User Manual

SMART DR 4.2

Supports the Varex 2530W-G5, 4336W-G5, and 4343W panels

Supports integration with Summit HF X-ray generator

721-805-G1, Rev. B

Notices

Reasonable precautions have been taken in the preparation of this book, but Sound Technologies, Inc. assumes no responsibility for errors or omissions or for damage resulting from the use of the information contained herein. For improvement of product performance, supplementation, or follow-up of information, the contents of this manual are subject to change without notice.

The SMART DR™ digital x-ray imaging system is a high resolution digital imaging system intended to replace conventional film techniques, or existing digital systems, in multipurpose or dedicated applications specified below. The digital x-ray imaging system enables an operator to acquire, display, process, export images to portable media and send images over a network for long-term storage. Image processing algorithms enable the operator to bring out diagnostic details difficult to see using conventional imaging techniques. Images can be stored locally for temporary storage. The Sound Technologies, Inc. product has the ability to interface with a variety of flat panel image receptors. The major system components include an image receptor, computer, monitor and imaging software. The Sound Technologies, Inc. digital x-ray imaging system is intended for use in general radiographic examinations and applications (excluding fluoroscopy) for veterinary applications only and is not for human use.

EU Authorized Representative

EC REP

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Standards and compliance

CE for Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU
ETL approved
CAN/CSA-C22.2 No. 60601-1
IEC 60601-1, 60601-1-2, 62304, 62366
AAMI ES60601-1

It is the responsibility of the system integrator to ensure detectors are CE marked for use in the European Union.

This product conforms to the necessary IEC standards for patient safety & isolation as-shipped from the factory. The end user and/or the installer is responsible to insure that when connected, as a system with other devices, this product meets all the rules of IEC 60601-1 Clause 16.

Statement of intended use

The SMART DR™ digital x-ray imaging system is a high resolution digital imaging system intended to replace conventional film techniques, or existing digital systems, in multipurpose or dedicated applications specified below. The digital x-ray imaging system enables an operator to acquire, display, process, export images to portable media and send images over a network for long-term storage. Image processing algorithms enable the operator to bring out diagnostic details difficult to see using conventional imaging techniques. Images can be stored locally for temporary storage. The product has the ability to interface with a variety of flat panel image receptors. The major system components include an image receptor, computer, monitor and imaging software.

The digital x-ray imaging system is intended for use by a veterinary technologist or other trained person under the supervision of a veterinarian. The target population will be canine, feline, (small) mammal, primate, avian, and reptile undergoing medical diagnostic imaging for reasons that were judged to be medically necessary by a competent veterinary practitioner.

Warning: Do not modify this equipment without authorization by Sound Technologies, Inc.

Warning: Ne pas modifier cet équipement sans l'autorisation de Sound Technologies, Inc.

Operating principle

The essential performance of the SMART DR™ system is to synchronize the image acquisition of the digital receptor with the X-ray beam of the host X-ray system to capture, display and archive quality images of the intended anatomy, with reasonable patient exposure to X-rays.

The SMART DR™ digital imaging system uses a solid-state X-ray detector to capture digital images of anatomy penetrated by an incident X-ray beam. A host X-ray system generates the X-ray beam, which passes through a patient and strikes the detector of SMART DR™. The detector converts the X-ray energy to digital image data that is then passed to the SMART DR™ computer. The computer processes the image data, displays the image to the user, and provides temporary storage for image data and associated patient information, which can be imported from a worklist or entered manually. When the user has finished applying processing, annotation, and measurement features of SMART DR™ software, the images can be archived to appropriate DICOM-compliant devices.

Intended user profile

The digital x-ray system is intended for use in general radiographic examinations and applications (excluding fluoroscopy) by a veterinary technologist or other trained person under the supervision of a veterinarian.

There are no user-serviceable parts inside the digital x-ray system or subsystem components. Refer all repair needs to a service organization that has been trained and authorized by Sound Technologies, Inc.

Intended patient population

The target population is canine, feline, (small) mammal, primate, avian, and reptile undergoing medical diagnostic imaging for reasons that were judged to be medically necessary by a competent veterinary practitioner. The x-ray system is intended for veterinary applications only and is not for use on humans.

Intended anatomy

The x-ray system may be used to image any part or area of the target population's anatomy that can be imaged with x-ray radiation, with or without a contrast agent.

Maintenance and cleaning

See *Cleaning the x-ray system* on page 169, for information about maintaining and cleaning the system components.

Trademarks

About This Document

This manual, together with company training, gives service technicians the step-by-step instructions they need to install, configure, maintain, and diagnose an x-ray system.

Caution: Please read and follow the safety and equipment handling practices in this manual.

Caution: Veuillez lire et suivre les pratiques de sécurité et de manipulation de l'équipement dans ce manuel.

Revision history

The following table shows when this document has been revised and a description of the major updates for each revision.

About this task

Table 1: Document revisions

Revision letter	Issue date	EC number	Changes made
A	2022-05-20	EC-0004181	Initial release. Version 4.1 update. This manual was updated to include information about the following features: rejecting/accepting copied images without affecting the original image and vice versa, Indication provided when other users are joined into a study and when they make a change, Non-acquisition users can request acquirer status, support 4343W, 4336W-G5 and 2530W-G5 detectors and their features, viewing detector shock logs, updated user interface look and feel, Acquirer users can allow other users viewing the same study to make changes. Required field indicators are now bounded in red, updated reports interface, ability to sort reports by the first header. New Show Notifications icon that displays number of total notifications until cleared. Ability to select a color other than white/default color for overlays, overlay highlights, and anchor points. Ability to exit the browser and return to the active screen without leaving the system. Ability to enlarge or downsize the user interface. Ability to display preview of an image during acquisition. New dialog box to indicate to the user that the panel is not active after 10 minutes of inactivity.

Revision letter	Issue date	EC number	Changes made
B	2023-01-09	EC-0005953	Version 4.2.0. The manuals were updated to include the following features and changes: detector sleep time was changed from 10 minutes to 30 minutes, the annotation mode toolbar now contains LH and RH markers, g (grams) was added to the list of default weight units in Intermediate Options, Require Patient DOB was added to the Advanced Options, support for a Multi-user QR code was added, the option Save to USB was added to the list of export types, updated the System Configuration Tool to include Import 4.X-to-4.X Selected Configuration and Import Legacy (3.9) Configuration.

Related and supplemental information

The following documents are part of the product library or provide supplemental information on this product.

Table 2: Related and supplemental information

Title	Description	Part number
SMART DR™ User Manual	This manual, together with Sound Technologies, Inc. training, gives radiologic technologists the step-by-step instructions that they need to acquire, review, and store images with the x-ray system.	721-805-G1
SMART DR™ Service Manual	This manual, combined with manufacturer-provided training classes, supplies the information that a service technician requires to set up, configure, calibrate, and diagnose a Sound Technologies, Inc. x-ray system.	721-806-G2
Online help	See the online help for videos and text that describes the most common tasks in the user interface. The help is context sensitive and can be launched from the x-ray system software user interface by clicking the question mark icon (?) in the main tool bar of the screen that you want to see help for.	Not applicable. The online help is installed with the product.
X-ray generator documentation	In addition to the other documentation in the product library, please read the documentation that accompanies the x-ray generator.	Not applicable. The documentation accompanies the x-ray generator.

Information symbols

Informational symbols are used in the Sound Technologies, Inc. imaging system documentation and on some labeling.

Table 3: Informative markings: Documents and equipment

Symbol	Title/Meaning
	Notice. An important aspect of Sound Technologies, Inc. imaging system operation is presented.
	Caution. On product, indicates need to consult instructions for use for important cautionary information.
	Warning. General warning.
	Read accompanying documents or instructions for use.
	The date of manufacture is adjacent to this symbol.
	The manufacturer’s serial number is displayed with this symbol.
	The procedure requires making X-ray exposures and producing radiation. Follow safety precautions when operating the X-ray system.
	Earthing terminal Grounding terminal
	Warning. Warning, electricity
	Dangerous voltage. Indicates hazard from dangerous voltages.
	Non-ionizing electromagnetic radiation. Indicates elevated or potentially hazardous levels on non-ionizing electromagnetic radiation.

Symbol	Title/Meaning
REF	The manufacturer’s catalog number (model number) is displayed with this symbol.
	The name and address of the manufacturer is displayed with this symbol. The date of manufacture may also be included with this information.
EC REP	Authorized representative in the European Community.

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System Overview

Contents

This chapter provides a high-level overview of the x-ray system to orient you to the more detailed tasks involved in installing, configuring, maintaining, and troubleshooting the system. More detailed tasks and information is provided later in the manual.

DT504T AIO PC

The DT504T All-In-One (AIO) medical-grade LCD--integrated system/PC provides a rugged platform for the SMART DR™ software.

Figure 1: DT504T AIO PC

[1]

[2]

The DT504T AIO PC contains the following components:

- Intel® 10th Generation Core™ i5-100500T 6-core 2.3 GHz processor
- 1TB solid state drive (SSD)
- 16GB random access memory (RAM)
- Microsoft® Windows® 10 IoT Enterprise
- Built-in Wi-Fi and Bluetooth
- 1920 x 1080 pixels, high-brightness (1000 nits) capacitive touch display with fanless cooling
- Built-in speaker and microphone
- Wireless keyboard and mouse
- AC-DC 100/240V power adaptor with power cord
- Smart card/Common access card (CAC) reader

1 Courtesy of DTResearch.com

2 Courtesy of CDW

DT504T AIO PC technical specifications

The DT504T AIO PC has the following technical specifications.

Table 4: DT504T technical specifications

Parameter	Description
CPU	Intel® 10th Generation Core™ i5-100500T 6-core 2.3 GHz processor
RAM	16GB
Storage	1TB solid state drive (SSD)
Operating system	Microsoft® Windows® 10 IoT Enterprise
Display	23.8" LCD (widescreen with antimicrobial coating), high-brightness (1,000 nits) screen with capacitive touch and fanless cooling
Display resolution	1920 x 1080 pixels (Full HD)
Speaker and microphone	Built-in
WLAN	Built-in Wi-Fi 802.11a/b/g/n/ac/ax, 2.4GHz/5GHz dual band
Bluetooth	Bluetooth 5.1
Ports	HDMI (1), USB 3.0 (4), USB 2.0 (2), RJ-45 for Ethernet (2), COM port (3), Audio (1), DC (1), potential equalization conductor (1, optional)
AC/DC adaptor	Input: 100-240V AC Output: 19V DC, 6.31A
Major options	Smart card/CAC reader: Full-slot, reads ISO 7816 T=0, T=1; 1.8/3/5V smart card Battery: 1 integrated UPS battery (not included)
Enclosure	Aluminum alloy, antimicrobial
Dimensions (H x W x D)	14.6 x 22.3 x 1.8 in (370.5 x 567 x 45.2 mm)
Weight	17.6 lbs/8 kg
Water Resistance	Front panel: IP65; Enclosure: IPX2
Regulatory	ANSI/AAMI ES60601-1, IEC60601-1, IEC60601-1-2, FCC Part 18, FCC Part 15 Class B, GB 17625.1, GB 4943.1, GB/T 9254, CE-EMC, CE-RED, Energy Star 8.0, RCM, CCC

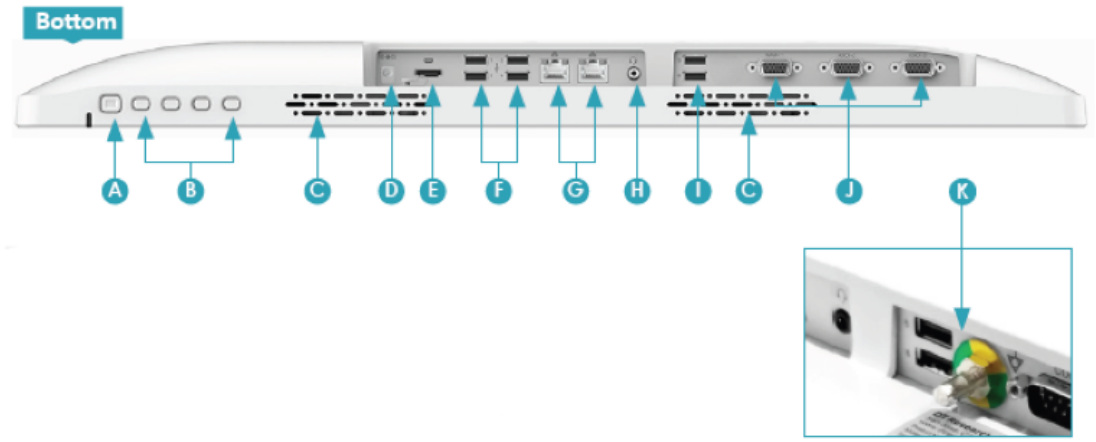
Parameter	Description
Temperature	Operating: 0°C to 40°C (32°F to 104°F) Storage: -20°C to 60°C (-4°F to 140°F)
Humidity	0% – 90% non-condensing

DT504T AIO PC controls and connectors

This section describes the controls and connectors for the DT504T AIO PC.

DT504T controls and connectors

Figure 2: DT504T controls and connectors



3

Table 5: DT504T controls and connectors

Item	Description
A	Power button. Press to power the PC on or off.
B	Programmable buttons
C	Speakers
D	DC input. Connect to AC-DC power adaptor to charge or power the PC. Use only the adaptor shipped with the PC.
E	HDMI output
F	USB 3.0 ports
G	Ethernet port (RJ-45)
H	Audio jack

3 Courtesy of DTResearch.com

Item	Description
I	USB 2.0 port
J	COM ports
K	Potential equalization conductor (optional)

Figure 3: DT504T PC and AC-DC adaptor

Connect the AC-DC adaptor to the PC (at the DC input) and to a wall outlet to power the PC or charge the PC's batteries.

The rest of this page intentionally left blank.

Wireless keyboard and mouse

A wireless keyboard and mouse are supplied as part of the Sound™ accessory kit.

About the wireless keyboard and mouse

Figure 4: Wireless keyboard and mouse

Table 6: Wireless keyboard specifications

Parameter	Description
Keyboard Name	Microsoft® Wireless Keyboard 900
Mouse Name	Microsoft® Wireless Mouse 900
Dimensions (L x W x D/H)	Keyboard: 16.7 x 6.09 x 1.11 in (424 x 155 x 28.2 mm) Mouse: 4.46 x 2.49 x 1.74 in (113 x 63.1 x 44.1 mm)
Weight	Keyboard: 18.2 ounces (517 grams), includes 2 AAA alkaline batteries (battery weight may vary) Mouse: 2.56 ounces (72.5 grams), includes 2 AA alkaline batteries (battery weight may vary)
Battery	• Keyboard: 2 AAA alkaline batteries (included) • Mouse: 2 AA alkaline batteries (included)
Battery life	24 months typical. 40 hours of uninterrupted work (continuous typing) 30 days in standby mode.

Parameter	Description
Supported operating systems	Microsoft® Windows 10/8.1/8/7 Advanced functionality is not available with all devices. See compatibility information at: microsoft.com/hardware/compatibility.
Connections	None
Indicators	None

Varex detectors

The 4336W-G5 (LUMEN 4336W), 4343W (LUMEN 4343W), and 2530W-G5 (LUMEN 2530W) detectors are part of a new generation of detectors designed for increased durability and convenience for customers and end-users.

When the detectors are configured on the system, they are activated when entering a study as an acquirer. When the detector icon stops spinning, the detector is ready, and the user with acquirer status can capture an image.

When using a detector:

- A preview of the image to be captured is shown before the final image is displayed, if the option for the preview image is configured in the **Management** screen.

  See the topic, *Acquiring an image* on page 101.
- Battery, temperature, Wi-Fi or tether link information is provided. If any of the parameters are out of bounds, Sound SMART DR™ will notify all users.

  See the topics, *Detector status, temperature, battery status, and connectivity* and *Active panel connection controls* on page 138.
- After 30 minutes of inactivity, the detector times out and is deactivated. It can be reactivated by selecting the **Refresh Status** button in the **Detector Status** information box. It can also be reactivated in the 30-minutes detector timeout pop-up dialog box that appears only in the Acquire/Review screen when the detector is deactivated.

  See the topic, *Active panel connection controls* on page 138.
- The detector is deactivated when shots are added, Icon Help is enabled, etc.
- If the detector is powered by a battery, the super capacitor in the detector will power the detector for 3 minutes so the battery can be replaced without powering the detector down.

2530W-G5 detector specifications

This section describes the 2530W-G5 detector specifications, housing, and surfaces and features.

Table 7: Sensor specifications

Sensor	2530W-G5
Detector	Amorphous Silicon active TFT/PIN diode Technology
Scintillator	CsI Premium and CsI Standard
Pixel Matrix	2304 (v) x 1900 (h)
Pixel Pitch	131 µm
Active Area	2264 (v) x 1860 (h) CsI

Table 8: Electronics specifications

Electronics	2530W-G5
Battery	Lithium-ion
Battery Charger	1 or 3 Bay, Inductive
ADC	16-bit

Table 9: Mechanical specifications

Mechanical	2530W-G5
Housing	Plastic with Carbon Fiber entrance window
Weight (without Battery)	CsI 2.3 kg (5.07 lbs)
Load Support	150 kg over diameter 40 mm at center, 300 kg entire surface
Surface Temperature	Rated to not exceed 42°C

Table 10: Wireless communication specifications

Wireless Communication	2530W-G5
Signal Strength	Requires > -70 dBm or no image will be acquired
Standard	IEEE 802.11ac/a/n
Interface	USB
Security	WEP WPA WPA2

Wireless Communication	2530W-G5
Operating Voltage	DC5V

Table 11: Radio specifications

Radio	2530W-G5
Antenna	2 x IPEX connector for 2T2R
Frequencies	UNII - 1: 5150MHz -5250MHz UNII - 3: 5725MHz -5850MHz **Note:** Subject to local regulations. **Note:** The 2.4GHz frequency is not available for use with these detectors. Do not use the 2.4GHz band setting with the router or access point being used with the detector.
Modulation	802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n:OFDM (BPSK, QPSK, 16-QAM, 64- QAM) 802.11ac:OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
Transmit Power WIFI_Chain 0	802.11a: 9 ± 1dBm 802.11n/ac 20_5180MHz~5240MHz: 9 ± 1dBm 802.11n/ac 20_5745MHz~5825MHz: 9 ± 1dBm 802.11n/ac 40_5190MHz: 9 ± 1dBm 802.11n/ac 40_5230MHz: 9 ± 1dBm 802.11n/ac 40_5755MHz~5795MHz: 9 ± 1dBm 802.11ac 80: 8 ± 1dBm
Transmit Power WIFI_Chain 1	802.11n/ac 20_5180MHz~5240MH z: 9 ± 1dBm 802.11n/ac 20_5745MHz~5825MH z: 9 ± 1dBm 802.11n/ac 40_5190MHz: 9 ± 1dBm 802.11n/ac 40_5230MHz: 9 ± 1dBm 802.11n/ac 40_5755MHz~5795MH z: 9 ± 1dBm 802.11ac 80: 8 ± 1dBm
Receive Sensitivity	802.11a: ≤ -70dBm@54Mbps 802.11n/5GHz (HT20): ≤ -60dBm@MCS7 802.11n/5GHz (HT40): ≤ -60dBm@MCS7 802.11ac (VHT80): ≤ -51dBm@MCS9

Detector housing

Figure 5: 2530W-G5 detector with handle (top)

Figure 6: 2530W-G5 surfaces and features (back)

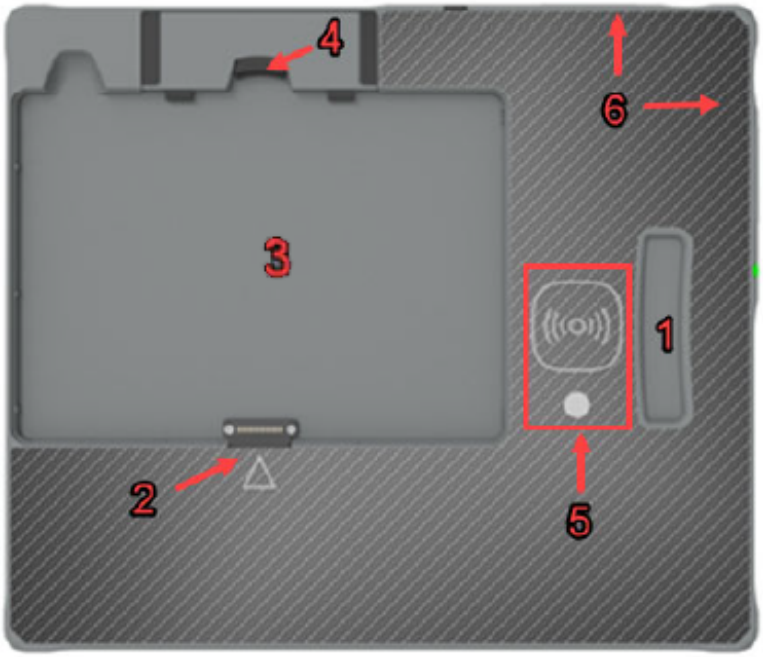


Table 12: 2530W-G5 detector surfaces and features (back, 1-6)

Number	Description
1	Handle
2	Battery Alignment Marker and Contacts
3	Battery Well

Number	Description
4	Replaceable Battery Latch
5	Inductive Charging Receiver
6	Antennas

Figure 7: 2530W-G5 surfaces and features (side)

Table 13: 2530W-G5 detector surfaces and features (side, 7-8)

Number	Description
7	Tether Cable Connection
8	LED Status Indicator

Figure 8: 2530W-G5 detector electronics and orientation (top)

Table 14: 2530W-G5 detector surfaces and features (top, 9-11)

Number	Description
9	Top of X-ray detector, interior electronics location
10	Orientation Mark, also indicates glass array coordinates (X=0, Y=0)
11	Orientation Mark

4336W-G5 detector specifications

This section describes the 4336W-G5 detector specifications, housing, and surfaces and features.

Table 15: Sensor specifications

Sensor	4336W-G5
Detector	Amorphous Silicon active TFT/PIN diode Technology
Scintillator	CsI Premium and CsI Standard
Pixel Matrix	3072(v) x 2476 (h)
Pixel Pitch	139 µm
Active Area	3052 (v) x 2456 (h) DRZ+, 3032 (v) x 2436 (h) CsI

Table 16: Electronics specifications

Electronics	4336W-G5
Battery	Lithium-ion
Battery Charger	1 or 3 Bay, Inductive
ADC	16-bit

Table 17: Mechanical specifications

Mechanical	4336W-G5
Housing	Plastic with Carbon Fiber entrance window
Weight (without Battery)	DRZ+ 2.65 kg (5.84 lbs), CsI 2.85 kg (6.28 lbs)
Load Support	150 kg over diameter 40mm at center, 300 kg entire surface
Surface Temperature	Rated to not exceed 42°C

Table 18: Wireless communication specifications

Wireless Communication	4336W-G5
Signal Strength	Requires > -70 dBm or no image will be acquired
Standard	IEEE 802.11ac/a/n
Interface	USB

Wireless Communication	4336W-G5
Security	WEP WPA WPA2
Operating Voltage	DC5V

Table 19: Radio specifications

Radio	4336W-G5
Antenna	2 x IPEX connector for 2T2R
Frequencies	UNII - 1: 5150MHz -5250MHz UNII - 3: 5725MHz -5850MHz **Note:** Subject to local regulations. **Note:** The 2.4GHz frequency is not available for use with these detectors. Do not use the 2.4GHz band setting with the router or access point being used with the detector.
Modulation	802.11a: OFDM (BPSK, QPSK, 16-QAM, 64- QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64- QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64- QAM, 256-QAM)
Transmit Power WIFI_Chain 0	802.11a: 14.5 ± 1dBm 802.11n/ac 20_5180MHz~5240MHz: 13.5 ± 1dBm 802.11n/ac 20_5745MHz~5825MHz: 13 ± 1dBm 802.11n/ac 40_5190MHz: 11 ± 1dBm 802.11n/ac 40_5230MHz: 13.5 ± 1dBm 802.11n/ac 40_5755MHz~5795MHz: 13 ± 1dBm 802.11ac 80: 10.5 ± 1dBm
Transmit Power WIFI_Chain 1	802.11n/ac 20_5180MHz~5240MHz: 13.5 ± 1dBm 802.11n/ac 20_5745MHz~5825MHz: 13 ± 1dBm 802.11n/ac 40_5190MHz: 11 ± 1dBm 802.11n/ac 40_5230MHz: 13.5 ± 1dBm 802.11n/ac 40_5755MHz~5795MHz: 13 ± 1dBm 802.11ac 80: 10.5 ± 1dBm
Receive Sensitivity	802.11a: ≤ -70dBm@54Mbps 802.11n/5GHz (HT20): ≤ -60dBm@MCS7 802.11n/5GHz (HT40): ≤ -60dBm@MCS7 802.11ac (VHT80): ≤ - 51dBm@MCS9

Detector housing

Figure 9: 4336W-G5 detector with handle (top)

Figure 10: 4336W-G5 surfaces and features (back)

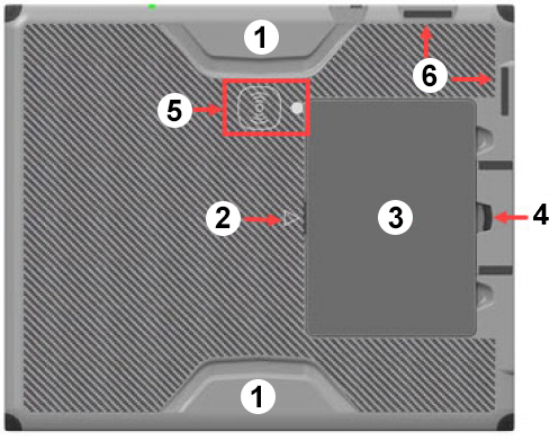


Table 20: 4336W-G5 detector surfaces and features (back, 1-6)

Number	Description
1	Handles
2	Battery Alignment Marker
3	Battery and Battery Well
4	Replaceable Battery Latch
5	Inductive Charging Receiver

Number	Description
6	Antennas

Figure 11: 4336W-G5 surfaces and features (top and side)

Table 21: 4336W-G5 detector surfaces and features (top and side, 7-9)

Number	Description
7	Patient Contact Surface
8	Tether Cable Connection
9	LED Status Indicator

Figure 12: 4336W-G5 detector electronics and orientation (top)

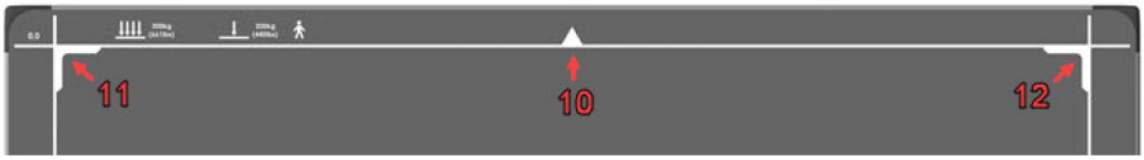


Table 22: 4336W-G5 detector surfaces and features (top, 10-12)

Number	Description
10	Top of X-ray detector, interior electronics location
11	Orientation Mark, also indicates glass array coordinates (X=0, Y=0)
12	Orientation Mark

4343W detector specifications

For dual detector configurations, the 4343W detector is powered by a network/power tether cable. For single detector configurations, the 4343W detector can be powered either by the tether cable or battery.

