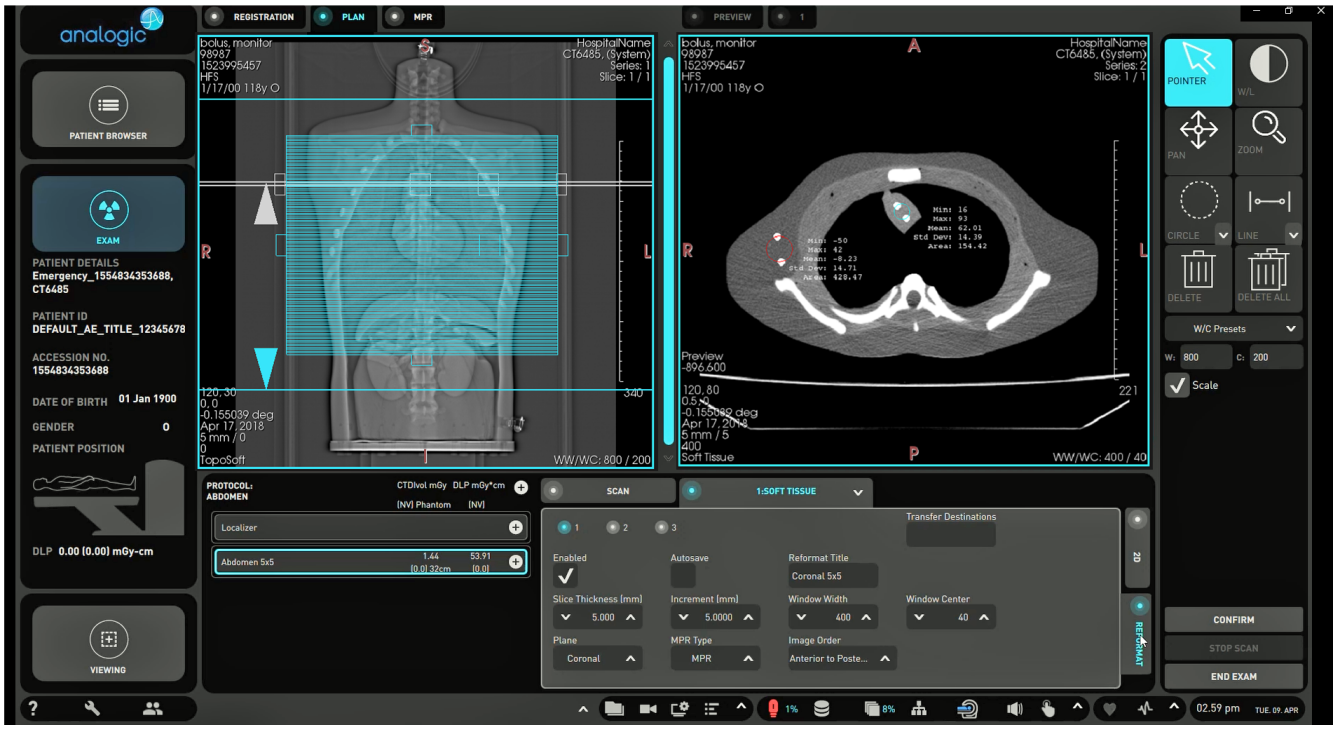


FIGURE 5.33 Preview Image

5. At the top of the EXAM screen, select MPR. The exam plan screen displays (FIGURE 5.34).

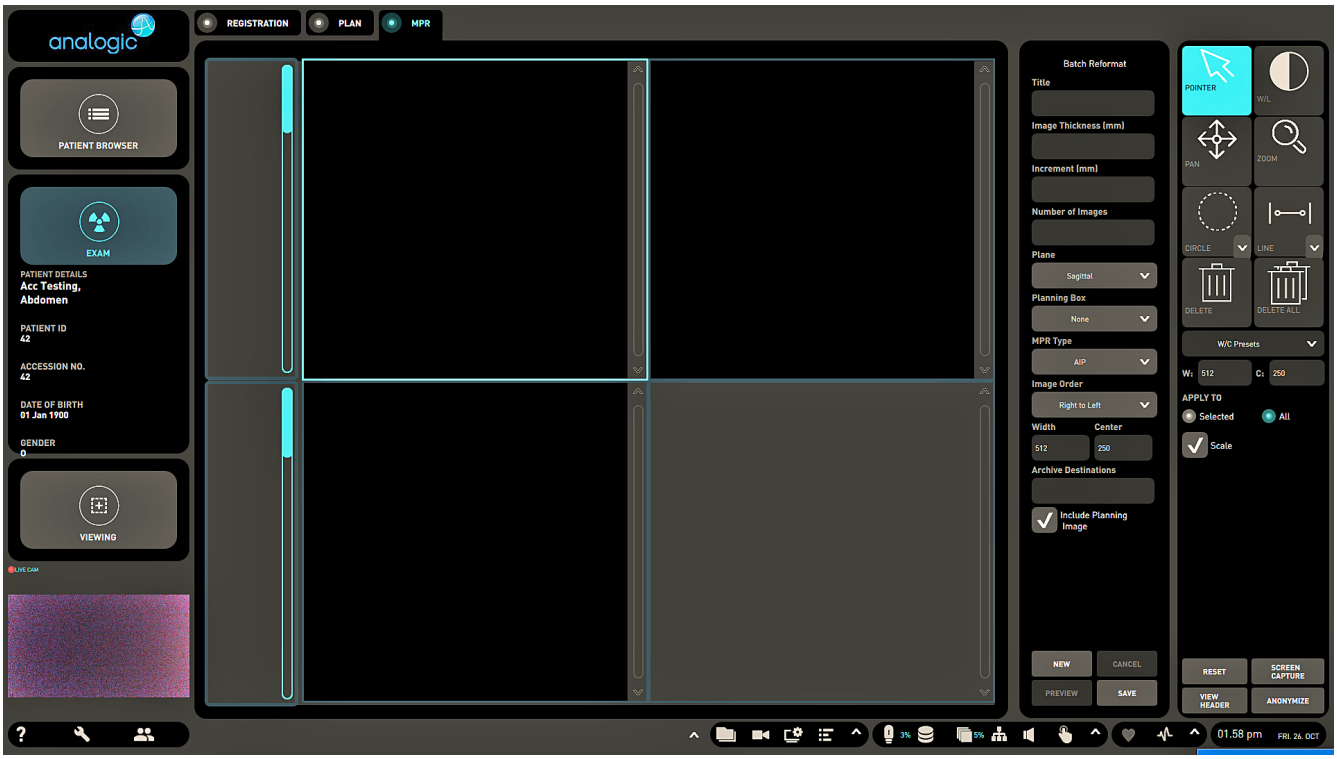


FIGURE 5.34 Exam MPR

These panes automatically populate when the computer generates the necessary information (FIGURE 5.35).

Note the thumbnail on the left on the left side of the panes. Thumbnails appear in a column:

- Top column - inputs
- Bottom column - outputs - the automatic MPRs you chose to create