Table 23: Sensor specifications

Sensor	4343W
Detector	Amorphous Silicon active TFT/PIN diode Technology
Scintillator	CsI Premium, CsI Standard, and DRZ+
Pixel Matrix	3072 (v) x 3072 (h)
Pixel Pitch	139 µm
Active Area	3052 (v) x 3052 (h) DRZ+, 3032 (v) x 3032 (h) CsI

Table 24: Electronics specifications

Electronics	4343W
Battery	Lithium-ion
Battery Charger	1 or 3 Bay, Inductive
ADC	16-bit

Detector housing

Figure 13: 4343W x-ray detector surfaces and features

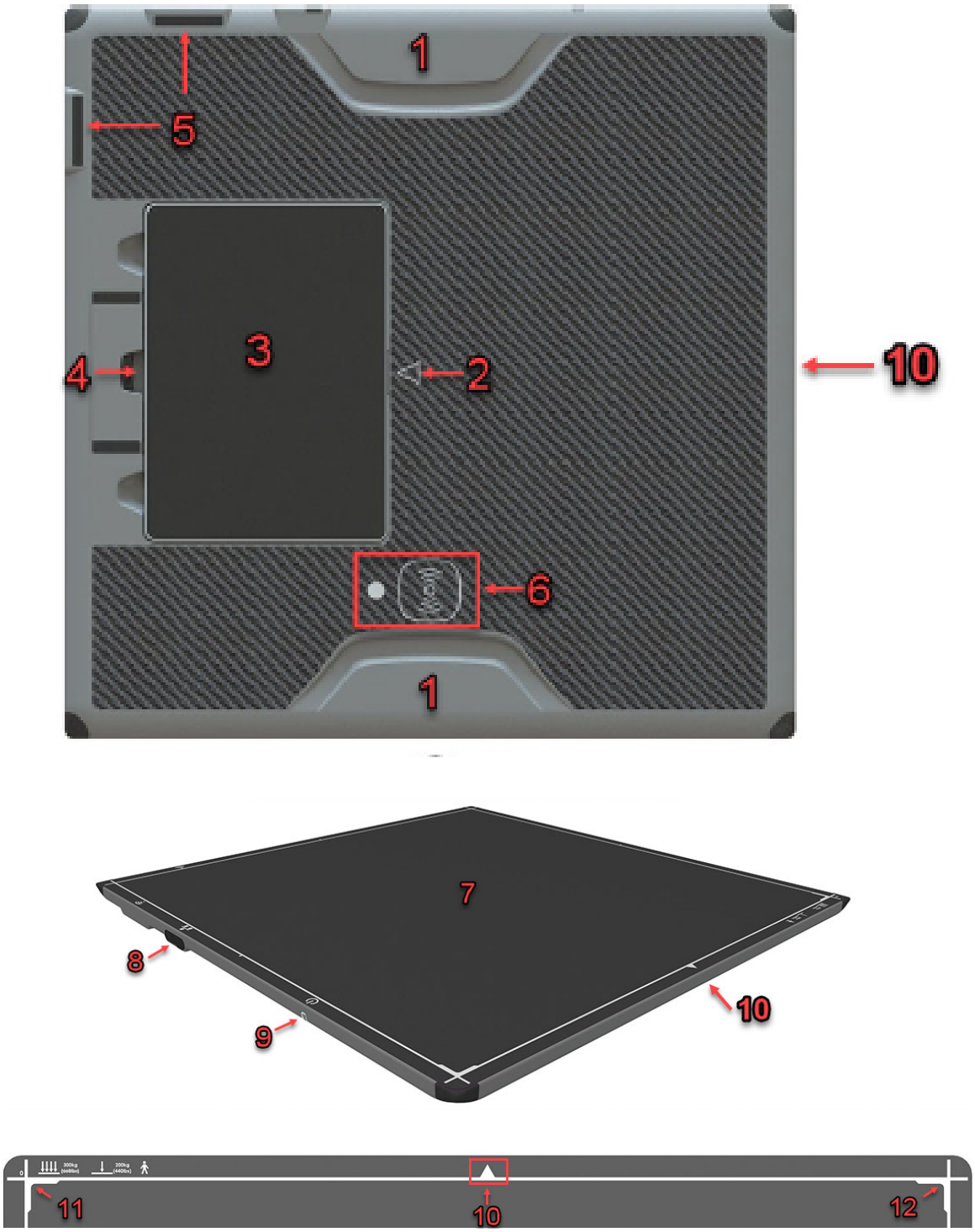


Table 25: Description of 4343W detector surfaces and features

Number	Description
1	Handles
2	Battery alignment marker
3	Battery and battery well
4	Replaceable battery latch
5	Antennas
6	Inductive charging receiver
7	Patient contact surface
8	Service cable connection
9	LED status indicator
10	Top of x-ray detector, interior electronics location
11	Orientation mark, also indicates glass array coordinates (X=0, Y=0)
12	Orientation mark

Supported software

The following software is supported for use with this x-ray system.

- Windows 10 IoT Enterprise
- PaxScan M01 R1.12
- Musica2 v1.12.10.1
- SMART DR™ 4.2

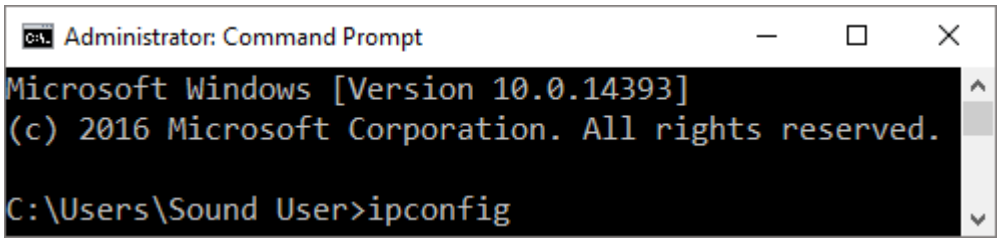
Finding the IP address of the imaging computer

The IP address of the imaging computer is necessary to connect to the Sound SMART DR™ application from another device.

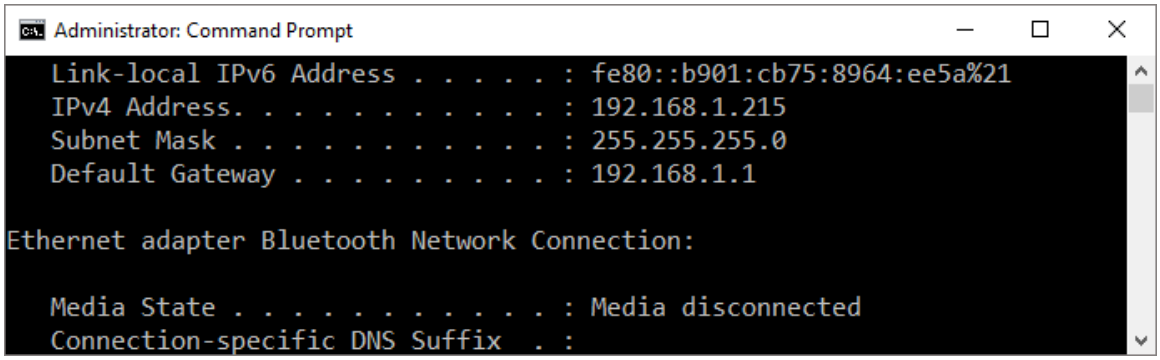
Procedure

1. On the imaging computer, select the Windows **Start** button.

2. In the pop-up menu, select **Search**.
3. In the **Search** field, type `Command`.
4. Select **Command Prompt** from the **Best Match** list.
   The **Administrator Command Prompt** window opens.
5. At the prompt, type `ipconfig`.



6. Tap the **Enter** key.
   The IP configuration for the computer is displayed.



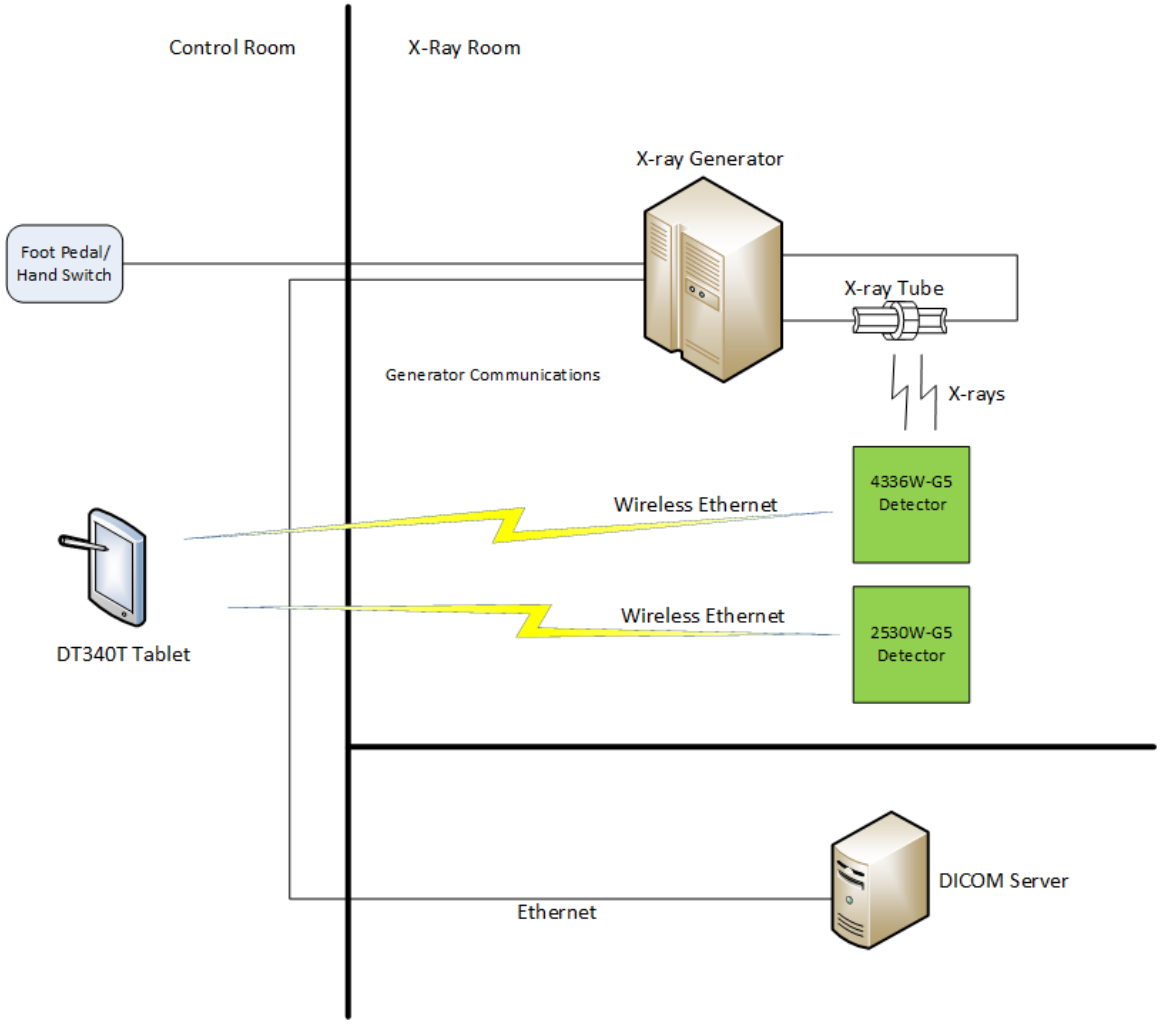
7. Note the `IPv4 Address`.
   This is the IP address of the computer.

Dual 4336W-G5 and 2530W-G5 detectors connection diagram

The following diagram shows the connections for a system with dual 4336W-G5 and 2530W-G5 detectors.

About this task

Figure 14: Dual 4336W-G5 and 2530W-G5 detectors



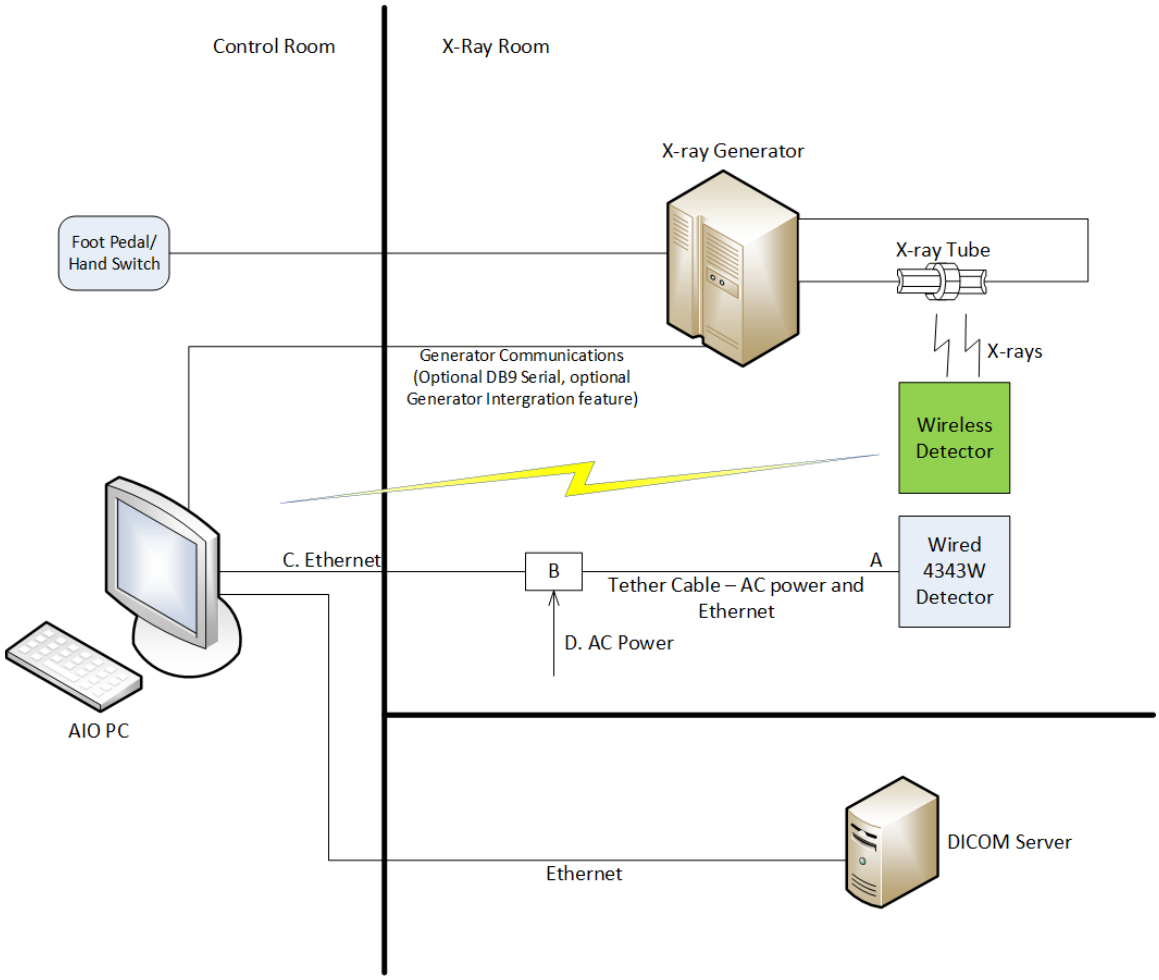
Each detector has its own SSID number.

Important: The PC can connect to only one detector at a time. Switching detectors causes the system to switch wireless networks automatically.

4343W wired and wireless 4336W-G5 or wireless 2530W-G5 detector connection diagrams

The following diagrams show the connections between the detectors and the imaging system.

Figure 15: Wired 4343W and Wireless 2530W-G5 detector or 4336W-G5 detector



Wired 4343W connections

The tether cable for the 4343W detector has a combination power and USB-C connector (A) at one end, and a brick (B) with ethernet and AC power ports at the other end. The computer connects to the brick using an ethernet cable (C) to facilitate communication between the detector and the PC. The AC power cord (D) also connects to the brick to provide power to the detector. If the detector has a battery inserted into it while the tether is attached, the tether powers the detector and trickle-charges the battery.

The 4343W detector can be operated wirelessly.

Wireless 2530W-G5 or 4336W-G5 detector connection

The 2530W-G5 or 4336W-G5 detectors are battery powered and connect to the PC wirelessly.

Optional integrated generator connection

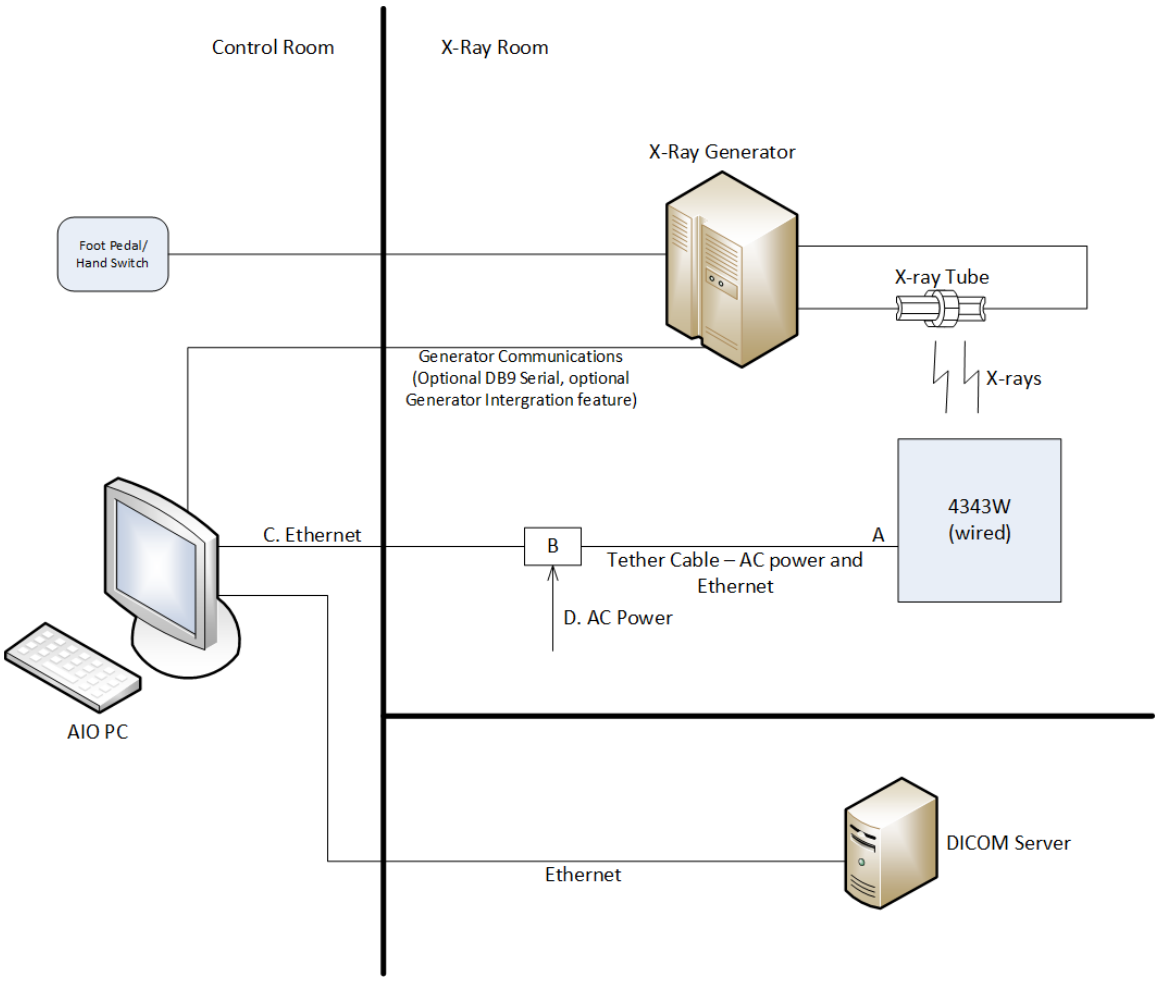
If the integrated generator feature is used, a DB9 serial cable connects the PC to the x-ray generator for communication between the two components.

All other connections

All other connections are as shown.

4343W wired detector connection diagram

The following diagram shows the connection between the detector and the imaging system.



The tether cable for the 4343W detector has a combination power and USB-C connector (A) at one end, and a brick (B) with ethernet and AC power ports at the other end. The computer connects to the brick using an ethernet cable (C) to facilitate communication between the detector and the PC. The AC power cord (D) also connects to the brick to provide power to

the detector. If the detector has a battery inserted into it while the tether is attached, the tether powers the detector and trickle-charges the battery.

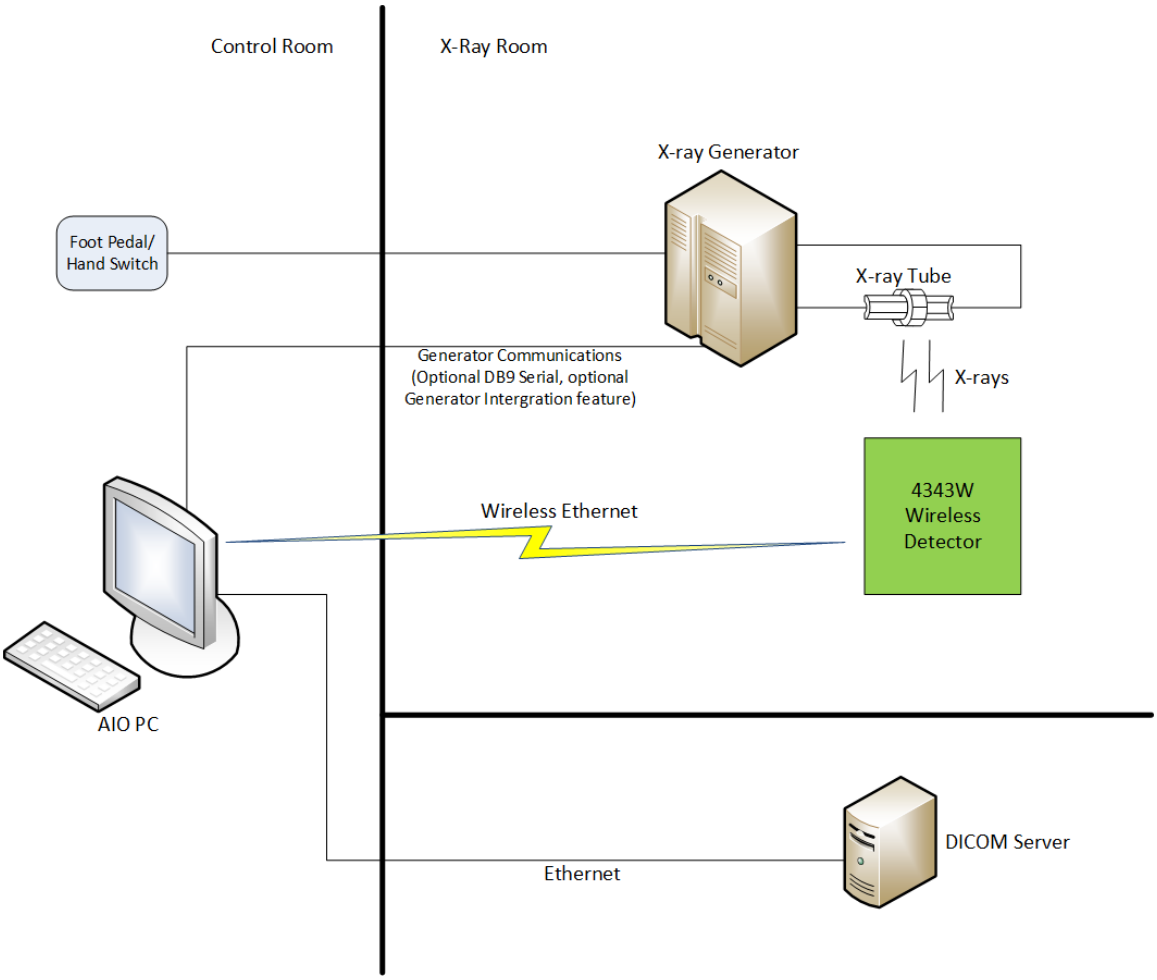
The 4343W detector can be operated wirelessly.

4343W wireless detector connection diagram

The 4343W detector can be operated wirelessly.

See the topic, *Transitioning the 4343W from tether to battery power* on page 53

Figure 16: Wireless 4343W connection diagram



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Chapter

2

Safety, Warranty, and Licensing Information

Contents

Your x-ray system uses the Sound SMART DR™ software. All information and instructions contained in this document are intended to promote safe and effective installation, service, and maintenance of the x-ray system. Observe all warnings provided in documentation and labeling, and follow all instructions precisely to avoid potential injury to users, patients, or other personnel, malfunction of the equipment, or damage to the x-ray system components.

All components of the x-ray system are designed and suitable for use in close proximity to patients. The system and associated components are commonly placed and in use within 6 feet (1.8m) of the patient.

Do not connect any other equipment or parts to the x-ray system without the express authorization of the manufacturer.

Caution: Federal law restricts this device to sale by or on the order of a licensed veterinarian.

Caution: La loi fédérale restreint vente de cet appareil par ou sur l'ordre d'un vétérinaire agréé.

Pre-installation Site Survey

Ensure that this survey is completed and submitted before the day of installation.

About this task

Sound Technologies, Inc. requires that dealers of our products assess the facilities into which the x-ray system will be installed. We give them a short form, the Pre-installation Site Survey, to complete. They submit the Survey to Sound Technologies, Inc., and it helps us to send the correct equipment. This survey is helpful to the installer of the system, too. Therefore, if you do not have the completed version of the Pre-installation Site Survey, check with the administrator of the organization that purchased the x-ray system. If necessary, contact Technical Support to see if a copy was submitted or if you have any questions or problems. See the topic, *Appendix A. Technical Support*, for contact information.

If you require a blank copy of the Pre-installation Site Survey, it is available, with password protection, on the Sound Technologies, Inc. website. Select the Pre-installation Site Survey that matches your product.

Service Technician training

All service technicians conducting installation, service, and maintenance of the x-ray system must be properly trained and certified through a Sound Technologies, Inc.-authorized program.

Failure to meet these obligations may result in charges for phone support and voiding of warranties. Service technicians may be required to substantiate their training at time of call or warranty-based request.

Electromagnetic compatibility

The detector complies with EN 60601-1-2 fourth edition. Prevent the potential risk of electromagnetic interference between this equipment and other devices.

The system is intended for use in the electromagnetic environment in which radiated disturbances are controlled. The customer or user of the system can help to prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment and the system as recommended below, according to the maximum output power of the communications equipment.

The detector has been tested for electromagnetic compatibility (EMC) compliance, but interference can still occur in an electromagnetically noisy environment. Maintain a suitable distance between electrical devices to prevent cross-interference. The PC cabinet should be placed as far as possible from any device that generates large amounts of electromagnetic disturbance.

Caution: Electrical equipment requires special precautions to maintain electromagnetic compatibility. The system must be installed and put into service according to the EMC information provided in this document. Portable and mobile RF communications equipment can affect medical electrical equipment.

Caution: Les appareils électromédicaux requièrent des précautions particulières pour maintenir la compatibilité électromagnétique. Le système 0doit être installé et mis en service conformément aux informations EMC fournies dans ce document. Les équipements de communication RF portables et mobiles peuvent affecter les équipements électromédicaux.

Caution: Failure to avoid RF interference while operating SMART DR may cause failure of the digital imaging system to capture or store images.

Caution: Défaut d'éviter les interférences RF lors de l'utilisation SMART DR peut provoquer une défaillance du système d'imagerie numérique pour capturer ou stocker des images.

Warning: Use of accessories, transducers, and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

Warning: L'utilisation d'accessoires, de transducteurs et de câbles autres que ceux spécifiés ou fournis par le fabricant de cet équipement pourrait entraîner une augmentation des émissions électromagnétiques ou une diminution de l'immunité électromagnétique de cet équipement et entraîner une mauvaise opération.

Electromagnetic emissions

Table 26: 4336W-G5 and 2530W-G5 radiated/conducted emissions, harmonics, voltage, fluctuations, and flicker

Emissions test	IEC60601-1-2 test level	Compliance	Electromagnetic environment
RF conducted emissions EN55011/CISPR11	Group 1, Class A, 150 kHz – 30 MHz	For Group 1, infrequency range 150KHz to 30 MHz limits are not specified, the test is unnecessary.	The detector uses RF energy for its internal function. Nearby electronic equipment may be affected.
RF radiated emissions EN55011/CISPR11	Group1, Class A, 30 MHz – 1 GHz	Group1, Class A, 30 MHz – 1 GHz	The detector uses RF energy for its internal function. Nearby electronic equipment may be affected.
Harmonic emissions EN/IEC61000-3-2	Class A	Class A	The detector is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations / flicker emissions IEC61000-3-3	Complies	Complies	The detector is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.

Table 27: 4343W radiated/conducted emissions, harmonics, voltage, fluctuations, and flicker

Emissions test	IEC 60601-1-2 test level	Compliance	Electromagnetic environment
RF conducted emissions EN55011/CISPR11	Group 1, Class A, 150 kHz – 30 MHz	N/A Battery power equipment not connected to mains	The detector uses RF energy for its internal function. Nearby electronic equipment may be affected.
RF radiated emissions EN55011/CISPR 11	Group 1, Class A, 30 MHz – 1 GHz	Group 1, Class A, 30 MHz – 1 GHz	The detector uses RF energy for its internal function. Nearby electronic equipment may be affected.
Harmonic emissions EN/IEC 61000-3-2	Class A	N/A Battery power equipment not connected to mains.	The detector is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	N/A Battery power equipment not connected to mains	The detector is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.

Electromagnetic immunity

Table 28: 4336W-G5 and 2530W-G5 ESD, transient/burst, surge, voltage variation, magnetic fields

Immunity test	IEC60601-1-2 test level	Compliance	Electromagnetic environment
Electrostatic discharge (ESD) IEC 61000-4-2	±2, 4, 8 kV contact discharge ±2, 4, 8, 15 kV air discharge	±2, 4, 8 kV contact discharge ±2, 4, 8, 15 kV air discharge	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV AC Mains ±1 kV I/O Lines	±2 kV AC Mains ±1 kV I/O Lines	Mains power quality should be that of a typical professional healthcare environment.
Surge IEC 61000-4-5	±0.5 kV, ±1 kV Line to Line ±0.5 kV, ±1 kV, ±2 kV Line to Ground	±0.5 kV, ±1 kV Line to Line ±0.5 kV, ±1 kV, ±2 kV Line to Ground	Mains power quality should be that of a typical professional healthcare environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	Voltage dips: 0% UT (100% dip in UT) for 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315° 0% UT (100% dip in UT) for 1 cycle at 0° 70% UT (30% dip in UT)for 25/30 cycles at 0° Voltage Interruptions: 0% UT (100% dip in UT) for 250/300 cycles	Voltage dips: 0% UT (100% dip in UT) for 0.5 cycle at 0° 0% UT (100% dip in UT) for 1 cycle at 0° 70% UT (30% dip in UT) for 25 cycles at 0° Voltage Interruptions: 0% UT (100% dip in UT) for 250 cycles	Mains power quality should be that of atypical professional healthcare environment. If the user of the detector requires continued operation during power mains interruptions, it is recommended that the system be powered from an uninterruptible power supply or a battery.

Immunity test	IEC60601-1-2 test level	Compliance	Electromagnetic environment
Power frequency (50 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Magnetic field should be that of a typical location in a typical professional healthcare environment.
IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz 6 V/m (in ISM bands between 0.15 MHz and 80 MHz) 80% AM (at 1 kHz)	3 Vrms 150 kHz to 0 80 MHz 6V/m (in ISM bands between 0.15 MHz and 80 MHz) 80% AM (at 1 kHz)	This cell intentionally left blank.
IEC 61000-4-3	3 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz	3 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz	$d = \frac{6}{E}\sqrt{P}$ Where *P* is the maximum power in *W*, *d* is the minimum separation distance in *m*and *E* is the Immunity Test Level in V/m. If the X-ray detector complies with Immunity Test Levels for this test, the 30cm minimum separation distance (in 5.2.1.1 f) may be replaced with minimum separation distances calculated from the higher Immunity Test Levels.

Table 29: 4343W ESD, transient/burst, surge, voltage variation, magnetic fields

Immunity test	IEC 60601-1-2 test level	Compliance	Electromagnetic environment
Electrostatic discharge (ESD) IEC 61000-4-2	Contact Discharge: ± 2, 4, 8 kV Air Discharge: ± 2, 4, 8, 15 kV	Contact Discharge: ± 2, 4, 8 kV Air Discharge: ± 2, 4, 8, 15 kV	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV AC Mains ±1 kV I/O Lines	N/A Battery power equipment not connected to mains.	Mains power quality should be that of a typical professional healthcare environment.
Surge IEC 61000-4-5	±0.5 kV, ±1 kV Line to Line ±0.5 kV, ±1 kV, ±2 kV Line to Ground	N/A Battery power equipment not connected to mains.	Mains power quality should be that of a typical professional healthcare environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	Voltage dips: 0% UT (100% dip in UT) for 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315° 0% UT (100% dip in UT) for 1 cycle at 0° 70% UT (30% dip in UT) for 25/30 cycles at 0° Voltage Interruptions: 0% UT (100% dip in UT) for 250/300 cycle	N/A Battery power equipment not connected to mains.	Mains power quality should be that of a typical professional healthcare environment. If the user of the detector requires continued operation during power mains interruptions, it is recommended that the system be powered from an uninterruptible power supply or a battery.

Immunity test	IEC 60601-1-2 test level	Compliance	Electromagnetic environment
Power frequency (50 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Magnetic field should be that of a typical location in a typical professional healthcare environment.
IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz 6V/m (in ISM bands between 0.15MHz and 80MHz) 80% AM (at 1kHz)	N/A Battery power equipment not connected to mains.	Intentionally left blank.
IEC 61000-4-3	3 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz	3 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz	$d = \frac{6}{E}\sqrt{P}$ Where P is the maximum power in W, d is the minimum separation distance in m and E is the Immunity Test Level in V/m. If the X-ray detector complies with Immunity Test Levels for this test, the 30cm minimum separation distance (in 5.2.1.1 f) may be replaced with minimum separation distances calculated from the higher Immunity Test Levels.

Table 30: 4336W-G5 and 2530W-G5 test specs for enclosure port immunity to RF wireless communications equipment

Test Frequency (Mhz)	Band (Mhz)[a]	Service[a]	Modulation	Max Power (W)	Distance (m)	Immunity Test Level (V/m)
385	380-390	TETRA 400	Pulse Modulation[b]	1.8	0.3	27
450	430-470	GMRS 460, FRS 460	FM[c] +/-5 kHz deviation 1 kHz sine	2	0.3	28
710 745 780	704-787	LTE BAND 13, 17	Pulse modulation[b] 217 Hz	0.2	0.3	9
810 870 930	800-960	GSM 1800; TETRA 800; iDEN 820; CDMA 850; LTE Band 5	Pulse modulation[b] 18 Hz	2	0.3	28
1720 1845 1970	1700-1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation[b] 217 Hz	2	0.3	28
2450	2400-2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation[b] 217 Hz	2	0.3	28
5240 5500 5785	5100-5800	WLAN 802.11 a/n	Pulse modulation[b] 217 Hz	0.2	0.3	9

[a] For some services, only the uplink frequencies are included.

[b] The carrier shall be modulated using a 50% duty cycle square wave signal.

[c] As an alternative to FM modulation, 50% pulse modulation at 18 Hz may be used because, while it does not represent actual modulation, it would be the worst case.

Table 31: 4343W test specs for enclosure port immunity to RF wireless communications equipment

Test Frequency (Mhz)	Band[a](Mhz)	Service[a]	Modulation	Max Power (W)	Distance (m)	Immunity Test Level
385	380-390	TETRA 400	Pulse Modulation[b] 18 Hz	1.8	0.3	27
450	430-470	GMRS 460, FRS 460	FMc+/- 5 kHz deviation 1 kHz sine	2	0.3	28
710 745 780	704-787	LTE BAND 13, 17	Pulse modulation[b] 217 Hz	0.2	0.3	9
810 870 930	800-960	GSM 1800; TETRA 800; iDEN 820; CDMA 850; LTE Band 5	Pulse modulation[b] 18 Hz	2	0.3	28
1720 1845 1970	1700-1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation[b] 217 Hz	2	0.3	28
2450	2400-2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation[b] 217 Hz	2	0.3	28

Test Frequency (Mhz)	Band[a](Mhz)	Service[a]	Modulation	Max Power (W)	Distance (m)	Immunity Test Level
5240 5500 5785	5100-5800	WLAN 802.11 a/n	Pulse modulation[b] 217 Hz	0.2	0.3	9

[a] For some services, only the uplink frequencies are included.

[b] The carrier shall be modulated using a 50% duty cycle square wave signal.

[c] As an alternative to FM modulation, 50% pulse modulation at 18 Hz may be used because, while it does not represent actual modulation, it would be the worst case.

Equipment classification

The x-ray system has the following equipment classification.

- Protection against electric shock - Class I
- Degree of protection against electric shock - Type B
- Degree of protection against ingress of water - Ordinary
- Mode of operation - Continuous

Caution: The X-ray detectors have an IP68 ingress protection rating. They are completely protected against ingress of dust and have protection against full water immersion for up to 60 minutes, at depths up to 1m.

Caution: Les détecteurs de rayons X ont un indice de protection IP68. Ils sont complètement protégés contre la pénétration de poussière et ont une protection contre l'immersion totale dans l'eau jusqu'à 60 minutes, à des profondeurs allant jusqu'à 1 m.

Inspecting components

Ensure that the system components are received in good condition.

About this task

The x-ray system is shipped in several boxes. The x-ray system is composed of sensitive electronic devices; keep the boxes upright at all times and follow the caution stickers regarding proper handling.

Procedure

1. Upon receipt of your shipment from Sound Technologies, Inc., inspect the packaging.

   A packing list is attached to the outside of one of the boxes. Check this packing list when you first receive the shipment or if the items have been removed from the pallet when they are delivered to the x-ray room. If you need another copy of the packing list or if any of the packaging is damaged, call technical support. See *Technical Support* for contact information.

   Note: Sound Technologies, Inc. ships the components selected by the customer. For example, if multiple receptors are discussed in this manual, a customer may have chosen only one of them for their site.

2. Open each box and check the components for damage.

   Don't discard any packaging, and leave all electronic components in their original antistatic bags and foam cushioning until they are ready to be installed.

   Do not proceed if any components or cables are missing or damaged. If anything in the x-ray system appears to be damaged, contact *Technical Support* immediately.

3. Check cable connectors for bent or damaged pins.
4. Allow equipment to acclimatize appropriately.

   Flat panel detectors are sensitive and often require special handling including extensive acclimatization times. Review the information about the detector in the pertinent chapter of this manual and the documentation that accompanies the detector.

What to do next

After installation, take extra precautions to verify the normal operation of the configuration used at the site.

Mechanical safety

- Use only cabling and mounting hardware included with the x-ray system. Do not install x-ray system components with hardware, such as extensions, shelves, or brackets, obtained from retail or other third-party sources.
- Where the PC is to be mounted to a mobile surface or structure, such as a wheeled cart, wall-mounted armature, or overhead support, use only the mounting brackets provided or specifically approved by the manufacturer.
- Verify that all signal and power cabling is appropriately secured. Provide sufficient strain relief to avoid damage due to unnecessary stress or movement of cabling. Ensure that securing mechanisms and structures are of sufficient strength to support the weight of cabling.
- Cables must be routed such that they do not present trip or fall hazards to personnel or patients walking near the equipment. Do not route cabling across the floor in traffic areas such as hallways or doors.
- Where wheeled devices are used, ensure that cabling on or near the floor is properly secured out of the path of wheels and is protected from crush damage where appropriate.
- Ensure that all mounting and fastening hardware is tightened properly, and that all securing mechanisms on connectors and covers are properly latched.
- Inspect all cabling, mounting, and securing mechanisms during each Preventive Maintenance (PM) cycle to ensure that electrical connections and other hardware do not become loose over time.
- Some components of the x-ray system are of significant size and weight. Observe appropriate lifting and handling techniques when moving heavy equipment or components. Obtain assistance, when necessary, to avoid injury to persons or damage to equipment.

Electrical safety

Electrical power sufficient to cause injury or death is present inside many of the x-ray system components whenever they are connected to AC power. Take appropriate safety precautions, use safety disconnects (such as fuses or breakers), wherever possible, and disconnect AC supply cables from components prior to removing covers for maintenance or service.

Warning: To avoid the risk of electric shock,the x-ray system must be powered from an AC supply circuit that includes an adequate earth ground.

Warning: Pour éviter le risque de choc électrique, le système de rayons X doit être alimenté à partir d'un circuit d'alimentation CA qui comprend une terre adéquate.

Warning: Connecting electrical equipment of the x-ray system to an integral multiple-socket outlet effectively can result in a reduced level of safety. Refer to the IEC 60601-1 standard.

Warning: Connexion d'un équipement électrique du système à rayons X à une intégralePrise multiple - sortie efficace peut se traduire par une réduction du niveau de sécurité. Reportez-vous à la CEI 60601-1standard.

- Failure to adequately ensure safety grounding may result in injury to users or patients, or fire or other damage to equipment.
- Connect the x-ray system components only to receptacles labeled or marked as medical grade.

  Warning: The x-ray system and its components are designed to be connected to a properly grounded AC supply sufficient to support system operation. Using power strips or other multiple-socket outlets that are not specifically approved for use with the x-ray system may compromise safety grounding or present other power-related safety hazards. When a power strip must be used to provide power to any component of the x-ray system, refer to the IEC60601-1 standard for guidance in selecting a power strip of appropriate type and rating.

  Warning: Le système à rayons X et de ses composants sont conçus pour être relié à une alimentation CA mise à terre suffisante pour soutenir le fonctionnement du système. En utilisant des bandes de puissance ou d'autres points de vente multi-socket qui ne sont pas spécifiquement approuvés pour une utilisation avec le système x -ray peut compromettre la terre de sécurité ou présentent d'autres risques de sécurité liés à l'alimentation. Quand une bande de puissance doit être utilisé pour fournir de l'énergie à tout composant du système x-ray, reportez-vous à la norme CEI 60601-1 pour les guider dans la sélection d'une bande de puissance de type et le calibre approprié.
- Use rated electrical components to forestall single fault conditions. When electrical components must be replaced, use only components that are appropriately rated for the application.

  Replace fuses, switches, or connectors only with components of the same type and rating as the original equipment.
- Electronic components of the x-ray system are sensitive to electrostatic discharge (ESD) and can be damaged. Personnel servicing components of the x-ray system must

take appropriate ESD prevention measures to minimize the risk of damage to system hardware.

Sound Technologies, Inc. has tested the exposed components for ESD, and has provided beads and shielding for cables. The party that is the final integrator, however, is responsible to ensure compliance for electrostatic compatibility.

- Use the equipment in a space that is properly ventilated. Provide sufficient free space around the components to permit their ventilation.

  Do not block or restrict airflow into or out of the computer or the enclosure around the detector, if applicable. Adequate air cooling is required to prevent overheating the components inside these enclosures.

  Some electrical components, if operated beyond the stated temperature range, may emit toxic fumes. Do not permit components to overheat.
- Prevent toxic or hazardous liquids from reaching the hardware. Apply measures to prevent liquids, particularly toxic or hazardous fluids, from coming into contact with the x-ray system components and equipment.

  When cleaning the x-ray system equipment, do not spray or pour fluid directly onto equipment surfaces. Use a soft cloth, dampened lightly with a cleaning solution, and gently wipe system components.
- All components of the x-ray system must be powered off before connecting any cables.

  Caution: Internal power supplies contain capacitors that may remain charged for a period of time after the power source is removed. Before performing work inside any of the enclosures of x-ray system components, wait at least 60 seconds after removing the AC supply cable for complete discharge.

  Caution: Alimentations internes contiennent des condensateurs qui peuvent rester chargés pour une période de temps après que la source d'alimentation est débranché. Avant d'effectuer tout travail à l'intérieur des enceintes de composants du système x - ray, attendez au moins 60 secondes après avoir retiré le câble d'alimentation CA pour une décharge complète.
- All electrical and grounding connections to the x-ray system must be inspected during each preventive maintenance (PM) cycle.
- Replace or repair faulty connections prior to returning the system to service.

Software safety and use

Do not install any software that is not explicitly approved by Sound Technologies, Inc.. Unauthorized software may disrupt the processes or resources required by the x-ray system software and result in abnormal system operation.

- Do not add or remove any component of the host operating system unless specifically directed to do so by Sound Technologies, Inc.. Note that Windows Updates have been known to change behaviors of the operating system and should be installed or removed only at the explicit direction of Sound Technologies, Inc.

- Perform system calibration using only the processes prescribed in this manual. Any other calibration method may result in abnormal system operation or poor image quality.
- After the system is operational, only properly trained and authorized personnel can access patient records on the system.
- Information about operating the x-ray system is located in this manual. In addition, Sound Technologies, Inc. provides training for operators and service technicians to help them properly operate the system and obtain acceptable image quality.

Operator safety

Only authorized and trained personnel may access patient records stored on the x-ray system or use the x-ray system for clinical imaging of patients. Proper operation and care are critical to maintaining system performance and optimal image quality. On-site training is available and may be scheduled by contacting Sound Technologies, Inc..

- The x-ray system must not be powered up or used in the presence of a flammable or explosive atmosphere, including certain gases used for anesthesia. Electric motors and other electrical equipment within or related to the x-ray system can ignite flammable or explosive gases or vapors, resulting in injury, death, or damage. Consult the site documentation or personnel to determine the presence of and hazards posed by gases in the vicinity of the x-ray system. Observe all cautions and warnings in this manual. Failure to abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.
- The x-ray system must be installed and operated such that no direct patient contact with any part of the system is possible.
- Do not attempt to perform service or troubleshooting on the x-ray system in the presence of patients or unauthorized personnel. Do not remove protective covers or otherwise disable safety devices while in the presence of patients.
- The x-ray system is designed for use in conjunction with equipment that generates ionizing x-ray radiation. Observe appropriate precautions and wear protective equipment when the x-ray equipment is in use.
- Do not bypass or otherwise disable safety mechanisms provided by the x-ray generator. Take all available and appropriate measures to prevent unnecessary or unintentional radiation exposure.
- Observe all cautions and warnings in this manual. Failure to abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.

Service safety

Only trained personnel are authorized to service or maintain the x-ray system and related equipment. Failure to obtain training prior to servicing the x-ray system may result in support charges, voiding of product warranty, abnormal system behavior, or any of a number of potential risks to the safety of patients, users, or service engineers. Contact the manufacturer to arrange for appropriate training prior to servicing or maintaining the x-ray system.

- The x-ray system must not be powered up or used in the presence of a flammable or explosive atmosphere, including certain gases used for anesthesia. Electric motors and other electrical equipment within or related to the x-ray system can ignite flammable or explosive gases or vapors, resulting in injury, death, or damage. Consult site documentation or personnel to determine the presence of and hazards posed by gases in the vicinity of the x-ray system.
- Do not attempt to perform service or troubleshooting on the x-ray system in the presence of patients or unauthorized personnel. Do not remove protective covers or otherwise disable safety devices while in the presence of patients.
- The x-ray system is designed for use in conjunction with equipment that generates ionizing x-ray radiation. Observe appropriate precautions and wear protective equipment when the x-ray equipment is in use.
- Do not bypass or otherwise disable safety mechanisms provided by the x-ray generator. Take all available and appropriate measures to prevent unnecessary or unintentional radiation exposure.
- Some components of the x-ray system are of significant size and weight. Observe appropriate lifting and handling techniques when moving heavy equipment or components. Obtain assistance when necessary to avoid injury to persons or damage to equipment.
- Some components of the x-ray system may have sharp edges by design, or may develop sharp edges due to impact or other improper handling. Use caution and wear appropriate protective equipment when handling any component of the system.
- Take appropriate measures to prevent the spilling of liquids or bodily fluids on or into the components of the x-ray system.
- Observe all cautions and warnings in this manual. Failure to abide by the instructions and precautions provided may result in unnecessary risk to patients, users, or equipment.

Environmental safety

All components of the x-ray system must be stored, transported, installed, and operated in accordance with the environmental conditions provided in this manual. Follow these guidelines to ensure environmental safety when handling and using the x-ray system.

- The x-ray system is designed for use in conjunction with equipment that generates x-ray radiation. Observe appropriate precautions and wear protective equipment when the x-ray equipment is in use.
- Take appropriate measures to prevent the spilling of liquids or bodily fluids on or into the components of the x-ray system.
- Do not block or restrict the airflow into or out of the computer or the enclosure around the detector, if applicable. Adequate air cooling is required to prevent overheating of the components inside these enclosures.
- The x-ray system must not be powered up or used in the presence of a flammable or explosive atmosphere, including certain gases used for anesthesia. Electric motors and other electrical equipment within or related to the x-ray system can ignite flammable or explosive gases or vapors, resulting in injury, death, or damage. Consult the site documentation or personnel to determine the presence of and hazards posed by gases

in the vicinity of the x-ray system. Observe all cautions and warnings in these manuals. Failure to abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.

- Transport, store, and operate the electronic components of the x-ray system within recommended parameters.
- At the end of service life of any component of the x-ray system, dispose of the component safely and in accordance with local regulations for the disposal of electronic components.

Table 32: Environmental parameters for transportation storage, and operation of computer and peripherals

Action	Temperature	Humidity	Air pressure
Transportation and storage	-4ºF – 131ºF (-20ºC – 55ºC)	10 – 95% non-condensing	700 hPa – 1060 hPa (10 – 5 lb/in2, 0.7 – 1.0 atm)
Operation	50ºF – 90ºF (10ºC – 32Cº)	30 – 75% non-condensing	700 hPa – 1060 hPa (10 – 15 lb/in2, 0.7 - 1.0 atm)

Licensing

A license is required to log in and use the application.

If no license is present, a message is displayed on the login page that indicates the license is needed. The Site ID is also displayed and should be noted because it is required when requesting the license file.

In the event that a license is needed, it is recommended that you notify a supervisor who has the authority to contact Sound Technologies, Inc. so that the pertinent licenses can be secured to provide you with the full functionality of the product.

Adding a license to a system

A license is required to log in and use the application. Use this procedure to add a license to your system.

Prerequisites

Before you begin this task, ensure that you have the Site ID of the computer where the software is installed.

About this task

If a license is not present on a system, a message and the Site ID is displayed on the login screen.

Procedure

1. Navigate to the login screen of the application.
2. Note down the Site ID.
3. Contact technical support and request a license.
   The Site ID is necessary to complete this step.
4. When the license is received, place the file into the following directory: `C:\Program Files\SmartDRViewer`
5. Refresh the Sound SMART DR™ login page.
   You can now log in to the Sound SMART DR™ application.