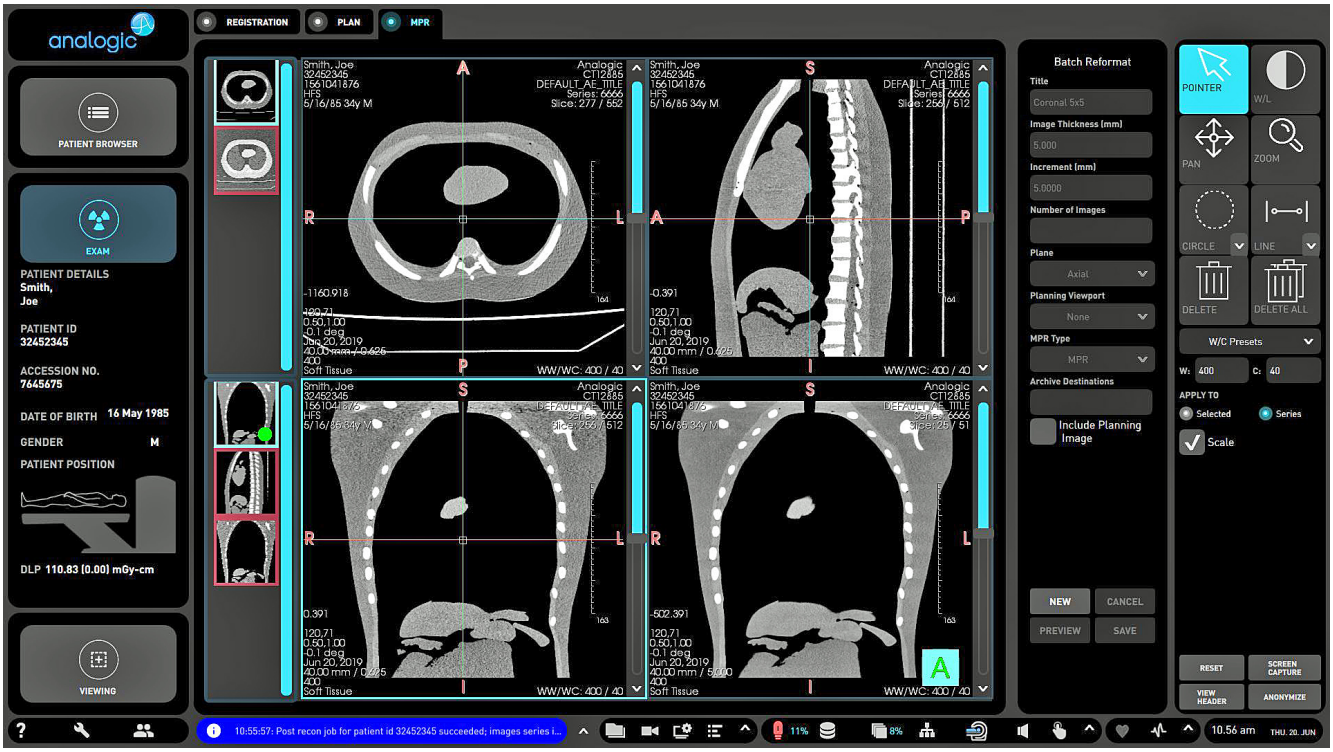


FIGURE 5.35 Exam MPR Result

When you automatically create MPRs, each displays on the left as a separate thumbnail. When you select a thumbnail it appears on the bottom right viewport.

The other three viewports show reference planes:

- Top left - Axial
- Bottom left - Coronal
- Top right - Sagittal

6. Use the scroll bar on the lower right image to view the dataset.
7. In the Batch Reformat column, select SAVE to save the image to the database. A green dot appears on the thumbnail that represents that dataset.
8. Now you can select the next output and repeat the action. The Batch Reformat column provides all the data for each output.

5.12.2. Manually Creating an MPR

To manually create an MPR:

1. Select NEW. This puts a range box over the image (FIGURE 5.36).

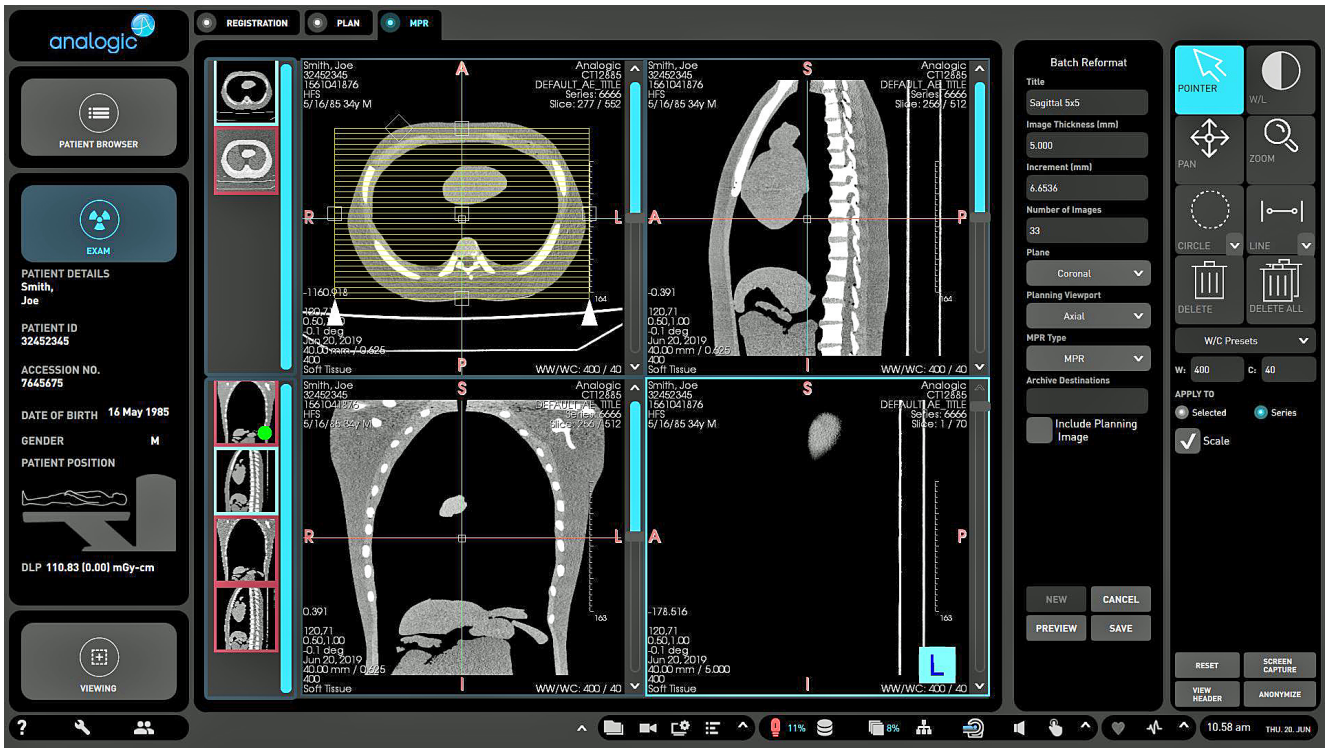


FIGURE 5.36 Image with Range Box

Change the Range Box for the desired area.