Warranty

Any of the following actions voids the manufacturer's warranty:

- Modification, abuse, misuse, or operation of your equipment at ambient temperatures below 50ºF or above 90ºF (10ºC, 32Cº) or at other abnormal conditions. Ambient operating temperature for the isolation transformer, if used, is 32–113ºF (0–45ºC). Consult later chapters in this manual or other manufacturers' documents for operating conditions of imaging devices.
- Use of any software other than that supplied or approved by seller.
- Use of supplied software and hardware outside seller's or FDA, CSA, and VDE guidelines or applicable standards.
- Misuse, negligence, or accident or unauthorized repair or alteration of the product.
- Use for purposes for which the product was not designed.

Warning: Make no attempt to connect any other equipment or parts to your system without authorization by the seller.

Warning: Ne tentez pas de connecter d'autres équipements ou pièces à votre système sans l'autorisation du vendeur.

Safety

Apply the directions in this chapter precisely to avoid damage to the x-ray system or its components, yourself, or others; loss of data; or corruption of files. Sound Technologies, Inc. assumes no liability for failure to comply.

Caution: Federal law restricts this device to sale by or on the order of a licensed veterinarian.

Caution: La loi fédérale restreint vente de cet appareil par ou sur l'ordre d'un vétérinaire agréé.

Warning: Connect only items that have been specified as part of the x-ray system or that have been specified as being compatible with the imaging system.

Warning: Connectez uniquement les éléments qui ont été spécifiés dans le cadre du système Sound Technologies, Inc. ou qui ont été compatibles avec le système d'imagerie.

All parts of the x-ray system are suitable for use within patient environment. However, in a typical clinical installation, the host PC and the primary monitor of the system are installed outside the patient exam room, which can be more than 6 ft (2 m) away from the patient. The other parts of the system are sometimes placed within 6 ft (2 m) of the patient.

Warning: Make no attempt to connect any other equipment or parts to the x-ray system without authorization by the seller.

Warning: Faire aucune tentative pour raccorder tout autre appareil ou des parties du système Sound Technologies, Inc. sans autorisation par le vendeur.

Environmental safety

All components of the x-ray system must be stored, transported, installed, and operated in accordance with the environmental conditions provided in this manual.

- At the end of its useful life, this equipment and its accessories must be disposed of safely and in accordance with government regulations.
- Be aware that disposed electronics release materials such as lead, mercury, or cadmium into the soil, ground water, and atmosphere, thus having a negative impact on the environment.
- Follow procedures with regard to electromagnetic compatibility.

General safety

Transport, store, and operate the electronic components of the x-ray system within recommended parameters. For recommended environmental parameters, for transportation, storage, and operation of computer and peripherals, see the table in the topic, *Environmental safety* on page 42.

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Chapter

3

Powering Up and Logging into the SMART DR X-ray System

Contents

This chapter provides conceptual, reference, and task-related content needed for installing components, logging in, and powering up the x-ray system.

Varex detector power sequence

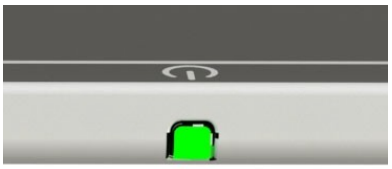
This section describes how to power the detectors on and off.

The 4336W-G5 (LUMEN 4336W) and 2530W-G5 (LUMEN 2530W), and 4343W detectors are powered by removable, rechargeable batteries. The 4343W detector is also powered by removable, rechargeable batteries. For dual detector configurations, the 4343W detector is powered by a network/power tether cable. For single detector configurations, the 4343W detector can be powered either by the tether cable or battery.

LED status indicator behavior

This section describes the behavior of the LED status indicator for the 4336W-G5, 2530W-G5, and the 4343W detectors.

Figure 17: LED status indicator



Note: The blinking behavior occurs based on a 4Hz clock. Each digit for the blinking pattern represents 1/4s. 0 =LED OFF, 1 =LED ON, X = Previous State.

Table 33: 4343W and 4336W-G5 LED status details

LED Behavior	Status
Orange Solid (1111)	Booting
Green Slow Blinking (100000)	No connection to the detector, blinks every 1.5 seconds
Green Fast Blinking (1010)	Connected to the PC, blinks twice (2) per second
Green Solid (1111)	Link Opened, detector controlled remotely, LED always on
Green Slow Blinking (110011)	Connected to Service Cable or Tether Cable, blinks once (1) per second
Yellow Solid (111111)	Detector Error
Purple Blinking (1xxxxx)	Battery Hot-Swap Active (battery exhausted or removed)
Blue Blinking (1xxxxx)	Battery is able to charge

Table 34: 2530W-G5 LED status details

LED Behavior	Status
Orange Solid (1111)	Booting
Green Slow Blinking (100000)	No connection to the detector, blinks every 1.5 seconds
Green Fast Blinking (1010)	Connected to the PC, blinks twice (2) per second
Green Solid (1111)	Link Opened, detector controlled remotely, LED always on
Green Slow Blinking (1100)	Connected to Tether Cable, blinks once (1) per second
Yellow Solid (1111)	Detector Error
Purple Blinking (100000)	Battery Hot-Swap Active (battery exhausted or removed)

The rest of this page intentionally left blank.

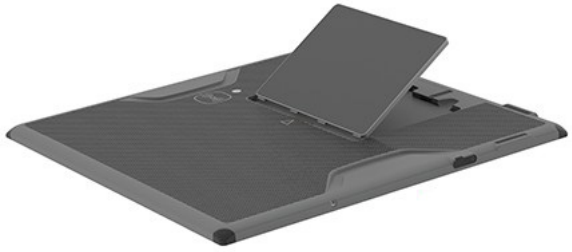
Inserting the battery and powering on the detector

This procedure describes how to insert the battery into a Varex detector and power it on,

Procedure

1. Insert battery at a slight angle so that the side with contacts sits over the adjoining contacts in the battery compartment, and press the battery down until it latches.

   Figure 18: Insert battery at a slight angle

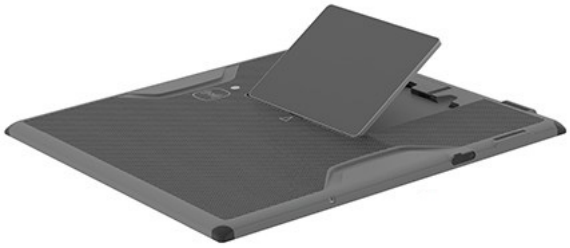
   

   Note: When inserting the battery the angle of the battery should not be more than 20 degrees, inserting a battery at a larger angle could cause damage to the battery contact pins.

   Note: When a battery is inserted into the x-ray detector, the LED Status Indicator will turn orange as it boots. After booting, it connects directly to the PC and is in standby mode, where the LED Status Indicator will blink twice (2) per second. If the x-ray detector does not connect to the PC, it will blink slowly.

2. Lay the battery down, with the side opposite of the battery contacts slightly lifted.

   Figure 19: Lay the battery down

3. Press down on the lifted side of battery, the battery will snap into place in the battery compartment.

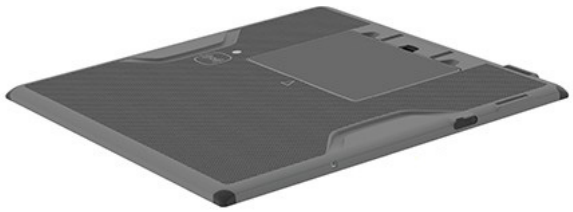
   Figure 20: Press down on the lifted side

   The x-ray detector will automatically power-on when battery is inserted.

4. The x-ray detector is now ready for use.

Figure 21: Detector is ready for use



5. See *LED status indicator behavior* on page 48 for information about the LED signals the detector will display.

Connecting the tether cable for 4343W detector

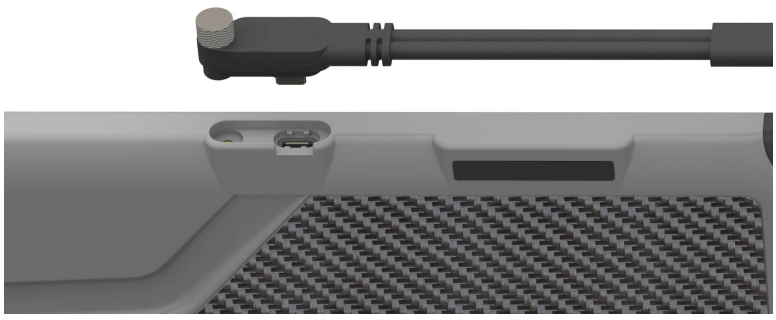
The tether cable provides AC power to the x-ray detector. This task provides the procedure for securely connecting the tether cable to your x-ray detector.

About this task

If the tether cable is connected to the x-ray detector while the battery is in the detector, it charges the battery while providing power to the detector. The tether cable is a Y-cable.. It provides 19V of power to the x-ray detector and the communication connection between the detector and the computer.

Figure 22: 4343W detector tether cable

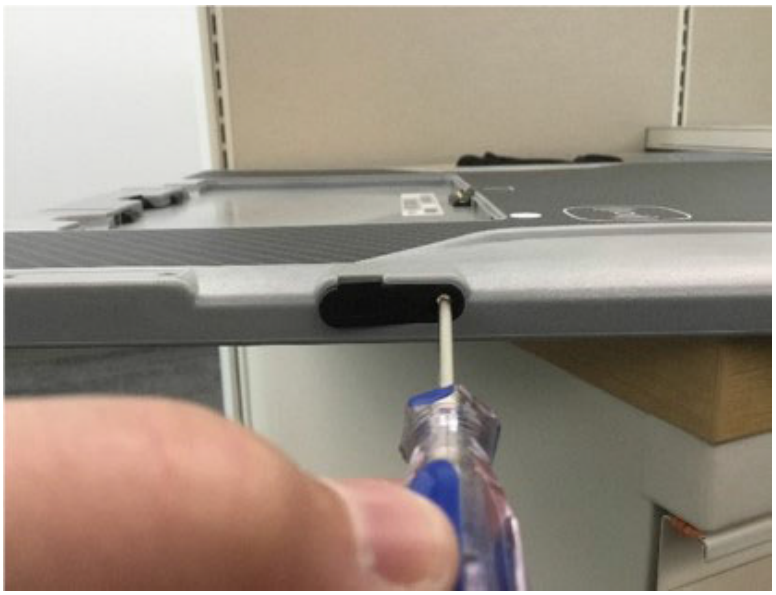
Figure 23: 4343W detector tether cable and USB slot



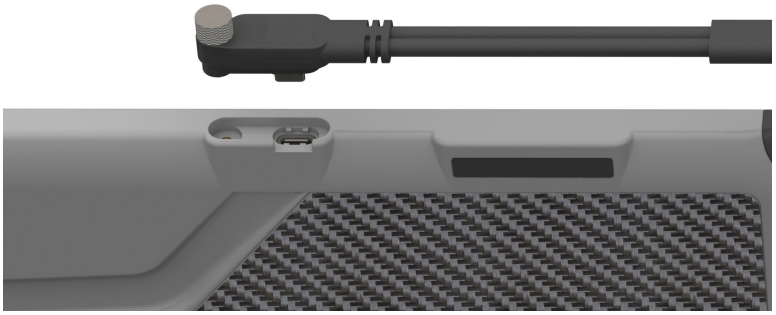
Procedure

1. Remove the overlay to reveal the screw holding the USB door in place.

2. Completely remove the screw and the USB door.



3. Plug the tether cable into the USB slot and tighten the thumb screw into the threaded hole to secure the connection.



The tether cable is securely connected to your x-ray detector.

4. Plug the other end of the tether Y-cable as follows:
   a) Connect one branch of the Y-cable to an Ethernet cable.
   b) Connect the Ethernet cable to the Ethernet port on your PC.
   c) Connect the other branch of the Y-cable to the AC power supply for the detector.

Results

The x-ray detector is now on tether power.

Transitioning the 4343W from tether to battery power

The tether cable provides AC power to the x-ray detector. This task provides the procedure for transitioning your x-ray detector from tether to battery power.

About this task

Use this procedure to transition from tether to battery power for the detector.

Procedure

1. Unscrew the thumb screw from the threaded hole of the USB slot with the connected tether cable.
2. Remove the tether cable from the USB slot.
   The tether cable is disconnected and your x-ray detector is now on battery power.

   Note: If there is no battery in the x-ray detector, the detector will remain powered for three minutes after you disconnect the tether cable. You must insert a charged battery in your detector to continue using it on battery power.
3. (Optional) To completely remove the tether cable from your system, unplug the ends of the tether Y-cable from the Ethernet port on your PC and the AC power supply for the detector.

Removing the battery and powering down the detector

This procedure describes how to remove the battery from a Varex detector and power it down,

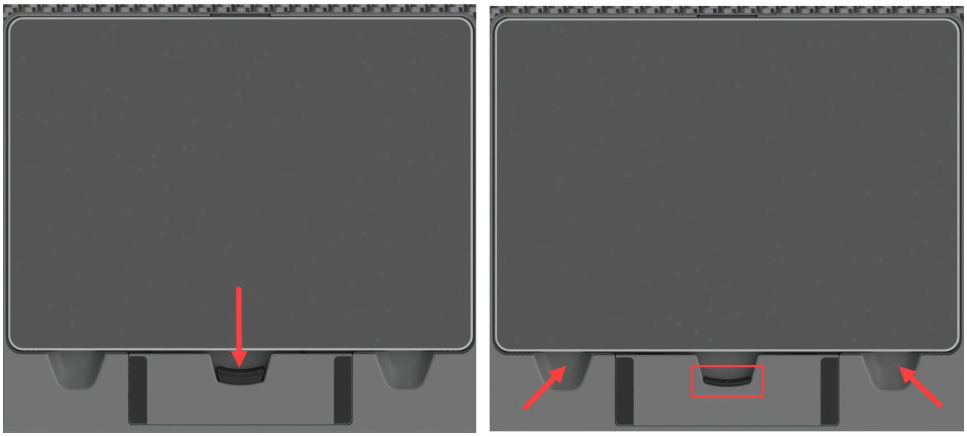
About this task

When the battery is removed, Sound SMART DR™ displays a message indicating that the super capacitor is in use. If the battery is not replaced before the super capacitor is discharged, Sound SMART DR™ displays a message indicating that the panel is disconnected.

Procedure

1. Place a finger on the battery latch and lift until it opens.

Figure 24: Unlatch Battery



2. Place a finger in opening on either side of the latch and lift the battery out.

Figure 25: Battery Removal

Warning: Do not use the battery latch as a handle. Ignoring this warning may cause damage to the battery latch or increase the likelihood that the x-ray detector may be dropped, causing substantial product damage.

Warning: N'utilisez pas le loquet de la batterie comme poignée.Le non-respect de cet avertissement peut endommager le loquet de la batterie ou augmenter le risque de chute du détecteur de rayons X et d'endommager considérablement le produit.

Note: Removal of the battery does not automatically power off the x-ray detector. The x-ray detector will stay powered on for approximately 3 minutes or until discharged after battery removal.

Detector battery

This section describes battery-related features for Varex detectors.

The detector battery has the following features:

- Battery charge-level indicator
- Battery hot-swapping
- Inductive charging

Note: New batteries are shipped in shut-down mode. Before inserting it into the x-ray detector, the battery must be inserted into the 1 or 3-bay charger to remove the shut-down mode.

Note: For additional information about Varex Imaging wireless battery and chargers, visit *www.vareximaging.com*.

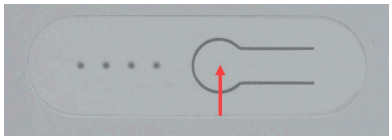
Battery charge level

The battery charge-level indicator is located on the battery.

About this task

Press the indicator button on the battery and the charge level will illuminate. Each LED illuminated represents 25% charge.

Figure 26: Battery charge level



Battery hot-swap

The x-ray detector is equipped with a battery that can be hot-swapped, meaning that the detector can be powered on when the battery is removed and replaced.

When a battery is removed from the x-ray detector or becomes completely discharged,you have a set amount of time for the battery hot-swap to occur before the super capacitor is fully discharged. The super capacitor temporarily provides power to the detector so the detector can remain powered on during the battery change.

When the super capacitor is in use, the following events occur:

- Sound SMART DR™ sends a notification to all users currently logged in.
- In Clinical (Patient) mode, within the Acquire/Review screen, the detector battery status indicator loses all of its green battery bars and begins to pulse until the battery is replaced.
- The detector status indicator shows that the detector is running on super capacitor.
- Image acquisitions are disabled until the battery has been replaced.

Table 35: Battery hot-swap operation time

X-ray detector	Operation time
2530W-G5	3 minutes
4336W-G5	3 minutes
4343W	3 minutes

Warning: If a fully charged battery is not re-inserted within the time window, the x-ray detector will power OFF.

Warning: Si une batterie complètement chargée n'est pas réinsérée dans la fenêtre de temps, le détecteur de rayons X s'éteindra.

Note: Acquisition and calibration features are not available while hot-swapping a battery.

Inductive charging

Varex detectors support inductive charging.

Inductive charging technology allows the detector's battery to be charged cordlessly. The detector status window indicates when inductive charging is in progress. See the detector manual for detailed information about the inductive charger and inductive charging.

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Reboot Sequence

The x-ray detector may be rebooted, if needed.

Procedure

Do one of the following:

- For battery-powered detectors, insert and remove the battery 4 times within an 8 second window.
- For wired detectors with a battery inserted, disconnect the tether and insert and remove the battery 4 times within an 8 second window.
- For wired detectors without a battery inserted, disconnect the tether and allow the super capacitor to power down (3 minutes).

Figure 27: Remove and insert the detector battery

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X-ray generator

This x-ray system allows software-based integration with the Summit HF generator. Or, you may operate it as a non-integrated system.

The generator is connected directly to the system through a COM port. On systems using generator integration feature, the technique for each shot will be set automatically, based on pre-configured technique charts programmed into the SMART DR application. Service technicians configure the SMART DR application to use the integrated generator feature in the **Management** screen.

If your system is configured to use the integrated generator feature, SMART DR™ provides a tool that allows you to make changes to the technique values on a shot-by-shot basis and save those changes for future use. This tool, called the **Integrated Generator** control, is accessible from the Acquire/Review screen in the Clinical (Patient) module.

The generator must be configured using the generator software on the unit itself. See the documentation that accompanies the x-ray generator for detailed instructions on configuration.

Connecting the x-ray generator

The imaging computer connects to the x-ray generator via a serial cable.

Procedure

Ensure that both the x-ray generator and the panel are on, and refer to the x-ray generator documentation.

Note: When you configure the x-ray generator, always set the exposure window to less than the panel integration window. The integration window for the Varex panels is 1000ms.

Powering up the system

After you have connected all of the system components, you can power up the system and verify the connections.

About this task

Danger: The x-ray system must not be powered up or used in the presence of a flammable or explosive atmosphere, including certain gases used for anesthesia. Electric motors and other electrical equipment within or related to the x-ray system can ignite flammable or explosive gases or vapors, resulting in injury, death, or damage. Consult the site documentation or personnel to determine the presence of and hazards posed by gases in the vicinity of the x-ray system. Observe all cautions and warnings in this manual. Failure to

abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.

Danger: Le système à rayons X ne doit pas être mis sous tension ou utilisé en présence d'une atmosphère inflammable ou explosive, y compris certains gaz utilisés pour l'anesthésie. Les moteurs électriques et autres équipements électriques à l'intérieur ou liés au système à rayons X peuvent enflammer des gaz ou des vapeurs inflammables ou explosifs, entraînant des blessures, la mort ou des dommages. Consultez la documentation ou le personnel du site pour déterminer la présence de gaz et les dangers posés par les gaz à proximité du système à rayons X. Respectez toutes les mises en garde et avertissements de ce manuel. Le non-respect des instructions et des précautions fournies dans ce manuel peut entraîner des risques inutiles pour les patients, les utilisateurs ou l'équipement.

Procedure

1. Verify that the PC, panel, and x-ray generator have sufficient battery power to remain active during the configuration process. If it is possible to plug in a component to power it, then do so.
2. Turn on the x-ray generator.
3. Turn on the PC, keyboard (if used), and mouse (if used).

   The PC automatically logs in to the Sound User account.
4. Turn on the panel:

   - For battery-powered detectors, insert a charged battery in to the detector.
   - For wired detectors, ensure that the power cable is connected.

   The power button is on the side of the casing.

   The detector powers on and connects.

Results

The system is now installed and ready for configuration.

Logging into the imaging comptuter

The default user is Sound User; however, other users can be created on the system as needed. This topic describes how to log in with the credentials you want to use or a QR code.

Procedure

1. Power on the SMART DR computer.
2. Log in using one of the following procedures:

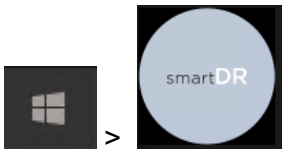
Option	Procedure
Log in as Sound User.	Default. See *Logging in as Sound User* on page 60.
Log in as a Vet or Tech user.	**a.** See *Logging in as a Vet or Tech user* on page 61.
Manually logging in from a tablet, phone, or other peripheral device.	See *Manually logging into the imaging computer from another device* on page 61.
Log in from a tablet, phone, or other peripheral device using a QR code.	See *Logging in to the imaging computer with a QR code* on page 62.
Switching users	See *Switching users* on page 62.

Logging in as Sound User

Sound User is the default user and provides access to all of the clinical and management functionality in the Sound SMART DR™ software.

Procedure

- If the Sound SMART DR™ software is not running, select the **Windows Start Menu** > **smartDR**



  You are automatically logged in as Sound User.
- If you are logged into the Sound SMART DR™ software as a Vet or Tech user, see *Switching users* on page 62.

Logging in as a Vet or Tech user

Users can be configured on the system in the Vet or Tech user groups. The privileges a user has on the system depend upon which group they belong to.

About this task

For information about the privileges for each user group, see the *Service Manual*.

When the Sound SMART DR™ application is started on the main imaging computer, you are logged in as Sound User by default. If you want to log in as a Vet or Tech user, you must log out and log back in as the desired user. The same applies if you want to switch from a Vet or Tech user to Sound User or another user Vet or Tech user.

Procedure

See *Switching users* on page 62 for information about switching user logins.

Manually logging into the imaging computer from another device

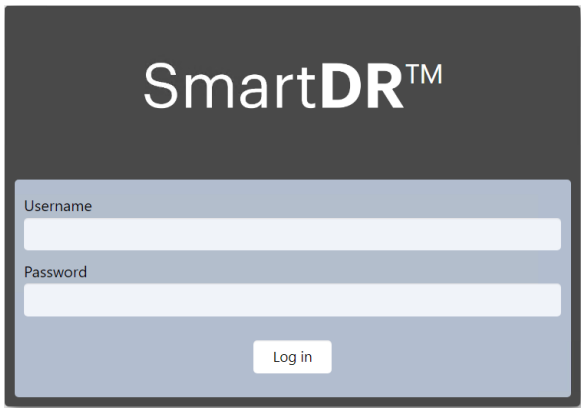
If the QR code is not configured on the system or if you are away from the main imaging computer, you can log in from another device manually.

Procedure

1. On your device, open a web browser, and navigate to the IP address of the imaging computer using the following URL format:

   http://ipAddress/SD2

   The SmartDR™ login page is displayed.



2. Enter your credentials into the login page.
3. Select **Log in**.

Logging in to the imaging computer with a QR code

If configured on the system, a QR code can be used to log in to the Sound SMART DR™ software from a peripheral device such as a cell phone or tablet.

Prerequisites

Before you begin this task, the following prerequisites must be met:

- The main imaging computer must be on and the Sound SMART DR™ application must be running.
- The QR code must be enabled in the **Management** screen on the main imaging computer.

Procedure

1. On the main imaging computer, enter the **Management** screen.
2. In the **Management** screen, select **Hardware** > **Multi-User QR Code**.
3. Use your device to scan the QR code displayed on the tab.

   The login page is displayed.
4. Use your credentials to log in.

Switching users

If there are multiple users configured in the SMART DR software, you can change users by logging out and logging back in.

Prerequisites

Credentials for Vet and Tech users must be configured in the SMART DR software.

Procedure

1. In the SMART DR interface, select **Logout** icon.
   A dialog box displays that asks, Are you sure you want to log out?
2. Select **OK**.
   The SMART DR login page displays.

3. Enter your user ID and password.
   For the Sound User, the credentials are:

   User: Sound User
   Password: $oundSRVC

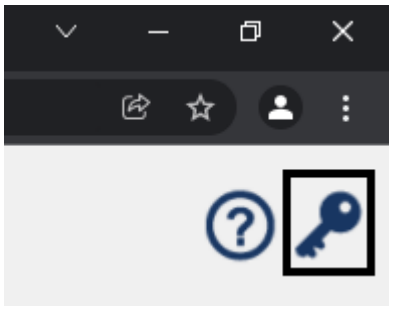
   For Vet or Tech users, use the credentials configured on the system for your user.
4. Select **Log in**.
   The Patient List is displayed.

Logging out of the SMART DR software

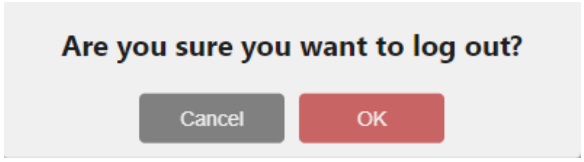
Use this procedure to log out of the SMART DR software.

Procedure

1. Select the key icon in the upper-right corner of the screen.



2. At the prompt, tap **OK** to log out.



   You are logged out and the SmartDR™ login screen is displayed.
3. Tap the **Exit** button to close the browser and return to your desktop.

Shutting down the PC

If desired, the PC can be shut down from the Windows desktop.

Prerequisites

Log out of the SMART DR application.

About this task

Note: If system updates are available, but have not been installed, you must complete this process twice to shut down the system.

Procedure

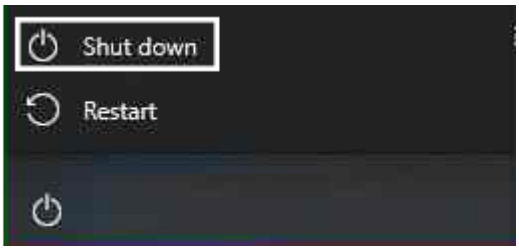
1. On the Windows desktop, select the **Start** icon.