3. You can change the Plane, Planning Viewport, and MPR Type (under Batch Reformat column.) (FIGURE 5.37)

4. You can optionally populate all Batch Reformat fields with new settings.

5. Select PREVIEW. You now get a preview image of this batch in the lower right viewport.

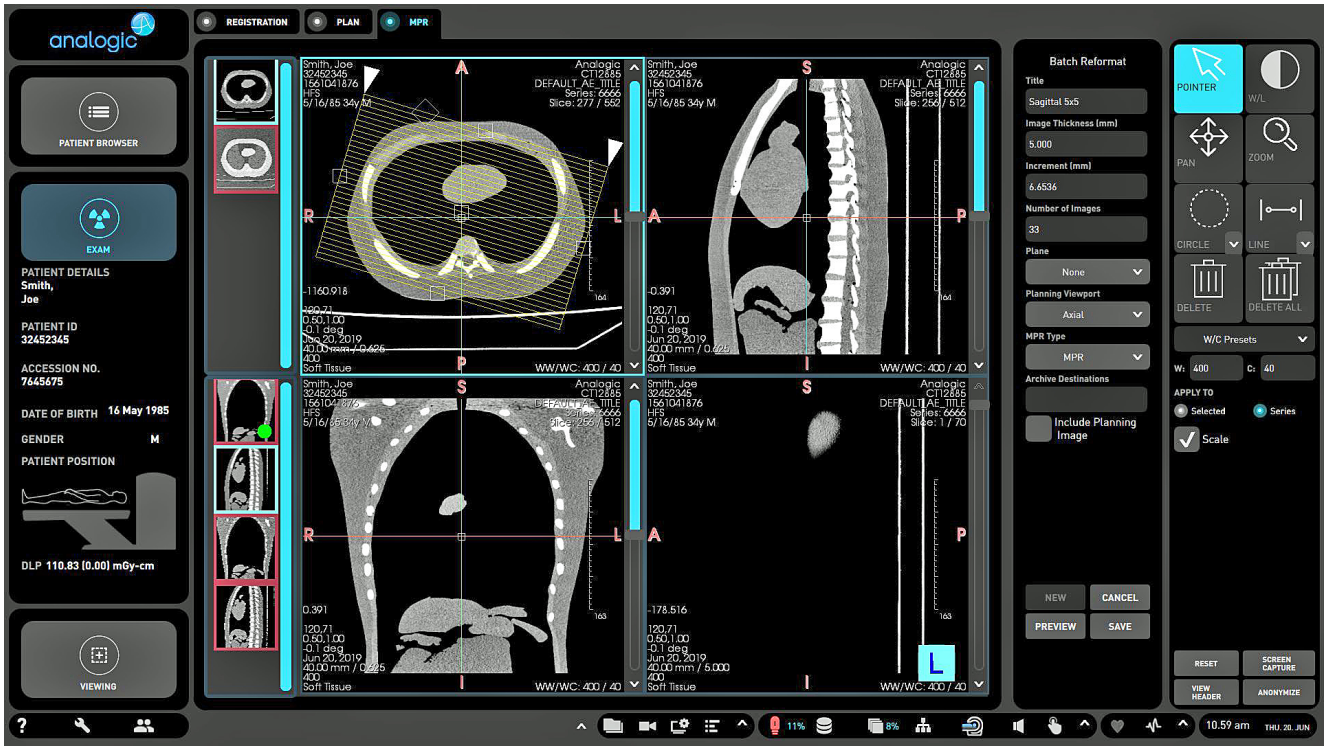


FIGURE 5.37 Changing the Range Box Area

A new thumbnail appears with a green dot -- this is the new batch (viewport 4).

6. Click VIEWING. This loads a patient data set into VIEWING and switches to MPR. FIGURE 5.38 displays.

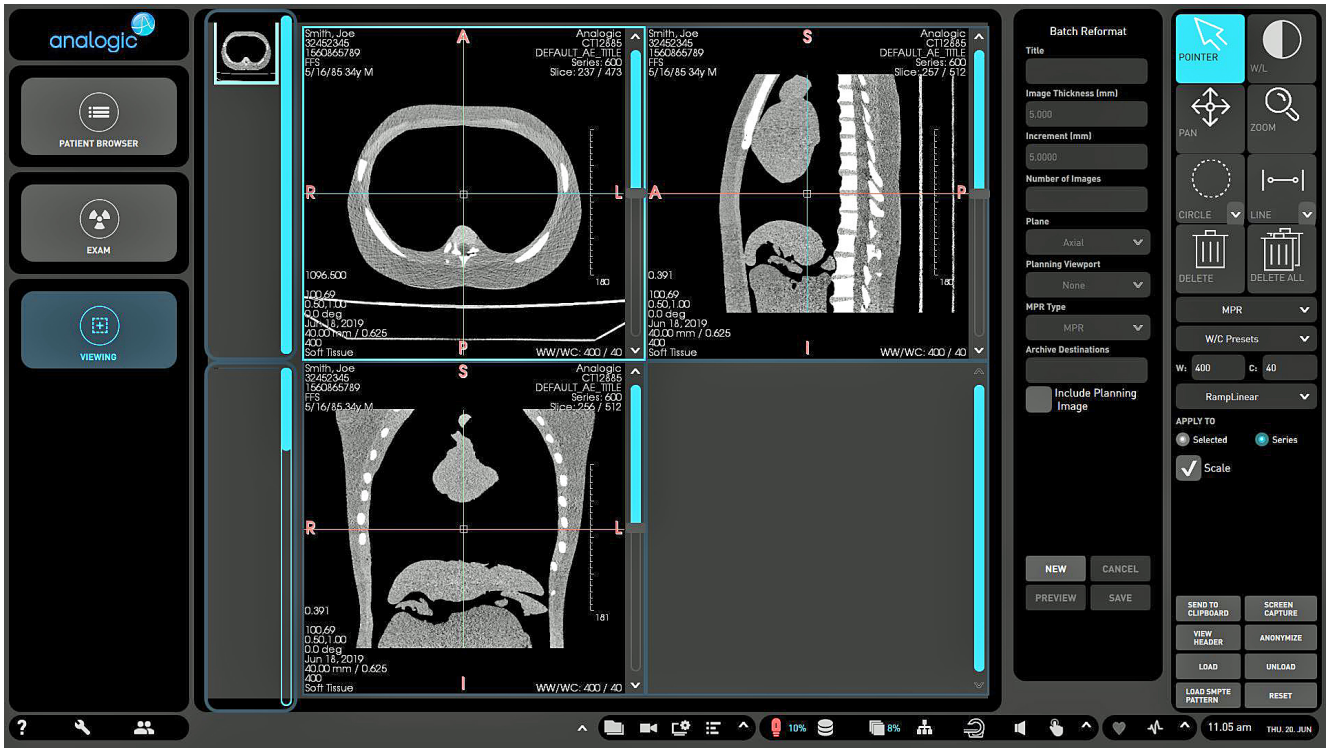


FIGURE 5.38 MPR Images

7. Proceed as with an automatic MPR: Set up the scan, then select PREVIEW, scroll through the data set, then SAVE.

NOTE: If you select PREVIEW and then change any data, or you must select PREVIEW again.