2. In the pop-up list, select the **Power** icon.

3. In the pop-up menu, select **Shut down**.

   The computer shuts down.

Chapter

4

Patients

Contents

This chapter describes how to navigate the **Patient** screen and create new patient records.

Main Patient screen

This is the first screen you will see when the application is launched and you are logged in. From this screen, you can add new patients, create emergency patients, and search for existing patients. Search results are displayed in the main body of the screen in vertically-stacked tiles/records, which offer various functions that can be applied at both the patient and study levels.

This section provides a brief description of the main **Patient** screen.

Remember: You can enlarge the user interface up to 120% or make it smaller down to 80%, depending on the zoom level you have set. To set the zoom level for the user interface, you must configure the zoom option in the **Management** screen.

Figure 28: Main Patient screen

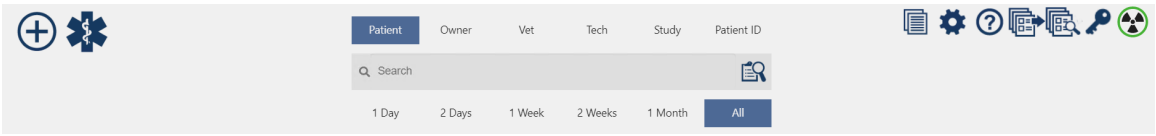


Figure 29: Main Patient screen – vertical patient tiles/records from Search results

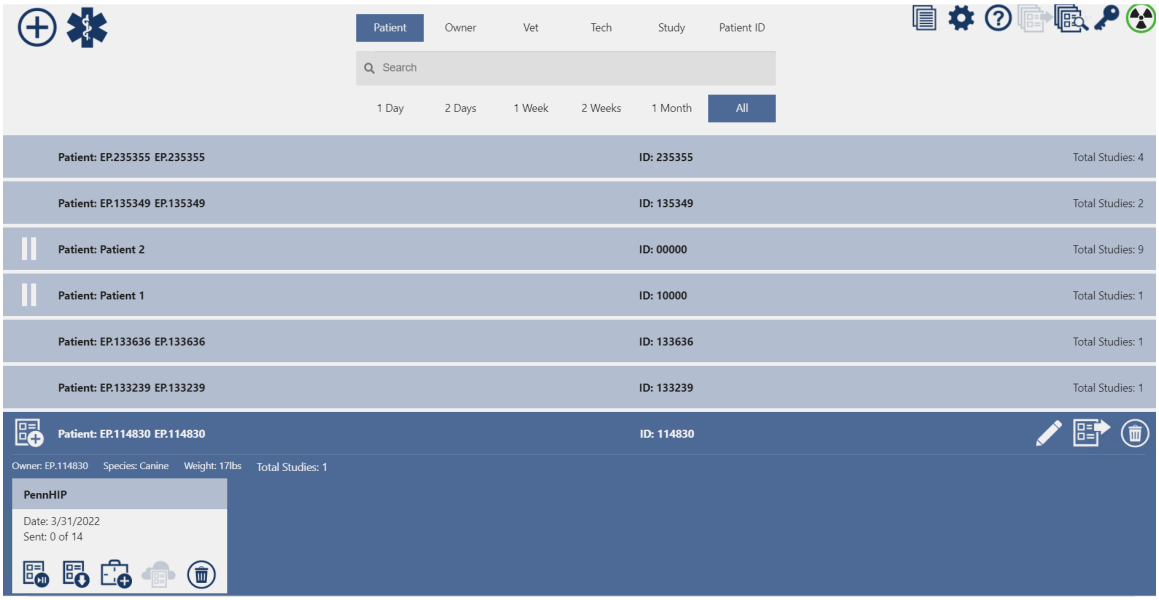
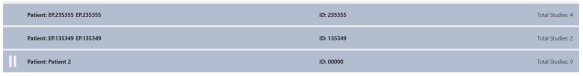


Table 36: Main Patient screen – description

Display icon	Description
New Patient: 	Allows you to create a new patient in your system. See the topic, *Creating a new patient* on page 69.
Emergency Patient: 	Allows you to create an emergency patient in your system. See the topic, *Creating an emergency patient* on page 72. An emergency patient is an animal whose record you created in the system as a result of providing emergency services.
Search (local): 	Allows you to search for existing patients in the local database. See the topic, *Patient search — local* on page 87.
Search (MWL): 	Allows you to search for patients that are configured on a worklist server for the purpose of importing them in to the system. The **MWL Search** icon is enabled in the **Search** field only if the DICOM Worklist server has been configured in the **Management** screen. See the topic, *Patient search — MWL* on page 88.
Reports: 	Allows you to aggregate and view different types of study and patient data in a report format. You can generate and export AAHA, billing, study, rejected images, and detailed billing reports. The reports can be generated in both PDF and Excel formats, and exported to folders on the local system, a network, or a thumb drive. See the topic, *Reports screen* on page 162.
Management Screen: 	Allows you to access the **Management** screen to configure display and other options for the Sound SMART DR™ software.

Display icon	Description
Help: 	Allows you to access the **Help** menu, and provides **Icon Help** for the main **Patient** screen. See the topic, *Help Options window* on page 174.  **Note:** The **Help** menu is available on all screens of the system.
Batch Send: 	Allows you to simplify the export process and send batches of studies based on selectable criteria. See the topic, *Batch send export* on page 151.  **Note:** This control is inactive if the Storage server has not been configured in the **Management** screen.
DICOM Export Queue: 	Allows you to view information about DICOM exports in progress or completed, clear the completed exports from the list, or cancel all exports. See the topic, *Using the DICOM queue* on page 153.
Log Off: 	Allows you to log off from the system.
Detector Status: 	Allows you to view the status of the detector and access the **Detector Status** information box for detector status and connectivity details. See the topics, *Active panel connection controls* on page 138 and *Detector status, temperature, battery status, and connectivity*.
Vertical patient tiles/records: 	Shows the patient and study information, and allows you to access the patient and study controls when expanded. See the topics, *Patient tile/record controls* on page 84 and *Study tile/record controls* on page 86. The number of patient tiles/records displayed on the screen is configured in the **Management** screen.

Note: For a basic understanding of the touch interface control gestures, see the topic, *Touch fundamentals* on page 137.

Creating a new patient

About this task

Use this procedure to create a new patient in your system.

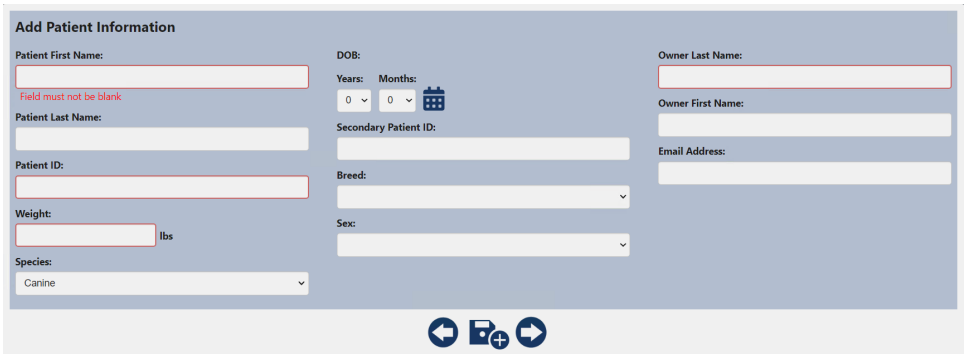
Procedure

1. Select the **New Patient** icon in the upper-left corner of the main **Patient** screen.

   The **Add Patient Information** dialog box is displayed.

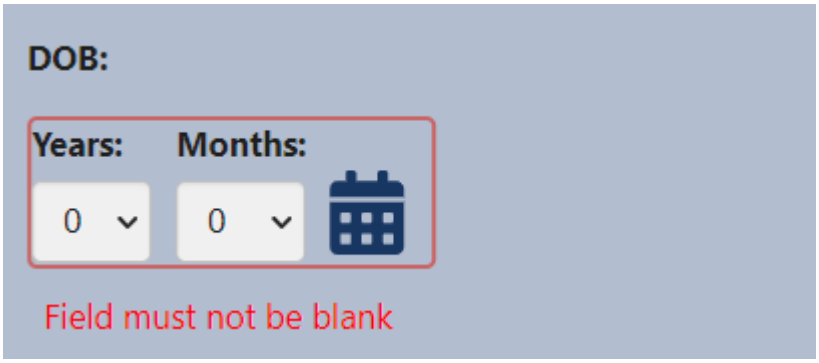
Figure 30: Add Patient Information dialog box – new patient



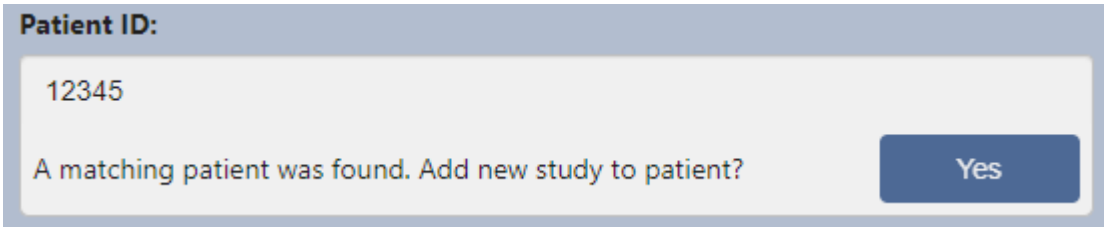
2. Enter information in the required fields (shown with a red border) and any other fields, as needed.

   If enabled in the **Config** > **Advanced Options** tab of the **Management** screen, you can enter an Accession Number.

   If the patients' date of birth (DOB) is required, you must enable this option in the **Advanced Options** tab of the **Management** screen. See the *Service Manual* for more information. When enabled, you must enter the patient's DOB when creating a new patient in Clinical mode.



   If a patient already exists in the system, you will see the following message when you attempt to enter a pre-existing **Patient ID** number for the new patient:



   Note: If the patient already exists in the system, you can add a study to the existing patient. See the topic, *Creating a new study* on page 76.

   a) In the matching patient message box, select **Yes** to add a new study to the existing patient.

      The new patient information will be replaced with information from the pre-existing patient record.

   b) Make any desired changes to the pre-existing patient information.

      Note: The **Species** drop-down list is disabled, as the system does not allow you to change the species of the patient. To change the species, you must create a new patient with a new Patient ID number.

3. Do one of the following:

   - Tap the **back-arrow** icon to return to the main **Patient** screen without saving any information.

   - Tap the **Save** icon to save the information.

     A blank **Add Patient Information** dialog box is displayed.

     Tap the **back-arrow** icon to exit the **Add Patient Information** dialog box and return to the main **Patient** screen.

     A patient tile/record for the new patient is added to the main **Patient** screen. A new study tile/record is automatically created in the new patient tile/record.

     If you made updates to an existing patient record, the patient record will be updated with your changes and a new study tile/record will be added to the selected patient tile/record in the main **Patient** screen. You can add shots to any study later in the process. See the topic, *Adding shots to a study* on page 123.

   - Tap the **forward-arrow** icon.

     The **Shotlist** screen appears. The **Protocols** window is displayed, by default. In this window, you can select the anatomies and views to be acquired for the study. See the topics, *Shotlist screen* on page 121 and *Adding shots in the Shotlist screen*.

     Also, see the topic, *Acquire/Review screen* on page 92.

Results

The new patient tile/record with a new study tile/record is listed in the main **Patient** screen. If you made updates to a pre-existing patient record, the new changes are added to the pre-existing patient tile/record in the main **Patient** screen, and a new study tile/record is added to the selected patient tile/record.

Creating an emergency patient

About this task

Use this procedure to create an emergency patient. An emergency patient is an animal whose record you created in the system as a result of providing emergency services.

An emergency patient record is created in the system with an **EP** number, where **EP** is the designation for emergency patient, and the number that follows **EP** is a system-generated Patient ID number.

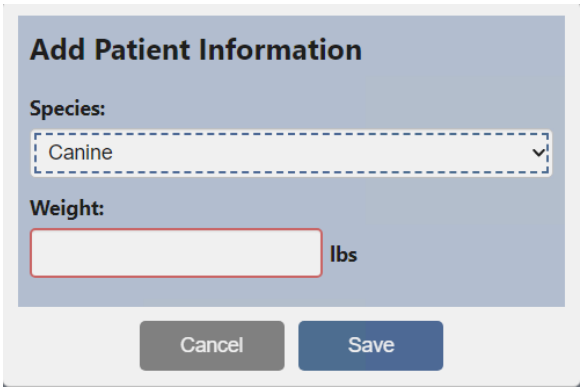
Procedure

1. Select the **Emergency Patient** icon in the upper-left corner of the main **Patient** screen.

   The **Add Patient Information** dialog box is displayed.

   Figure 31: Add Patient Information dialog box – emergency patient

2. From the **Species** drop-down list, select the species to which you are providing emergency services.

   The **Add Patient Information** dialog box is automatically populated with the default species specified in the **Management** screen. You can change the default species in the **Management** screen, if needed.

3. Enter the **Weight**, (required).

   The units assigned to the **Weight** field, lbs, kg, or g, can be configured in the **Management** screen, if needed.

4. Tap the **Save** button.

   The emergency patient record is created in the system.

   The **Shotlist** screen appears. The **Protocols** window is displayed, by default. In this window, you can select the anatomies and views to be acquired for the study. See the topics, *Shotlist screen* on page 121 and *Adding shots in the Shotlist screen*.

5. Do one of the following:

   - Tap the **back-arrow** icon to return to the main **Patient** screen without adding shots.

   - Enter information in the **Shotlist** screen, then tap the **forward-arrow** icon to go to the Acquire/Review screen.

     In this screen, you can select individual shots and shot protocols, make study description changes, edit patient information, and initiate image acquisition. See the topic, *Acquire/Review screen* on page 92.

6. (Optional) Edit the emergency patient information, as needed.

   The emergency patient that you created will appear on the main **Patient** screen with a name starting with **EP**. To change the patient name or any other information, in order to make searching easier, it is recommended that you edit the emergency patient information. See the topic, *Editing patient information* on page 75.

Results

The new emergency patient tile/record is listed in the main **Patient** screen.

Creating a patient record from a MWL study request

About this task

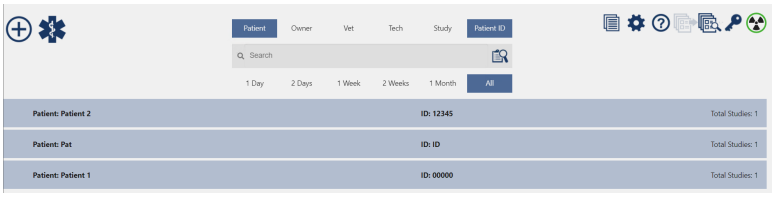
A Modality Worklist Server (MWL) study request allows you to search and import patients configured on a Worklist server. Use the information in this section to create a patient and study record in your system from a MWL request.

Important: For the **MWL Search** feature to be enabled in the **Search** field of the main **Patient** screen, you must have the DICOM Worklist server configured in the **Management** screen.

Procedure

1. Perform a MWL search by selecting the desired search options. See the topic, *Patient search — MWL* on page 88.

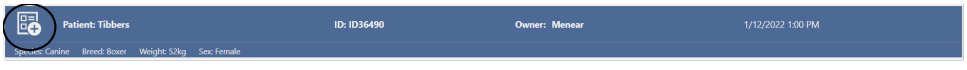
   This will display all of the MWL requests on the server that meet the selected search criteria,. The system will create patient records from the list of MWL requests.



   Important: If you import a patient record that contains the same patient information as another record that already exists in the system, SMART DR™ will add the requested study to the existing patient rather than create a new patient record. If any patient information differs, the system will create a new record.

2. Tap your desired patient tile from the list of MWL patient tile/records on the screen.

   Note that the expanded patient tile/record from a MWL request contains only the **New Study** icon/control. This allows you to create a study for the selected imported patient in your system before adding other details.



3. Tap the **New Study** icon/control, in the upper-left corner of the expanded patient tile/record, to create a study.

4. Follow the instructions in the topic, *Creating a new study* on page 76.

Editing patient information

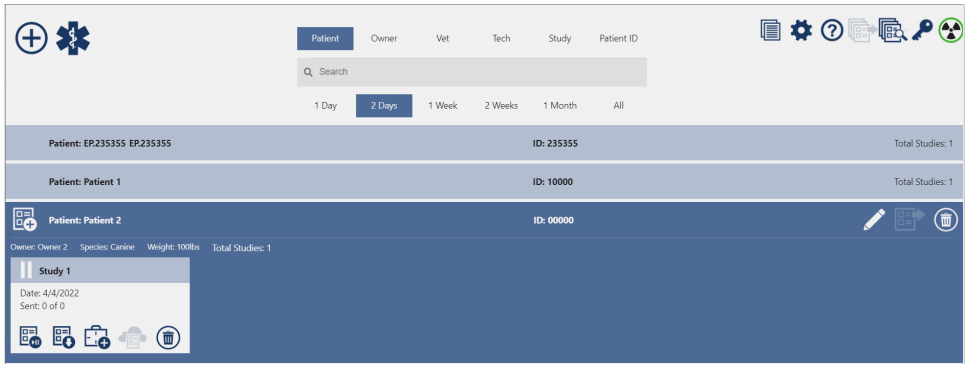
About this task

Use this procedure to edit patient information directly from the main **Patient** screen.

Procedure

1. In the main **Patient** screen, tap a patient tile/record to expand it.

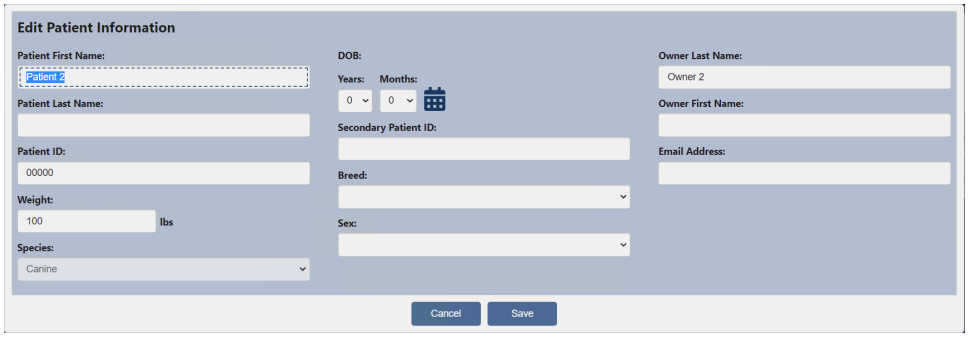
   The selected patient record displays.



2. Tap the **Edit Patient Information** icon in the upper-right corner of the patient record.

   The **Edit Patient Information** dialog box is displayed.

Figure 32: Edit Patient Information dialog box



3. Make your desired changes and tap the **Save** button.

   The patient information is updated. You will return to the main **Patient** screen.

Results

The selected patient record is now updated with your changes.

Creating a new study

About this task

Use this procedure to create a new study for an existing patient.

Procedure

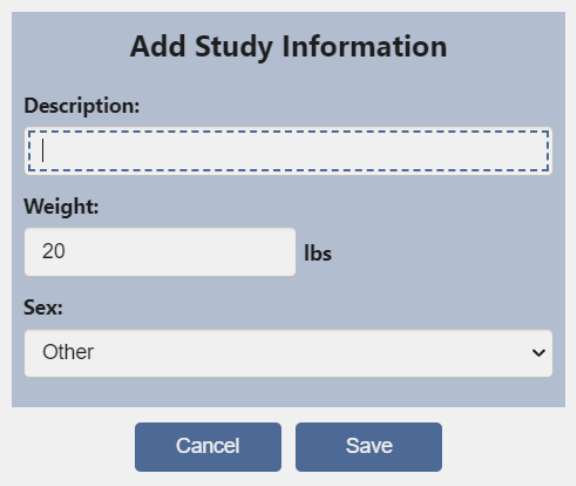
1. In the main **Patient** screen, tap on a patient tile/record to expand it.

The rest of this page intentionally left blank.

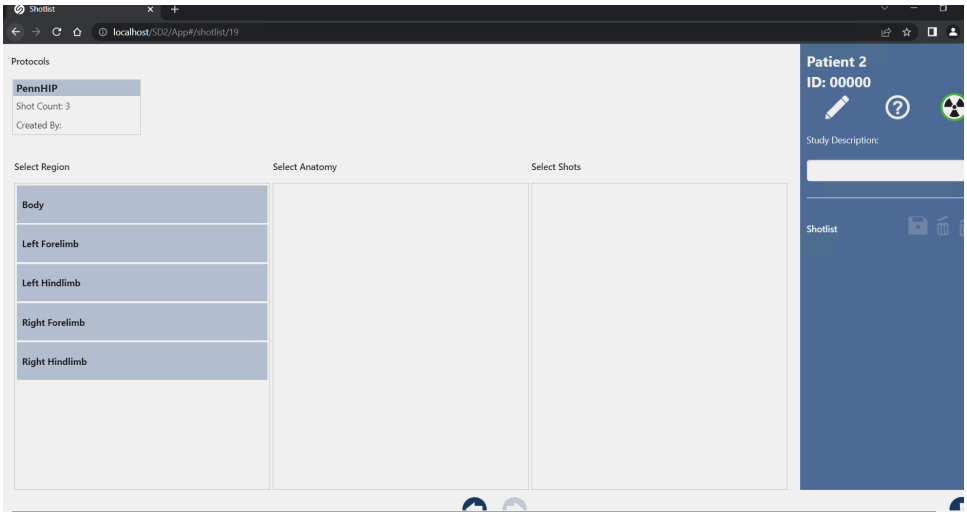
2. Select the **New Study** icon in the upper-left corner of the expanded patient tile/record.

Depending on how the study form option is configured in the **Basic Options** tab of the **Management** screen, one of the following occurs:

- The **Add Study Information** dialog box is displayed.



- The **Shotlist** screen is displayed. The **Protocols** window is displayed, by default.

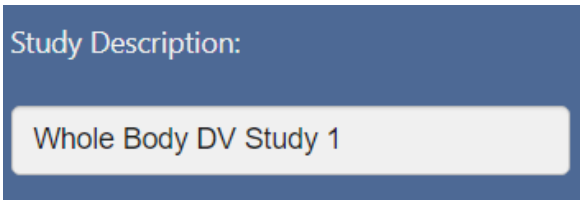


3. Do one of the following:
   - If the **Shotlist** screen is displayed, go to the next step.
   - If the **Add Study Information** dialog box is displayed:
     a. In the **Description** field, enter a description for the study. Example: Whole Body DV Study 1
     b. Enter or update the weight, in pounds, if applicable, and select the sex of the patient.

        Note: The units assigned to the **Weight** field, lbs, kg, or g, can be configured in the **Management** screen, if needed.

     c. Tap the **Save** button.

        The information is updated in the selected patient tile/record, in the main **Patient** screen. The **Shotlist** screen is displayed.
     d. Go to the next step.
4. Add shots in the **Shotlist** screen. See the topics, *Shotlist screen* on page 121 and *Adding shots in the Shotlist screen*.
5. If the **Study Description** field is not already populated, enter a name for the study. You can also change the name of the study, if this field is already populated.



The rest of this page intentionally left blank.

6. Do one of the following:

   - Tap the **back-arrow** icon to return to the main **Patient** screen.

     Changes are saved automatically.

     The study you created is listed in the selected patient tile/record. The new study is populated with the same values as the previous study in the selected patient tile/record.

     You can add more shots to this study later in the process. See the topic, *Adding shots to a study* on page 123.
   - Tap the **forward-arrow** icon.

     The Acquire/Review screen is displayed. In this screen, you can select individual shots and shot protocols, make study description changes, edit patient information, and initiate image acquisition. See the topic, *Acquire/Review screen* on page 92.

     Changes are saved automatically.

Add a Study to an Existing Patient

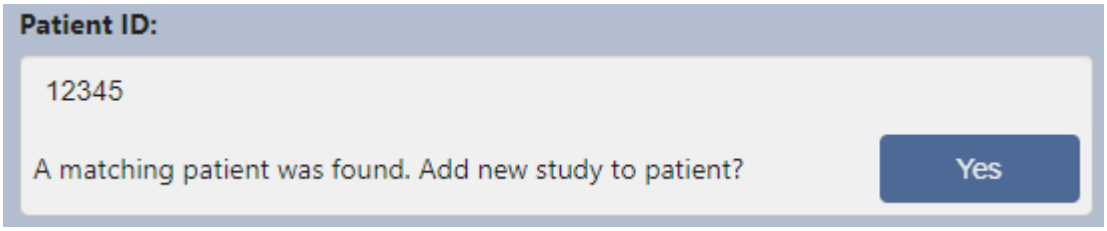
To add a new study to an existing patient, simply tap the patient tile for the desired patient and then tap the **New Study** control found in the upper left corner of the patient tile.

The next action depends on the configuration. If configured, tapping the new study control opens an **Add Study Information** form, where you will enter a **Study Description**, weight value and sex. If configured on the **Management** screen, this form also includes a field for accession number. Tapping the **Save** control will take you to the **Shot Selection** screen where you can select individual shots and shot protocols, make study description changes, edit patient information, and initiate image acquisition.

The system can also be configured to skip the **Add Study Information** form. In this case, tapping the New Study control adds a study populated with the same values as the last study added to the patient tile. Tap the Shot list control to open the **Shot Selection** screen and make changes as needed. If no previous study exists, the **Add Study Information** form displays.

In addition, when creating a new patient, if the patient already exists in the system, you have the option of adding a study to the existing patient from the **Add Patient Information** screen.

If a patient already exists in the system, you will see the following message when you enter the patient ID:



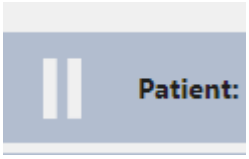
Click **Yes** to add the study to the patient.

Resuming a closed or paused study

About this task

You can resume a study that has been closed/ended or paused, directly from the main **Patient** screen.