5.13. Viewing a Dose Report

Each scan series saves a Dose Report, which you can send via DICOM for records storage and review. To view the Dose Report:

1. At the home screen, select Local Database.
2. Select the patient of interest from the list.
3. Select Dose Report.
4. On the right side of the screen, select SEND TO.
5. Select Viewing.

The Dose Report displays (FIGURE 5.39).

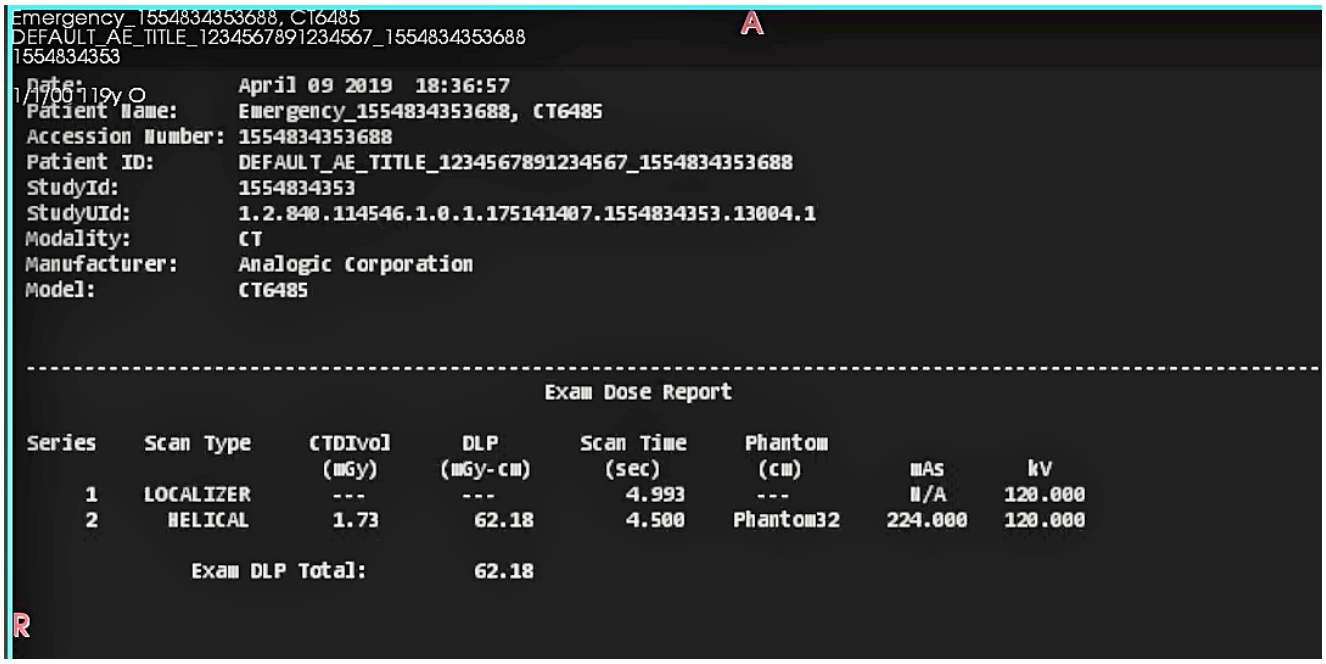


FIGURE 5.39 Dose Report

5.14. Interpreting a Dose Alert

5.14.1. Dose Alert

If you were to manipulate the mA, for example, increasing the mA to a point where the dose exposure exceeds a pre-configured limit, the calculated dose value turns yellow. This alerts you that the normal dose limit has been exceeded (FIGURE 5.40).