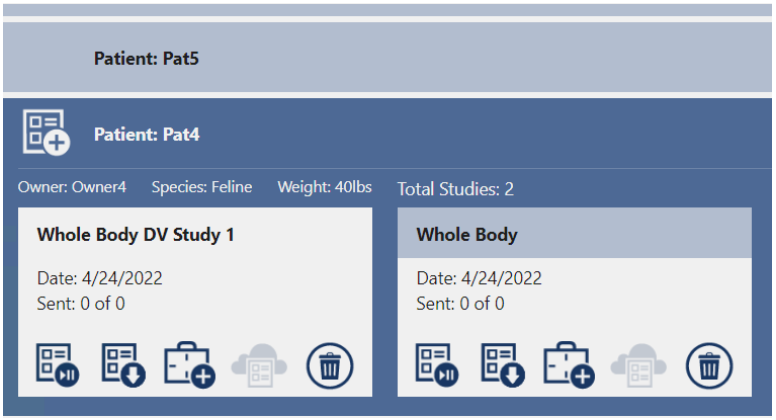
A **Pause** symbol is displayed on the patient tile/record, in the main **Patient** screen, so that you can see which studies are incomplete and need to be resumed.



Procedure

1. In the main **Patient** screen, select a closed or paused patient tile/record to expand it.
2. Select a study you want to resume.

   The study tile you select will be highlighted. In the following image, the **Whole Body DV Study 1** tile is highlighted.



3. Tap the **Resume Study** icon at the bottom of the selected study tile/record.

   If shots have already been added to a study, selecting the  icon displays the Acquire/Review screen. If no shots have been added to a study, the **Shotlist** screen is displayed.
4. Add shots to the selected study.

   If the **Shotlist** screen is displayed, see the topic, *Adding shots in the Shotlist screen*. If the Acquire/Review screen is displayed, see the topic, *Adding shots to a study* on page 123.

   Also see the topic, *Pausing a study* on page 128.

Moving a study

About this task

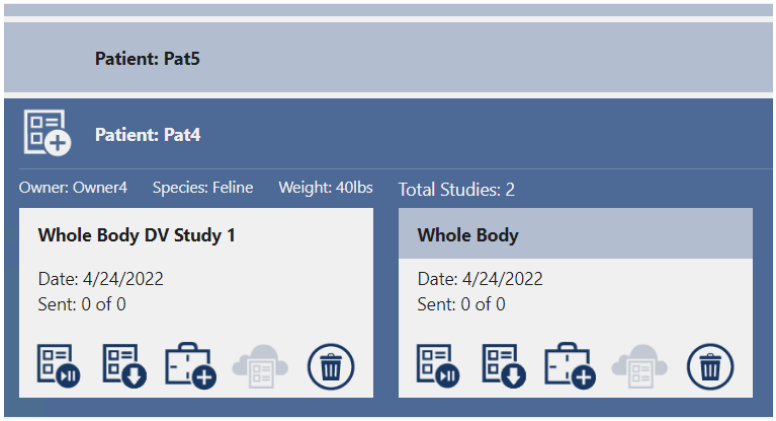
Use this procedure to move a study from one patient record and add it to another patient record. You can move a study to a selected patient or owner.

A moved study is permanently removed from the previous patient record.

Procedure

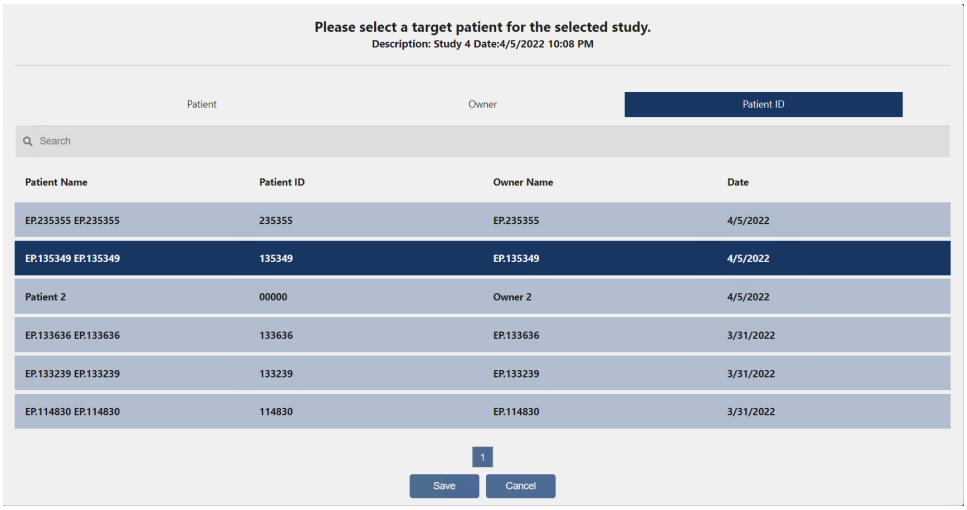
1. In the main **Patient** screen, select a patient tile/record to expand it.
2. Select a study you want to move from the current patient record to another patient record.

   The study tile you select will be highlighted. In the following image, the **Whole Body DV Study 1** tile is highlighted.



3. Tap the **Move Study** icon at the bottom of the selected study tile/record.

A target patient selection window is displayed.



4. In the selection window, use the **Search** field to search for a patient record to which you want to add this study.

   Search options include Patient, Owner, and Patient ID, either as standalone or in combination.

5. In the list of studies that display, tap a target patient record to which you want to add this study, and select **Save**.

   You will return to the patient tile/record from where you moved the study. The study you moved no longer appears in the patient tile/record.

Results

The study is moved to the selected patient record and no longer appears in the previous record.

Deleting a patient

About this task

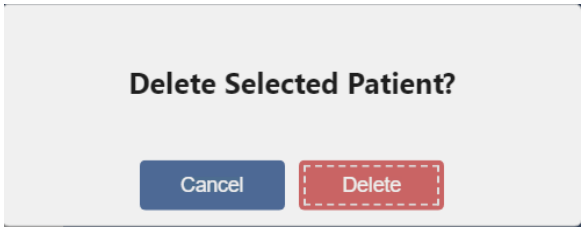
You can delete a patient and all of the studies associated with that patient. The Patient IDs for both deleted and soft-deleted patient records are reusable.

Procedure

1. In the main **Patient** screen, select a patient tile/record to expand it.
2. Tap the **Delete Patient(s)** icon in the upper-right corner of the patient tile/record.

   A delete patient confirmation message appears.

3. Select **Delete**.

Results

The selected patient record and all of its associated studies are deleted.

Deleting a study

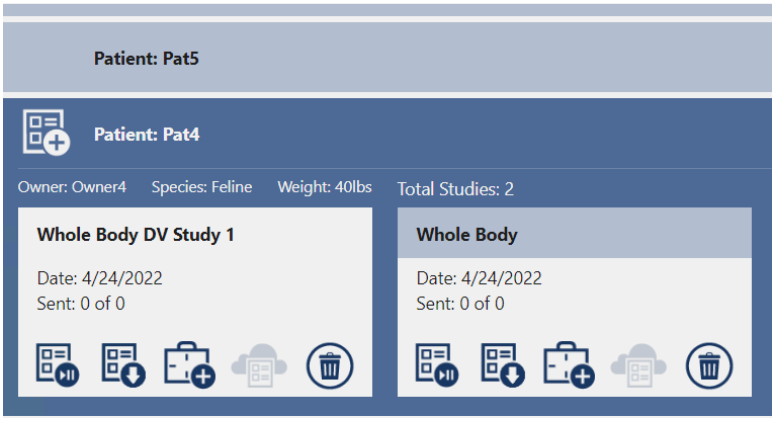
About this task

You can delete a specific study associated with a patient.

Procedure

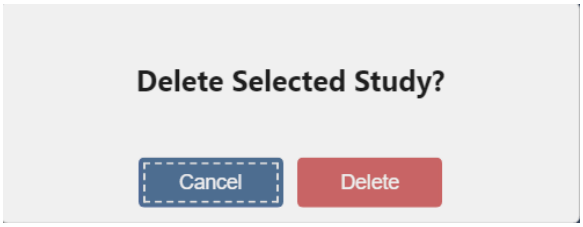
1. In the main **Patient** screen, select a patient tile/record to expand it.

2. Select a study you want to delete from the patient record.
   The study tile you select will be highlighted. In the following image, the **Whole Body DV Study 1** tile is highlighted.



3. Tap the **Delete Study(s)** icon in the lower-right corner of the study tile/record.

   A delete study confirmation message appears.



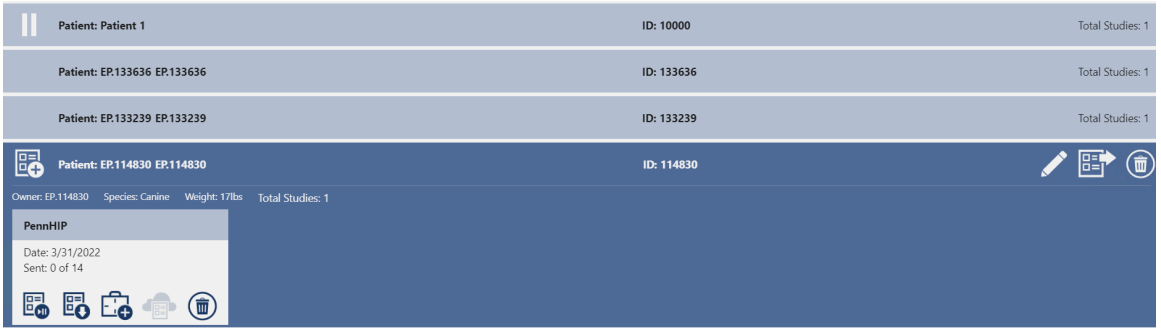
4. Select **Delete**.
   The selected study is deleted from the selected patient tile/record.
5. Repeat these steps to delete additional studies from the selected patient tile/record.

Patient tile/record controls

This section describes the expanded patient tile/record controls.

To expand a patient tile/record, tap your desired patient tile/record in the main **Patient** screen.

Figure 33: Expanded patient tile/record controls



The following table describes the patient tile/record icons/controls, located across the top of the expanded patient tile.

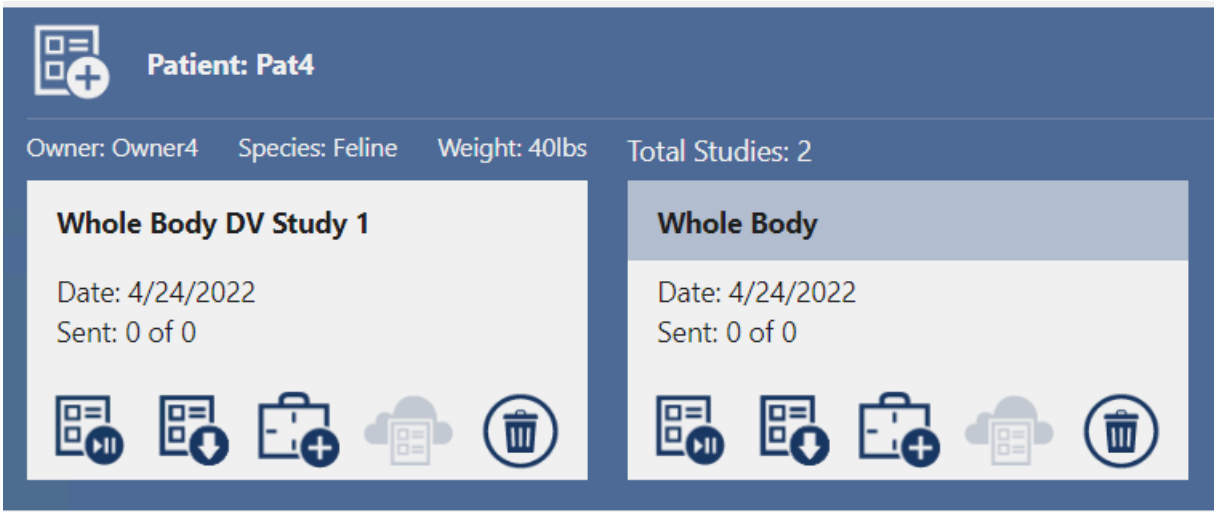
Table 37: Expanded patient tile/record controls – description

Display icon/control	Description
New Study: 	Allows you to create a new study for the selected patient. See the topic, *Creating a new study* on page 76. Each patient tile/record contains a **New Study** icon located in the upper-left corner of the expanded patient tile/record. Each study that exists under a patient is represented by a study tile/record control in the expanded patient tile/record. Each of the study tiles/records consists of a Study Description, Study Date, Send Status, and five study controls. See the topic, *Study tile/record controls* on page 86.
Edit Patient Information: 	Allows you to edit patient information directly from the main **Patient** screen. See the topic, *Editing patient information* on page 75. Each patient tile/record contains an **Edit Patient Information** icon located in the upper-right corner of the expanded patient tile/record.
Export Patient: 	Allows you to manually export one or more studies for any patient to the DICOM Storage servers or the Windows **Downloads** directory, directly from the main **Patient** screen. See the topic, *Patient tile/record export* on page 145. Each patient tile/record contains an **Export Patient** icon located in the upper-right corner of the expanded patient tile/record. **Note:** This icon is inactive until an image has been acquired.
Delete Patient(s): 	Allows you to delete a patient and all of its studies,directly from the main **Patient** screen. See the topic, *Deleting a patient* on page 83. Each patient tile/record contains a **Delete Patient(s)** icon located in the upper-right corner of the expanded patient tile/record.

Study tile/record controls

This section describes the five study controls located in the expanded patient tile/record, on the main **Patient** screen. Each study tile within a patient tile/record contains its own study controls.

Figure 34: Study tile/record controls



The following table describes the five study icons/controls.

Table 38: Study icons/controls – description

Display icon/control	Description
Resume Study: 	Allows you to resume a study that has been closed or paused. See the topic, *Resuming a closed or paused study* on page 80.
Move Study: 	Allows you to move a study from one patient record and add it to another patient record. See the topic, *Moving a study* on page 81.
Shotlist: 	Allows you to add shots to a study directly from the main **Patient** screen. See the topic, *Adding shots in the Shotlist screen*.

Display icon/control	Description
AIS: 	Allows you to export a selected study and images to the Antech Imaging Services (AIS) website, and submit a consultation for the study and these images on the AIS website. See the topic, *AIS export* on page 154.  **Note:** This control is inactive if there is no AIS device support configured in the **Management** screen, or if the selected study has no images.
Delete Study(s): 	Allows you to delete a selected study from the selected patient tile/ record. See the topic, *Deleting a study* on page 83.

Patient search — local

About this task

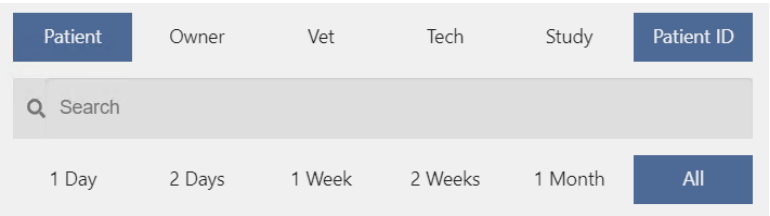
You can search for existing patients in the local database from the main **Patient** screen. This is accomplished using the **Search** field located at the top of the screen.

Procedure

1. In the **Search** field, type a keyword, name (of a patient/owner/vet/tech/study), or any text, or use the search criteria to perform a search.

   You can search by Patient, Owner, Vet, Tech, Study, and Patient ID, either as standalone or in combination. If enabled in the **Management** screen, you can also search by Accession Number. In the following figure, **Patient** and **Patient ID** are highlighted, indicating that these are the search criteria.

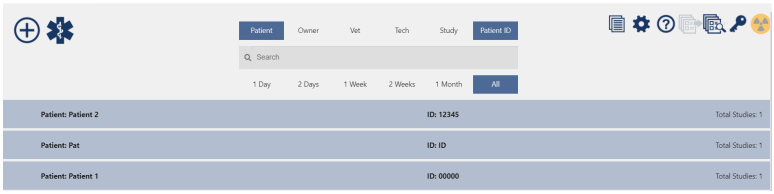
   Figure 35: Search field and criteria

2. Select a range of dates within which to search: 1 Day, 2 Days, 1 Week, 2 Weeks, 1 Month, or All (to search through the entire range)

Results

The system automatically searches the local patient database when you enter the text to search in the **Search** field. The results of the search are displayed in a vertical patient tile/ record list underneath the **Search** field.



Fifty patients per page are shown by default. If the number of patients returned exceeds 50, a pagination control is provided at the bottom of the page.

Patient search — MWL

About this task

Modality Worklist Server (MWL) Search, also known as a worklist search, allows you to search for patients that are configured on a Worklist server for the purpose of importing them in to the system.

This is accomplished using the **MWL Search** icon located in the **Search** field of the main **Patient** screen.

Figure 36: MWL Search icon

Important: For the **MWL Search** feature to be enabled in the **Search** field of the main **Patient** screen, you must have the DICOM Worklist server configured in the **Management** screen.

Procedure

1. In the **Search** field, type a keyword, name (of a patient/owner/vet/tech/study), or any text, or use the search criteria to perform a search.

   You can search by Patient, Owner, Vet, Tech, Study, and Patient ID, either as standalone or in combination. If enabled in the **Management** screen, you can also search by Accession Number. In the following figure, **Patient** and **Patient ID** are highlighted, indicating that these are the search criteria.

   Figure 37: MWL Search field and criteria

   Alternatively, you can leave the **Search** field empty without selecting any criteria.
2. Select a range of dates within which to search: 1 Day, 2 Days, 1 Week, 2 Weeks, 1 Month, or All (to search through the entire range)

3. Tap the **MWL Search** icon.

   All of the patient records that are configured on a Worklist server that adhere to the selected criteria or the text entered in to the **Search** field are displayed in the search results.

   If you left the **Search** field empty without selecting a criteria, every patient record that is configured and exists on a Worklist server is displayed in the search results.

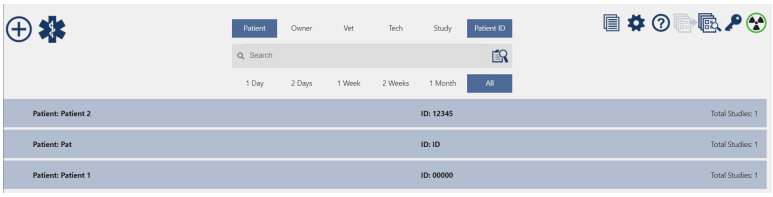
   You can create a patient and study record in your system from these search results. See the topic, *Creating a patient record from a MWL study request* on page 74.

4. To revert back to the local patient search, tap the **MWL Search** icon again.

   The local **Search** field will be active and the results displayed on the screen will be generated from the local patient database on your system. See the topic, *Patient search — local* on page 87.

Results

The results of the search are displayed in a vertical patient tile/record list underneath the **Search** field.



The number of results returned and displayed on the main **Patient** screen is configured in the **DICOM** > **Worklist** tab of the **Management** screen.

Notifications

The Sound SMART DR™ software provides notifications for many system-generated tasks, as well as tasks you perform in the system.

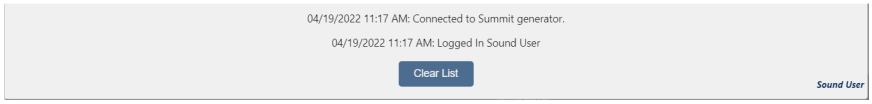
The **Show Notifications** icon, located on each of the screens of the SMART DR™ system, displays the number of notifications sent by the system to the Notifications bar, located at the top of all the screens. The number of notifications posted on the **Show Notifications** icon corresponds directly to the notifications listed in the Notifications bar, regardless of whether they are old or new notifications, or if they have been viewed.

The following **Show Notifications** icon indicates that there are 26 total notifications listed in the Notifications bar.

To view the notifications:

1. Tap the **Show Notifications** icon on any of the screens of the application.

   The notifications are displayed in the Notifications bar located at the top of all screens of the system.



   Note: The Notifications bar will appear at the top of the screen only when you tap the **Show Notifications** icon.

2. To expand the Notifications bar and view the entire list of notifications, tap inside the bar.
3. To close the Notifications bar, tap inside the bar again.

   The Notifications bar closes.

   To re-open the Notifications bar, tap the **Show Notifications** icon.
4. To clear the notifications in the Notifications bar, tap the **Clear List** button at the bottom of the bar.

   The notifications are no longer displayed in the Notifications bar. A `No messages to show` message is displayed on a blank Notifications bar.

   Note: When you clear the notifications in the Notifications bar, the number posted on the **Show Notifications** icon disappears. If you do not clear the notifications list, the number remains on the **Show Notifications** icon, even if you exit the Notifications bar.

Chapter

5

Image Acquire/Review

Contents

This chapter describes how to acquire and review images.

Acquire/Review screen

The Acquire/Review screen is where you acquire, view, and edit images. A number of image manipulation tools are available for editing the images, and the screen has a number of additional controls, which provide various functions and feedback information.

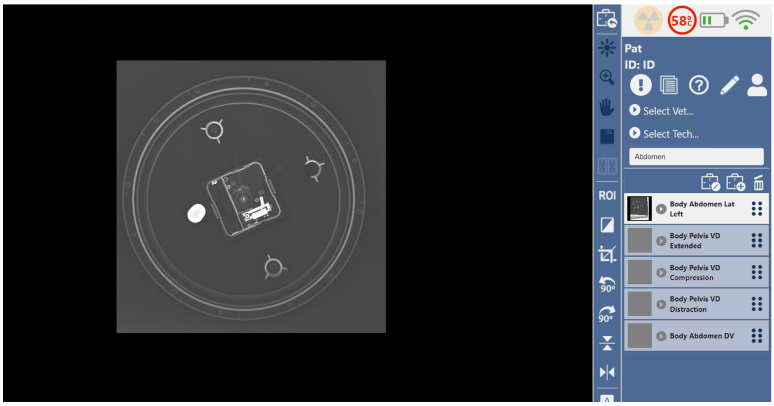
Note: For a basic understanding of the touch interface control gestures, see the topic, *Touch fundamentals* on page 137.

The main body of the Acquire/Review screen is used for viewing images. The display area is a large black area to the left of the Acquire/Review screen's control panel, depending on the configuration of the system in the **Management** screen. The control panel itself is comprised of several components.

Figure 38: Acquire/Review screen – empty shot selected

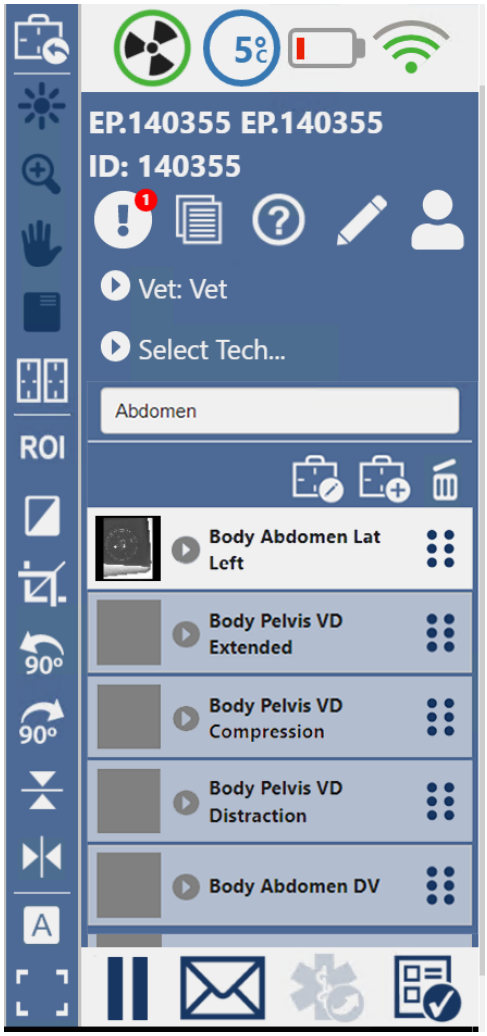
In the following figure, the display area shows an acquired image when selected in the shot list.

Figure 39: Acquire/Review screen – acquired image selected



The following sections describe the components of the Acquire/Review screen's control panel.

Figure 40: Acquire/Review screen -- control panel



Detector status controls

At the top of the Acquire/Review screen control panel are the detector status, detector temperature, battery status, and connectivity controls. See the topic, *Detector status, temperature, battery status, and connectivity*, for details of these controls.

Figure 41: Detector status controls – Acquire/Review screen

Table 39: Detector status controls – description

Display icon	Description
Detector Status: 	Indicates whether the panel is connected and ready for image acquisition.
Temperature: 	Indicates whether the panel is at optimal temperature for image acquisition.
Battery Status: 	Displays the battery status of both the panel and the host PC.
Signal Strength: 	Displays the strength of the wireless connection from the panel to the host PC.

Patient information controls

Underneath the detector status controls are controls for patient information.

Figure 42: Patient information controls – Acquire/Review screen

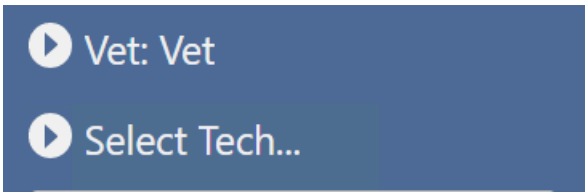
Table 40: Patient information controls – description

Display icon	Description
	Name of the patient in the system.
	Patient ID number for the patient.
Show Notifications: 	Shows the number of system-generated and user-related notifications sent by the system to the Notifications bar. The notifications are not specific to the Acquire/Review screen. See the topic, *Notifications* on page 90.
AAHA Study Info: 	Allows you to add the American Animal Hospital Association (AAHA) study details to the AAHA Report. See the topic, *Adding AAHA study details to the AAHA report* on page 168.
Help: 	Allows you to access the **Help** menu, and provides **Icon Help** for the Acquire/Review screen. See the topic, *Help Options window* on page 174.  **Note:** The **Help** menu is available on all screens of the system.
Edit Patient Information: 	Opens a dialog box that allows you to edit information about the selected patient. See the topic, *Editing patient information* on page 75.
User List: 	Displays the list of users connected to the system and information about them, including users who are viewing the same study, and users who are logged in and accessing other studies, or performing other actions. See the topic, *Multiuser access to studies* on page 125.

Vet and Tech selection controls

Beneath the Patient information controls are the Vet and Tech selection field controls. See the topic, *Vet and Tech selection*, for details of these controls.