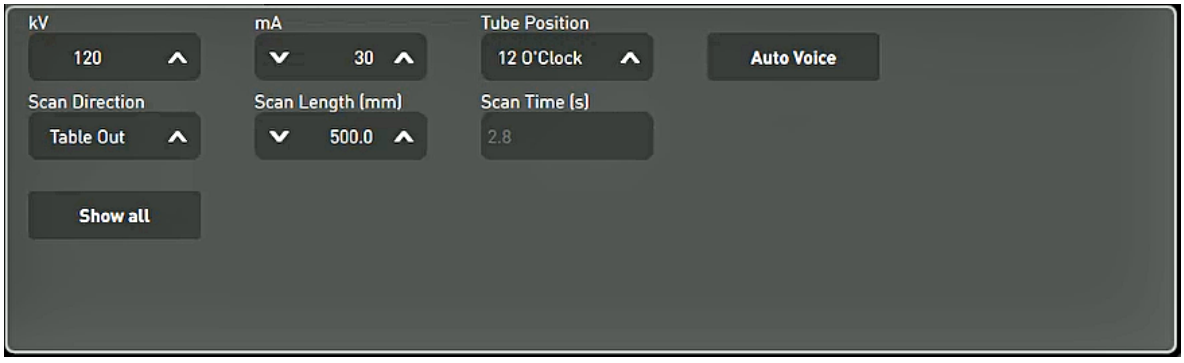


FIGURE 5.40 Normal Dose Exceeded Alert

If the estimated CTDI-vol or DLP of the planned scan exceeds the Alert Value, the system displays a notification for the operator and provides two options:

- Confirm the scan with optional entry of a diagnostic reason
- Prompt to adjust the scanning parameters

Upon confirmation of a scan set that exceeds an Alert Value, the system logs the date, time, StudyID, the Alert Values exceeded and corresponding estimated CTDI-vol and DLP of the each exceeding TimingGroup. It also logs the Operator of Record and the diagnostic reason provided.

NOTE: The system requires the authentication of an ADMINISTRATION-level account to continue the scan.

5.15. Releasing the Patient

1. When the examination is complete, release the patient from the system.
2. Undo anything done to the system that was specific for this patient.
3. If it is the end of the day, follow your facility's protocols to clean and prepare the room and system for use the following day.

Use an appropriate disinfectant touchscreen wipe to clean the touchscreen, keyboard, mouse, the control box, and any communication/control buttons, intercom, telephones, and doorknobs and door push-plates after each and every patient.

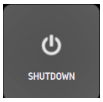
NOTE: Disinfecting of the equipment with a disinfectant wipe is a low-cost, effective way to prevent the transmission of pathogenic viruses. As noted in the June 2016 journal Clinical Microbiology and Infection, failure to swab mobile phones and related equipment have allowed the spread of viral material including influenza, respiratory syncytial virus, human metapneumovirus, rotavirus, and norovirus.

5.16. Shutting Down the System

IMPORTANT: The system should remain running, with power applied to the gantry, at all times.

This ensures that there is no delay in system startup and that system temperatures are stable, ensuring optimum imaging quality.

If it becomes necessary to shut down the system:

1. Select  in the lower left corner of the operator console. The TOOLS menu displays.
2. Select 

.
3. The SHUTDOWN menu appears (FIGURE 5.41).

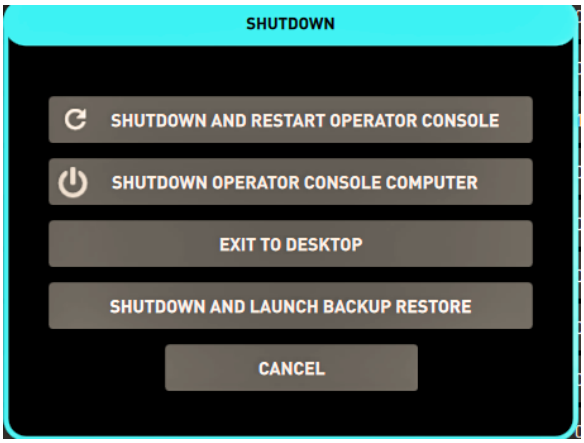


FIGURE 5.41 SHUTDOWN menu

4. Select the desired SHUTDOWN option.
5. Shut down any remaining controls and the scanner.
6. If required by local procedures, shut down the facility power feed to the Power Distribution Unit.