Figure 43: Vet and Tech selection controls – Acquire/Review screen



Shot list controls

The shot list controls are located at the center of the Acquire/Review screen control panel. You can use the shot list controls to add shots, delete shots, rename shots, accept images, and reject images.

Figure 44: Shot list controls when acquired image selected – Acquire/Review screen

Figure 45: Shot list controls when empty shot selected – Acquire/Review screen

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Table 41: Shot list controls – description

Display icon	Description
Orientation Tool: 	Allows you to save changes that you have made to the orientation of a shot, and apply those changes as the default orientation for that shot in future acquisitions. See the topic, *Orientation tool* on page 120. **Note:** For the **Orientation Tool** icon to be active in the shot list control, the image must have been rotated using the 90-degrees rotation icons, or flipped using the **Flip Vertical**, or **Flip Horizontal** icons in the Image Manipulation controls. See the topics, *Editing an image* on page 106 and *Orientation tool* on page 120.

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Display icon	Description
Integrated Generator: 	Allows you to make changes to the technique values on a shot-by-shot basis and save those changes for future use. See the topics, *Adjusting a technique for a shot* on page 133 and *Entering x-ray generator settings manually* on page 102. **Note:** Even though the icon is called **Integrated Generator**, it is enabled for both integrated and non-integrated systems, depending on the system's configuration in the **Management** screen. **Note:** For integrated systems, the **Integrated Generator** icon is enabled in the shot list control only if the **Integrated Generator** feature is configured in the **Hardware** > **Generator** tab of the **Management** screen. For non-integrated systems, the **Manual Technique Entry** option must be configured in the **Management** screen to enable the **Integrated Generator** icon in the shot list control.
Image Workbench: 	Allows you to adjust the processing of specific shots to suit your personal preferences regarding the "taste" properties of the Musica2 processing algorithms. See the topic, *Musica Image tuning workbench* on page 112.
Rename Shot: 	Allows you to rename a shot to match the view that was actually acquired, in case an image has been captured with the wrong shot information, See the topic, *Renaming shots* on page 136.
Add Shot: 	Allows you to add shots to a study. See the topic, *Adding shots to a study* on page 123.

Display icon	Description
Delete Shot: 	Allows you to delete an empty shot from the shot list. See the topic, *Removing empty shots from a study* on page 124. **Note:** Empty shots are shots that have not been acquired, and essentially serve as placeholders for the images that you will acquire during the acquisition process.
Reject Image: 	Allows you to reject an acquired image. See the topic, *Rejecting an image* on page 104. **Note:** This control is enabled only when an image has been acquired.

Image manipulation controls

The Image Manipulation toolbar is located vertically on the left of the Acquire/Review screen control panel, depending on its configuration in the **Management** screen. The Image

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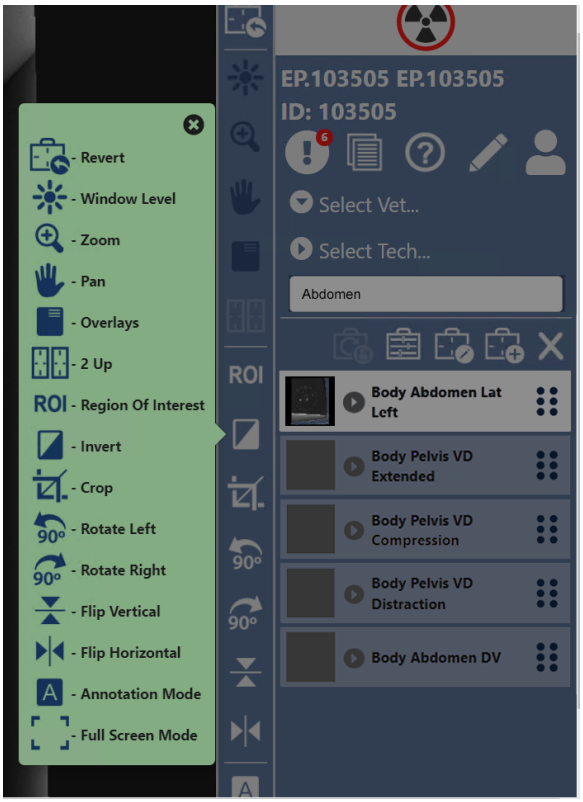
Manipulation toolbar is active only when you select an acquired image in the shot list. See the topic, *Editing an image* on page 106, for details of these controls.

Figure 46: Image manipulation controls – Acquire/Review screen



Pause study, email study, urgent send, and close study controls

At the bottom of the Acquire/Review screen control panel are the **Pause Study**, **Email Study**, **Urgent Send**, and **Close Study** controls.

Figure 47: Pause study, email study, urgent send, and close study controls – Acquire/Review screen

Table 42: Pause study, email study, urgent send, and close study controls – description

Display icon	Description
Pause Study: 	Allows you to pause a study. See the topic, *Pausing a study* on page 128.

Display icon	Description
Email Study: 	Allows you to export acquired images via email. See the topic, *Email study feature* on page 156.  **Note:** This icon is enabled only if an email server has been configured in the **DICOM** > **Email** tab of the **Management** screen.
Urgent Send: 	Allows you to send all of the images that have been acquired to the application's default server. See the topic, *Emergency export* on page 144.  **Note:** This icon is inactive until an image has been acquired.
Close Study: 	Allows you to close/end the study and return to the main **Patient** screen.

Acquiring an image

On opening the Acquire/Review screen, the first shot in the shot list is highlighted for image acquisition. You can tap on any shot, in the shot list, to select it for image acquisition. This section provides a high-level overview of the common controls you will use while acquiring an image.

Position guide

To assist you in determining the proper positioning for your patient, based on the selected shot, a position guide image is included with the most common views. See the topic, *Position guide* on page 119.

Preview image functionality

When you acquire an image, a preview image is displayed temporarily, and then a fully processed image appears after a few seconds. This allows you to view the acquired image before it is processed in your system. To enable this functionality in the Acquire/Review screen, you must configure the option for the preview image in the **Management** screen.

Detector status and connectivity control

At the top of the screen, you should verify that the detector status, battery status, detector temperature, and detector connectivity levels are in optimal condition for image acquisition.

See the topics, *Detector status, temperature, battery status, and connectivity* and *Active panel connection controls* on page 138.

Vet and Tech selection controls

You can select the default Vet and/or Tech in the Acquire/Review screen to be included in the overlay of an acquired image. See the topic, *Vet and Tech selection*.

Entering x-ray generator settings manually

When the system uses a non-integrated x-ray generator, you can enter x-ray generator settings manually.

Prerequisites

The Intermediate Option for manual x-ray technique entry must be configured in the **Management** screen to access this feature.

About this task

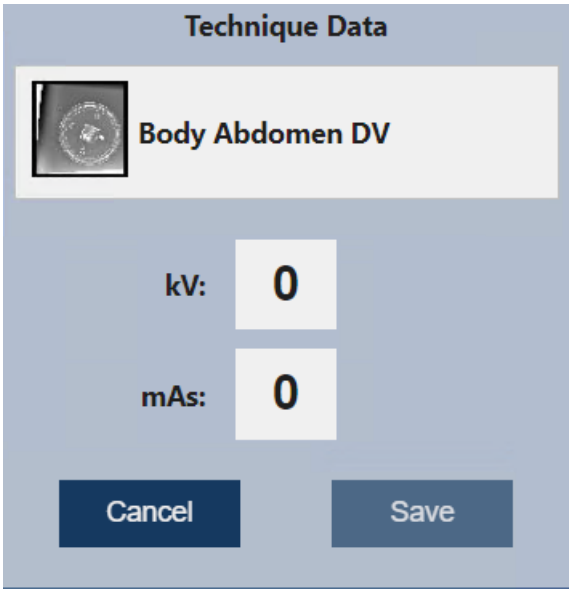
Technique settings are an important feature as these allow you to specify the amount of radiation an animal is exposed to and the length of exposure time.

Note: A study cannot be paused or closed until all acquired, non-rejected images have techniques associated with them.

Manually-entered techniques are visible in the AAHA Report in the **Reports** screen, and in the overlays, if configured in the **Management** screen.

Procedure

1. In the Acquire/Review screen, acquire an image.
   The **Technique Data** dialog box is displayed.



2. Enter your desired settings.

   The technique settings you specify depend on the non-integrated generator you are using to acquire an image.

3. Select **Save**.

   The **Technique Data** dialog box closes, and the **Integrated Generator** icon is displayed in the shot list control above the shot list.

This information can be accessed again by selecting the **Integrated Generator** icon.

Note: Even though the icon is called **Integrated Generator**, it is enabled for both integrated and non-integrated systems, depending on the system's configuration in the **Management** screen.

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Rejecting an image

About this task

You have the ability to reject an acquired image, as well as recall the acquired image you have rejected.

Note: Copied images can be rejected without rejecting the original image.

Procedure

1. In the Acquire/Review screen, select the image that you want to reject.

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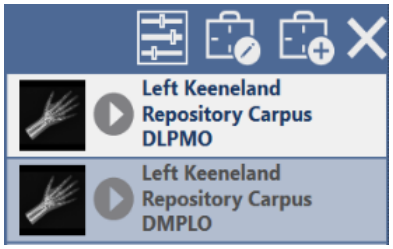
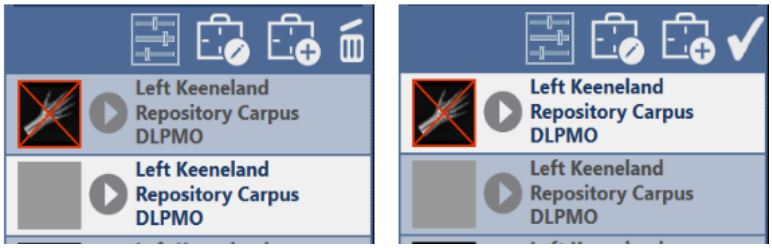
2. Tap the **X** icon in the shot list control.



Depending on the configuration in the **Intermediate Options** tab of the **Management** screen, one of the following occurs:

- A large red "X" is displayed over the rejected image, and another instance of the same shot is added to the shot list, placing it next in order of acquisition.



  A **Check mark** icon is displayed in the shot list control.

- A **Reject Reason** dialog box is displayed.

3. If the **Reject Reason** dialog box is displayed when you tap the **X** icon, from the drop-down list, select the reason for rejecting an image.
4. In the **Reject Reason** dialog box, do one of the following:

   - Select **Save** to reject the image and close the dialog box.

     A large red "X" is displayed over the rejected image, and another instance of the same shot is added to the shot list, placing it next in the order of acquisition (see Step 2).

     A **Check mark** icon is displayed in the shot list control.

   - Select **Cancel** to close the dialog box without rejecting the image.

5. To recall the rejected image, select the rejected image in the shot list, then tap the **Check mark** icon in the shot list control.

Note: The check mark is displayed only after you select a rejected image in the shot list.

The rejected image in the shot list no longer displays a red "X" over it.

Editing an image

You are provided with a variety of tools to edit and manipulate the image once it has been acquired.

Note: These tools change from white to blue color when active.

For a basic understanding of the touch interface control gestures, see the topic, *Touch fundamentals* on page 137.

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Figure 48: Image editing toolbar – Acquire/Review screen

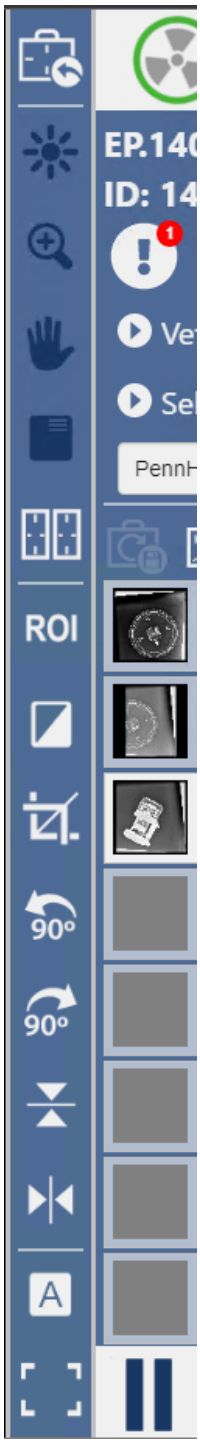
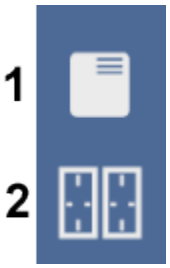
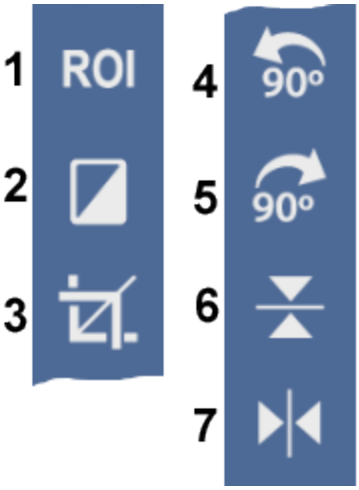


Table 43: Image editing toolbar – description

Display image	Description
	**Primary Tools** There are three primary tools that are active, by default. These are available when an image is displayed in the viewing pane. **1.** Window/Level (Win/Level) **2.** Zoom **3.** Pan See the topic, *Image manipulation controls* on page 110.
	**Display Tools** There are two tools available to change the display. **1. Overlays** **2. 2 Up** mode
	**Image Manipulation Tools** There are a number of tools available to modify the image. **1. ROI** **2. Invert** **3. Crop** **4. Rotate Left** 90° **5. Rotate Right** 90° **6. Flip Vertical** **7. Flip Horizontal** See the topic, *Image manipulation controls* on page 110.

Display image	Description
Annotation Mode tools icon:  **Annotation Mode** toolbar: 	**Annotation & Measurement Tools** Tap the **Annotation Mode** tools icon to display the **Annotation Mode** toolbar. This toolbar provides access to annotation and measurement tools. You can also create a copy of an image after annotations have been placed. See the topic, *Annotations, markers, and measurement tools* on page 113.
	**Revert** tool The **Revert** tool allows you to return the displayed image to its original state, prior to any modifications you have made to the image. You can apply the **Revert** tool to selected images in **2 Up** mode. **Note:** By leaving the screen, this function will not undo changes that have been saved.
	**Full Screen Mode** tool **Full Screen Mode** allows you to use most of the screen to view images. See the topic, *Full screen mode* on page 111.

See also:

- *Image manipulation controls* on page 110
- *Musica Image tuning workbench* on page 112
- *Crop function* on page 113
- *Annotations, markers, and measurement tools* on page 113

Image manipulation controls

Primary image controls

The functions for these controls are active, by default, when an image is displayed in the Acquire/Review screen. See the topic, *Editing an image* on page 106, for Icon Help.

Note: For a basic understanding of the touch interface control gestures, see the topic, *Touch fundamentals* on page 137.

Win/Level

The **Window/Level** (Win/Level) operation allows you to adjust the brightness and contrast of an image. The **Window/Level** operation is performed using the **Two-finger Drag** function.

1. Left-click or touch two fingers to the screen over the image display area.
2. Drag these two fingers across the screen to adjust the window level values (brightness and contrast) of the image.
3. Lift the fingers from the screen to stop using the function.

Zoom

The **Zoom** operation is performed using the **Pinch** and **Unpinch** gestures.

Note: You can also use your mouse's wheel to perform the zoom operation.

1. To begin, touch the thumb and index finger to the screen.
2. Move the two fingers away from each other to enlarge the image; move them towards each other to shrink the image.

Note: To move quickly through the entire zoom range, touch one finger from each hand to the screen and slide them away from or toward each other.

Pan

The Pan operation is performed using the **Drag** gesture.

1. On any zoomed image, touch the screen, or right-click and drag your finger in any direction to move the image in that direction.
2. Lift the finger to stop using the function.

Secondary image controls

The functions for these controls must be activated by tapping the control icon for the function. See the topic, *Editing an image* on page 106, for icon help.

ROI

The Region of Interest (ROI) operation allows you to draw a box around a particular region of an image, in order to examine it further. Based on the ROI selected, the brightness and contrast (win/level values) of the image are automatically adjusted for optimization.

The ROI operation is performed using the **Drag** gesture.

1. Tap the **ROI** icon to activate the function.
2. Touch the screen and drag your finger diagonally across the screen to draw a box around the region of interest.
3. Lift your finger from the screen and the Window/Level value of the image will be adjusted based on the values for the selected area.

Crop

The **Crop** function allows you to trim away extraneous image elements from the actively displayed image. The **Crop** operation is performed using the **Drag** gesture.. See the topic, *Crop function* on page 113.

Full screen mode

Full screen mode allows you to view images using almost all of the available screen area. This mode slides the toolbar to the edge of the screen, hiding the shot list control with only the Image Manipulation toolbar displayed and the image visible.

To view images in full screen mode, tap the **Full Screen Mode** icon located at the bottom of the Image Manipulation toolbar.

To exit full screen mode and display the Acquire/Review screen control panel, tap again on the **Full Screen Mode** icon. When in full screen mode, the **Full Screen Mode** icon is partially hidden.

Musica Image tuning workbench

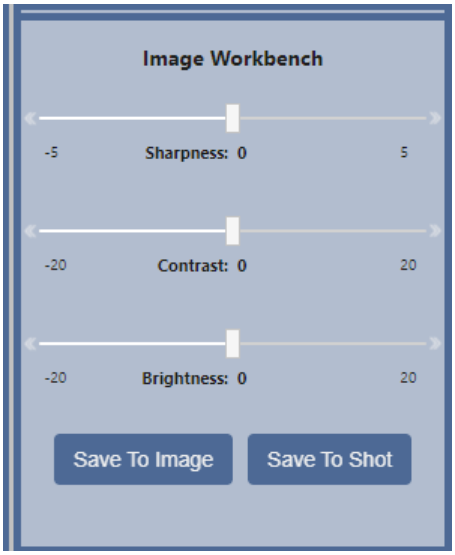
The Musica **Image Workbench** allows you to adjust the processing of specific shots to suit your personal preferences regarding the "taste" properties of the Musica2 processing algorithms.

About this task

Procedure

1. Tap the **Image Workbench** icon in the shot list control of the Acquire/Review screen.

   The Musica **Image Workbench** control will expand, displaying sliders for each setting that you want to adjust.



2. Move the sliders for each setting to adjust the **Sharpness**, **Contrast**, and **Brightness** of the image. You can also use the **<<** or **>>** controls, on each side of the setting, to increase or decrease its value.

   A preview image is shown automatically after making a change.

3. Tap **Save To Image** to apply these settings to the selected image, or tap **Save To Shot** to apply these settings to the selected shot.

Crop function

The **Crop** function allows you to trim away extraneous image elements from the actively displayed image.

This function offers a configurable option in the **Basic Options** tab of the **Management** screen, which allows you to choose between retaining the original size of the cropped area of the image or enlarge it to fill the display area of the Acquire/Review screen.

1. In the Acquire/Review screen, select your desired image.
2. In the Image Manipulation toolbar, tap the **Crop** control to activate the function.

   The crop function will turn blue when active.
3. Place your cursor on the area you want to crop, or touch and drag your finger diagonally across the screen.
4. Draw a box around the area of the image you want to crop.
5. Lift your finger from the cursor or the screen to perform the crop.
6. To undo your changes and revert back to the original image, tap the **Revert** tool in the Image Manipulation toolbar.

Annotations, markers, and measurement tools

There are several annotation tools in the SMART DR application that allow you to perform markups on your images without leaving the application.

Note: These tools change from white to blue color when active.

To access the annotation controls:

- In the Acquire/Review screen, tap the **Annotation Mode** icon, located at the bottom of the Image Manipulation toolbar.

  This places the system in **Annotation Mode** while displaying the annotation controls over the standard Image Manipulation toolbar.

Note: For a basic understanding of the touch interface control gestures, see the topic, *Touch fundamentals* on page 137.

1. To select a particular annotation, tap the correlating icon in the **Annotation Mode** toolbar (see tables below).

2. To apply the annotation to an image, tap or touch and hold the annotation, then drag your finger across the area of the image to which you want to apply the annotation, lifting your finger from the screen when you are finished.

   See the table below for instructions on how to apply specific annotations and markers to an image.

Note: The default color for all annotations is white. When hovering over an annotation, the default color of the annotation highlight is green. The default color of anchor (end) points for all annotations is red. Anchor points are located at the ends of pointer arrows, measurements, and angles, and are visible when hovering over such annotations. To make these annotations and markers more visible on an image, you can configure and change the default values to show a different color in the **Intermediate Options** tab of the **Management** screen.

To remove an annotation from an image:

- In **Annotation Mode**, tap or touch and hold the annotation, then drag your finger towards the Acquire/Review screen control panel until the annotation disappears off the screen. Alternatively, you can flick the annotation off the screen.

Table 44: Annotation Mode toolbar

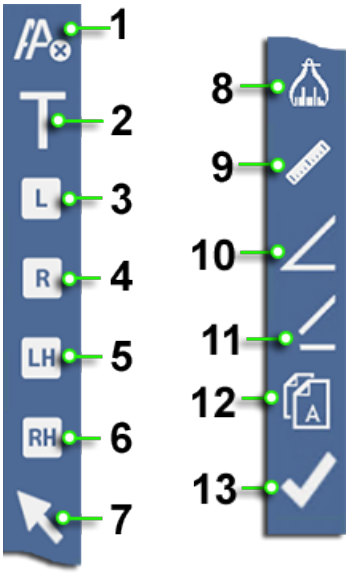
Tools available on the Annotation Mode toolbar	Name of tool
	**1. Clear Annotations** **2. Free Text** **3. Left Marker** **4. Right Marker** **5. Left Hind Marker** **6. Right Hind Marker** **7. Pointer** **8. Line Calibration** **9. Line Measurement** **10.Angle** **11.Cobb Angle Tool** **12.Duplicate Image** **13.Leave Annotation Mode** See the following table for a description of each tool.

Table 45: Description of Annotation Mode tools

Name of Annotation Mode tool	Description
1. Clear Annotations	Removes all annotations on the image.

Name of Annotation Mode tool	Description
2. Free Text	Allows you to place text notations anywhere on the image. To add a **Free Text** annotation: **1.** Tap the **Free Text** icon. The words **New Text** appear on the image. **2.** Drag the text and drop it anywhere on the image. To edit the text: **1.** Right-click on the text, or hold your finger on it for a second. The **Modify Free Text Annotation** dialog box displays. **Note:** You must be in the **Annotation Mode** toolbar to access this dialog box and edit the text. **2.** Use this dialog box to modify the text and change the size of the font. **3.** Tap **Save** to apply your changes.
3. Left Marker	Places the left marker on the image to indicate the left patient orientation. Marker placement can be performed using either the **Tap** or the **Drag** gesture. **1.** Tap the marker and then tap the image where you would like to place the marker, or drag the marker to an area of the image on the screen. **2.** To remove the marker, either drag it off the screen or flick it off the screen.
4. Right Marker	Places the right marker on the image to indicate the right patient orientation. Marker placement can be performed using either the **Tap** or the **Drag** gesture. **1.** Tap the marker and then tap the image where you would like to place the marker, or drag the marker to an area of the image on the screen. **2.** To remove the marker, either drag it off the screen or flick it off the screen.

Name of Annotation Mode tool	Description
5. Left Hind Marker	Adds the left hind limb marker on the image to indicate the left back limb patient orientation. Marker placement can be performed using either the **Tap** or the **Drag** gesture. **1.** Tap the marker and then tap the image where you would like to place the marker, or drag the marker to an area of the image on the screen. **2.** To remove the marker, either drag it off the screen or flick it off the screen.
6. Right Hind Marker	Adds the right hind limb marker on the image to indicate the right back limb patient orientation. Marker placement can be performed using either the **Tap** or the **Drag** gesture. **1.** Tap the marker and then tap the image where you would like to place the marker, or drag the marker to an area of the image on the screen. **2.** To remove the marker, either drag it off the screen or flick it off the screen.
7. Pointer	Adds a pointer arrow to the image. **1.** To add a pointer to the image, tap the **Pointer** arrow icon. The arrow displays on the image. **2.** Touch the center of the arrow and drag it to move the pointer. **3.** Touch and hold either end of the arrow to resize or re-orient the arrow.

Name of Annotation Mode tool	Description
8. Line Calibration	Allows you to calibrate line measurements for an image to a known length, in centimeters or millimeters, depending on the units configured in the **Management** screen. To use the tool: **1.** Tap the **Line Calibration** tool and draw a line on the screen. You can move or change this line by moving it or one of its end points. • Each image accepts only one calibration. • The calibration line remains on the screen after calibration is complete. • Initially, the line length displays in pixels. **2.** Right-click or press and hold anywhere on the line to display a pop-up to enter the number of centimeters or millimeters that the line represents. The units that display are configured in the **Basic Options** tab of the **Management** screen. The line retains its calibration value despite changes to its length or position.
9. Line Measurement	**1.** Allows you to draw a line to measure portions of the displayed image, in centimeters. You can resize the line by dragging either end point of the line to another location on the image. You can also move the line by dragging it from between the end points. • If you draw a measurement line before adding a calibration line, the system displays a warning, and shows the length using the detector pixel size, the number of detector pixels, and the units configured in the **Basic Options** tab of the **Management** screen. • If you modify the calibration line, other lines on the image adjust to reflect the change. • Deleting a calibration line deletes the other lines on the image.
10. Angle	Allows you to draw angles on the image. **1.** To use the **Angle** tool, tap the tool and draw the angle on the screen. After you draw both legs of the angle, a label displays, indicating the angle between the legs. **2.** To modify the measurement, drag the entire angle by a line, or drag the end points.

Name of Annotation Mode tool	Description
11. Cobb Angle Tool	Allows you to draw two lines on the image and display the angle between the two lines or line extensions.
12. Duplicate Image	Creates a copy of an image containing annotations, places the copy in the shot list, and removes annotations from the original image. The copy is identified by the prefix: **Copy of**.  **Note:** This tool is disabled until you place annotations on an image.
13. Leave Annotation Mode	Closes the **Annotation Mode** toolbar.

In addition, the following tool is also available:

- **Automatic Orientation Marker**

  You can configure your system to place a small orientation marker in the upper-left corner of your images, on acquisition. This marker indicates the orientation of the panel in the image. An **F** indicates that the number of flips applied is even. A **B** indicates that the number of flips applied is odd. The orientation marker is displayed in white color.

  You must configure this tool in the **Intermediate Options** tab of the **Management** screen to enable it.

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Position guide

To ensure that technicians are acquiring the image they want the first time, a position guide is included in the user interface. A position guide image shows the most common views of a patient's anatomy, based on the shot selected. This allows technicians to view the proper animal placement position for a particular shot.

About this task

You can access the shot tile position guide via the shot tile from the following locations:

- **Select Shots** column of the **Shotlist** screen.
- Shot list in the **Shotlist** screen.
- Shot list in the Acquire/Review screen.

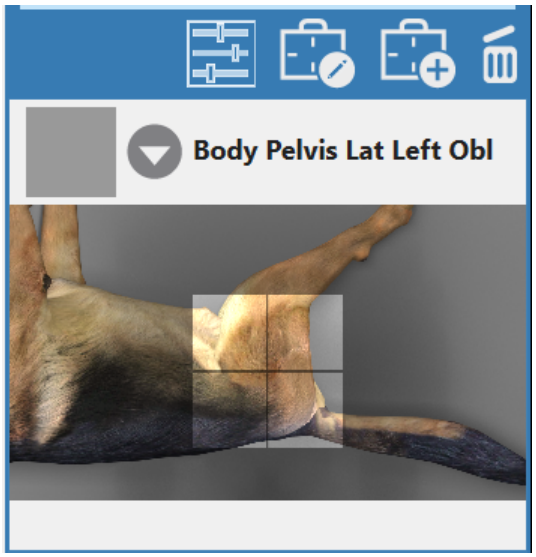
Procedure

1. Make sure you are in the **Shotlist** or the Acquire/Review screen.
2. Tap the expansion arrow next to the selected shot tile in the shot list.

   The shot tile will expand, revealing the position guide image with the collimator light illuminating the appropriate viewing area.

   An image of an animal oriented in the proper position for the shot, with a highlighted target reticle centered on the correct anatomical area is shown in the following image.

3. Tap the arrow a second time to collapse the tile and hide the image.

Orientation tool

There may be times when you prefer an orientation that differs from the default orientation in your SMART DR application. To address this possibility, an **Orientation Tool** control is provided. This tool allows you to save changes that you have made to the orientation of a shot, and apply those changes as the default orientation for that shot in future acquisitions.

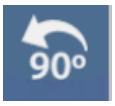
About this task

Use this procedure to orient an image as you wish to see it displayed.

Note: For the **Orientation Tool** icon to be active in the shot list control, the image must have been rotated using the 90-degrees rotation icons, or flipped using the **Flip Vertical**, or **Flip Horizontal** icons in the Image Manipulation controls. See the topic, *Editing an image* on page 106.

Procedure

1. In the Acquire/Review screen, select your desired image,
2. Orient the image as you wish to see it displayed.
   - Use the **Rotate Left** icon to rotate the image 90-degrees to the left:

   - Use the **Rotate Right** icon to rotate the image 90-degrees to the right:

   The image is rotated accordingly. The **Orientation Tool** icon is now enabled in the shot list control.

   
3. Tap the **Orientation Tool** icon, located in the shot list control.

   The **Orientation Tool** dialog box is displayed.

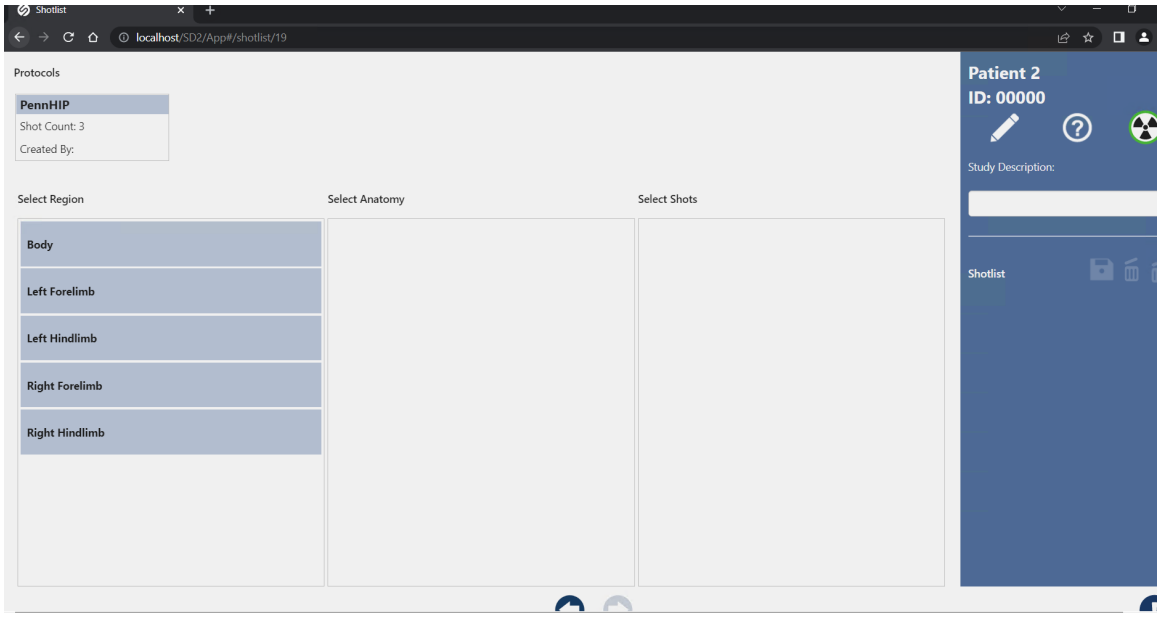
4. To save the new orientation, tap the **Save** button, or tap **Cancel** to close the dialog box without saving the current orientation as the new default.

Shotlist screen

You can access the **Shotlist** screen from a number of locations:

- Creating a new patient.
- Resuming a study with no images.
- Adding shots to an existing study.

Figure 49: Main Shotlist screen



If you are not already in the **Shotlist** screen, you must access the **Shotlist** screen to add shots to a patient record or study for image acquisition.

Table 46: Accessing the Shotlist screen

Access Shotlist screen via...	Procedure
Main **Patient** screen	**1.** Tap a patient tile/record to expand it. **2.** Tap a study tile/record to highlight it. **3.** Tap the **Shotlist** icon at the bottom of the study tile.  The **Shotlist** screen is displayed. **Remember:** If a patient record or study has no images, tapping the **Resume Study** icon will open the **Shotlist** screen instead of the Acquire/Review screen. 
Acquire/Review screen	Tap the **Add Shot** icon in the shot list control.  The **Shotlist** screen is displayed.

The primary purpose of the **Shotlist** screen is to assemble the shot list for the currently selected study. See the topic, *Adding shots to a study* on page 123.

You can add nicknames/slang terms to clinical names in the **Shotlist** screen for a more user-friendly interface. See the topic, *Adding nicknames/slang terms to clinical names*.

The **Shotlist** screen enables you to add protocols, which allow you to quickly add groups of shots to any study. See the topic, *Creating a protocol* on page 130.

Shots can also be deleted in the **Shotlist** screen. See the topic, *Removing empty shots from a study* on page 124.

Additionally, you can perform the following tasks in the **Shotlist** screen:

- Apply a user-defined study description. See the topic, *Creating a new study* on page 76.
- Edit patient information using the **Edit Patient Information** icon.

  See the topic, *Editing patient information* on page 75.
- Launch help files and **Icon Help** specific to the **Shotlist** screen using the **Help** icon

  See the topic, *Help Options window* on page 174.

- View position guide images for the most common shots. See the topic, *Position guide* on page 119.

Note: In small animal systems, a PennHIP protocol tile is available for canine species, as a default option in the **Shotlist** screen. Select this protocol to add the three shots necessary for a PennHIP evaluation: Pelvis VD Extended, Pelvis VD Compression, and Pelvis VD Distraction.

Adding shots to a study

About this task

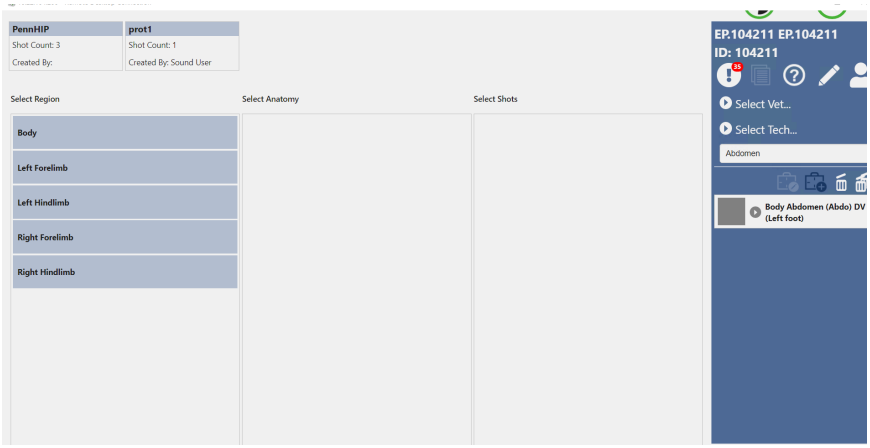
Add Shot icon:

You can add additional shots to a study in the Acquire/Review screen.

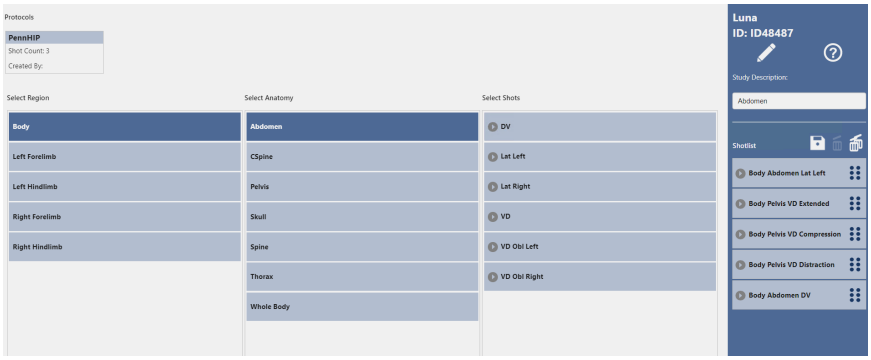
Procedure

1. Tap the **Add Shot** icon located in the shot list control of the Acquire/Review screen.

   This displays the **Shotlist** screen's selection columns, allowing you to select additional shots from any region and anatomy, or from any existing protocols.



2. Add shots to the shot list. See the topic, *Adding shots in the Shotlist screen*.
   As the shots are selected, they are displayed in a list on the far-right pane of the screen.



   To help streamline your work flow, the **Shotlist** screen automatically scrolls horizontally as you add shots to the list, and as you acquire images in the Acquire/Review screen.

   You can change the order of the shots by dragging on the dots located on the shot tile up or down to the desired location in the list. The other shots will move accordingly, depending on the position that the selected shot is placed when you release the shot tile.

3. Once you have selected additional shots, tap the **forward-arrow** icon in the lower-right corner of the screen.

   This will close the shot selection columns, and you will return to the Acquire/Review screen and Image Manipulation controls.

Note: If you have elected to place the shot column/control on the left side of the screen, via the **Management** screen, the **forward-arrow** icon will appear on the lower-left corner of the screen rather than right.

Removing empty shots from a study

After you add shots to the shot list, you can remove individual empty shots or all empty shots. Empty shots are shots that have not been acquired, and essentially serve as placeholders for the images that you will acquire during the acquisition process.

Procedure

1. In the Acquire/Review screen, select the **Add Shot** icon.

   The **Shotlist** screen is displayed. The **Protocols** window is displayed, by default.

2. Select the Region, Anatomy, and Shots to add to the shot list. See the topic, *Adding shots in the Shotlist screen*.

3. Complete one of the following actions:

Task	Instructions
Delete a single empty shot.	**a.** In the shot list, select the empty shot to delete. **b.** At the top of the shot list, click the single trash can icon.  The selected shot is removed from the shot list.
Delete all empty shots.	At the top of the shot list, click the dual trash can icon.  All empty shots that were added to the shot list are removed. Note that this function is available only from the **Add Shot** control in the Acquire/Review screen.

Multiuser access to studies

Studies can be viewed by multiple users at one time.

In the Acquire/Review screen, the user interface indicates when a study is being viewed by multiple people at the same time. The following information can be viewed:

- User identities
- User types
- User acquirer status

At the top of the shot list, the **User List** button is displayed. When a single user is accessing a study, the button shows a single user.

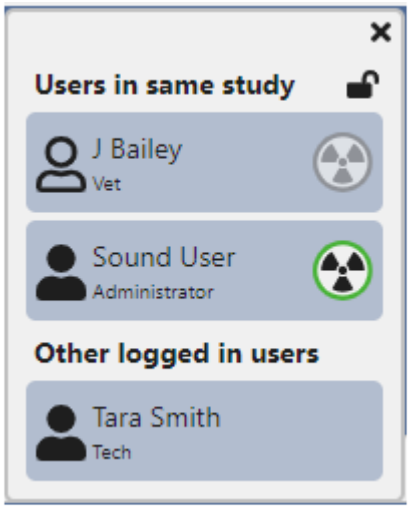
Figure 50: User List button, single user

When multiple users are accessing the same study, the **User List** button changes to show more than one user.

Figure 51: User List button, multiple users

Select the **User List** button to see the list of users connected to the system and information about them. The list shows the users who are viewing the same study, and the users who are logged in and accessing other studies or performing other actions.

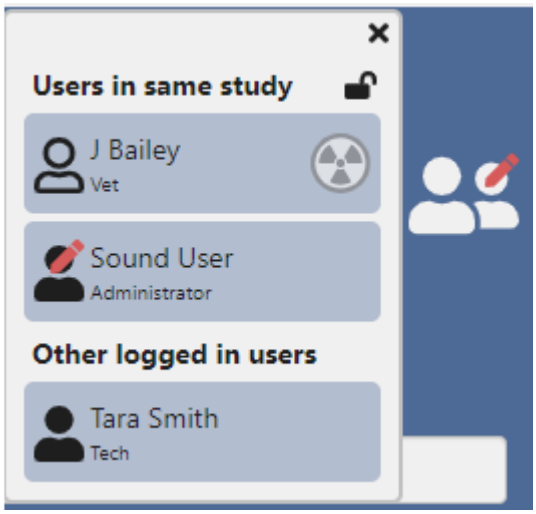
Figure 52: User List



When someone is manipulating an image, other users see a **Red pencil** icon on the **User List** button.

Figure 53: User List button, edit in progress

Figure 54: User list, edit in progress



The user with Acquirer status can select the lock icon in the **User List** to prevent others viewing the study from making changes. When the **User List** is locked, the image manipulation controls are inactive (grayed out) for all users except the acquirer.

Figure 55: Users unlocked

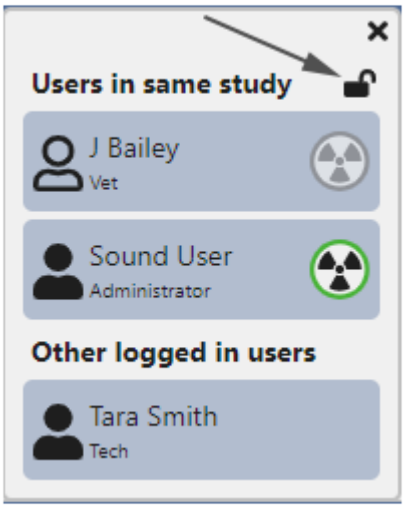
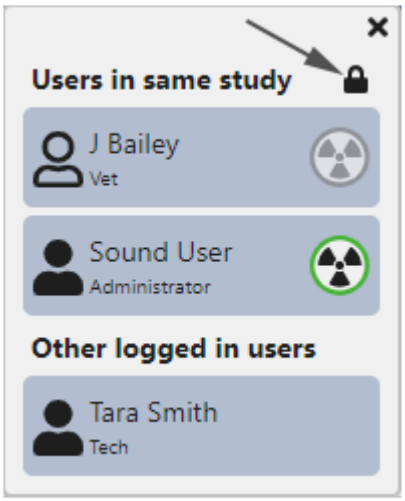
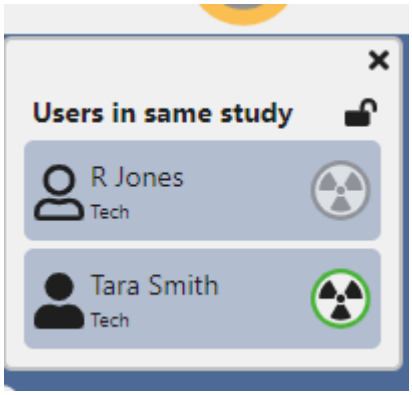


Figure 56: Users locked



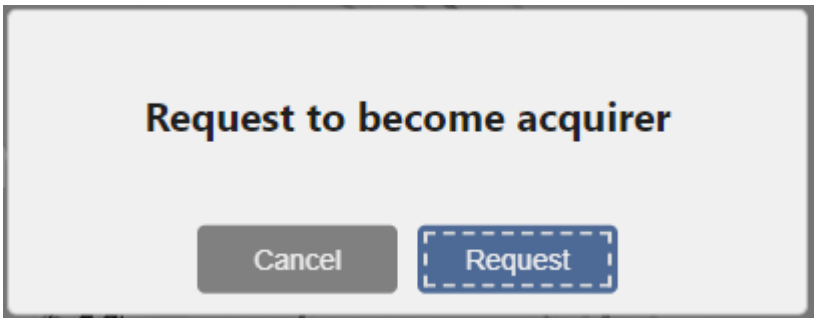
When there are multiple users viewing a study, only one has Acquirer status. All other users remain in Review mode. However, other users can request Acquirer access by selecting the radiation icon next to their own name in the **User List**. In the following example, R Jones is the user with Acquirer status and Tara Smith is the user with Review-only status.

Figure 57: Example User List



If Tara Smith selects the radiation icon next to her name in the **User List**, the following dialog box is displayed on her screen. To send the request, Tara Smith selects **Request**.

Figure 58: Request to become acquirer dialog box



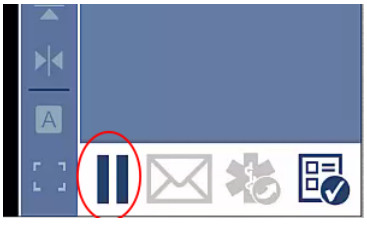
The following message would then display on R Jones' screen:

R Jones can deny the request and a message is then displayed on Tara Smith's screen, indicating that the request was denied. If R Jones grants the request, a message is displayed on Tara Smith's screen, indicating that the request was granted, and Tara Smith can proceed to acquire images.

If more than two users are viewing the same study, and the user with Acquirer status leaves the study, the next user in the list is given Acquirer status automatically.

Pausing a study

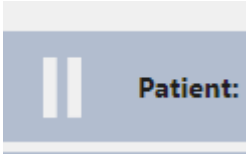
A **Pause** control in the Acquire/Review screen allows you to pause rather than close/end your study.



Note: A study cannot be paused until all acquired, non-rejected images have techniques associated with them. See the topic, *Entering x-ray generator settings manually* on page 102.

The **Pause** control enables you to leave the Acquire/Review screen without ending the study and triggering the auto-route function. When you return to the Acquire/Review screen and finish capturing images for the study, you can then use the **Close Study** control to exit the screen and initiate the auto-route process, at that time.

A **Pause** symbol is displayed on the patient tile/record, in the main **Patient** screen, so that you can see which studies are incomplete.



Also see the topic, *Resuming a closed or paused study* on page 80.

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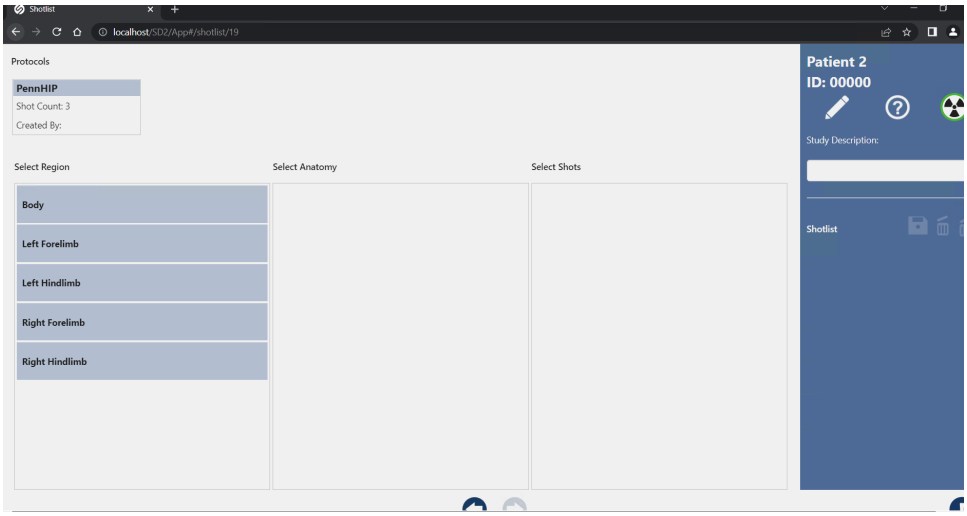
Creating a protocol

About this task

In the **Shotlist** screen, you can create shotlist protocols, which are used to quickly add groups of shots to any study.

Procedure

1. Access the **Shotlist** screen. See the topic, *Shotlist screen* on page 121.



2. Select the Region, Anatomy, and the Shots you want to add to the shot list. See the topic, *Adding shots in the Shotlist screen*.

   These shots will be added to the protocol.

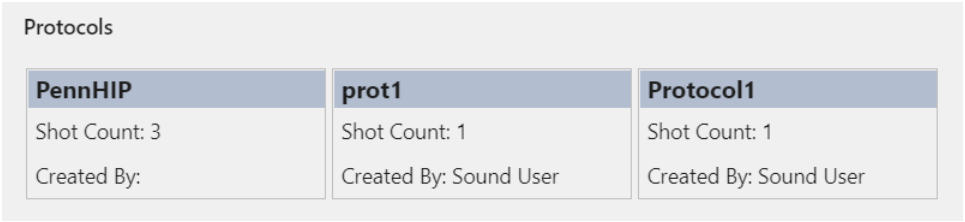
   Note: You can change the order of the shots by touching and dragging the a shot handle up or down to the desired location in the shot list. The other shots will move accordingly, depending on the position that the selected shot is placed when you release the shot tile.

3. Once all of the shots are in the shot list and ordered as desired, tap the **Save** icon located on top of the shot list.

The **Protocol Name** dialog box is displayed.

4. Type a protocol name in the field, and tap the **Save Protocol** button to create the protocol.

   A new protocol tile with the provided name is added to the **Protocols** list in the upper-left corner of the screen.



5. To add the shots in this protocol for a study, tap the protocol tile.
   The shots are added to the shot list of any current study in the order they were saved.

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Small animal technique chart

The following small animal technique chart provides recommended technique values for use with the x-ray system.

The Exposure Index (EI) can be configured in the **Overlay Editor**, within the **Management** screen, to be displayed for each acquired image. The Exposure Index is the measure of the amount of exposure received by a flat panel detector. It depends on technique, total detector area irradiated, and beam attenuation.

Important: Exposure Index is only a guide. Image quality should be checked and verified prior to repeated exposures. An image with a low/high EI value should be evaluated for image quality prior to repeating.

Table 47: Small animal technique chart

Weight	0 – 20 lbs.	21 – 45 lbs.	46 – 80 lbs.	81 – 100 lbs.	100+ lbs.	Avian
Abdomen	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	80 kVp / 5 mAs	80 kVp / 10 mAs	90 kVp / 10 mAs	50 kVp / 10 mAs
Thorax	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	80 kVp / 5 mAs	80 kVp / 10 mAs	90 kVp / 10 mAs	
Extremity	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	
Pelvis	80 kVp / 3.5 mAs	80 kVp / 5 mAs	80 kVp / 10 mAs	90 kVp / 10 mAs	100 kVp / 10 mAs	
Skull	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	80 kVp / 3.5 mAs	
Shoulder	80 kVp / 5 mAs	80 kVp / 5 mAs	80 kVp / 5 mAs	80 kVp / 7.5 mAs	80 kVp / 7.5 mAs	
Spine	80 kVp / 10 mAs	80 kVp / 10 mAs	80 kVp / 20 mAs	80 kVp / 20 mAs	80 kVp / 40 mAs	

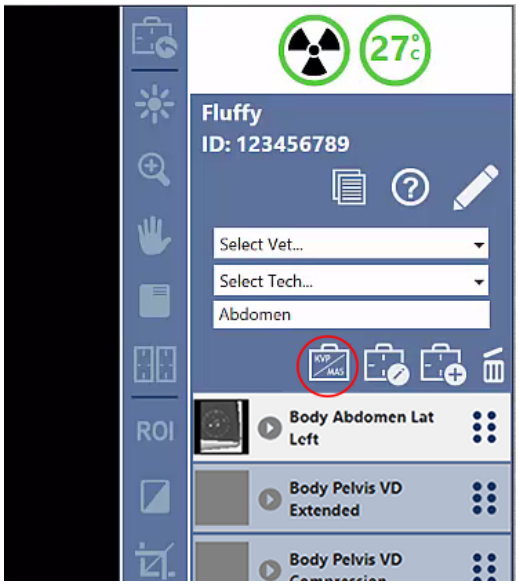
- For images that are grainy (under-exposed), increase the mAs.
- For images that are saturated (over-exposed), decrease the mAs.

Adjusting a technique for a shot

About this task

The SMART DR software includes integration for the Summit HF generator. On systems using the generator integration feature, the technique for each shot is set automatically, based on pre-configured technique charts programmed into SMART DR. Systems are configured to use the integrated generator feature in the **Management** screen by service technicians.

If your system is configured to use the integrated generator feature, SMART DR™ provides a tool, which allows you to make changes to the technique values on a shot-by-shot basis and save those changes for future use. This **Integrated Generator** control tool is accessible from the Acquire/Review screen.



Note: Even though the icon is called **Integrated Generator**, it is enabled for both integrated and non-integrated systems, depending on the system's configuration in the **Management** screen.

Note: For integrated systems, the **Integrated Generator** icon is enabled in the shot list control only if the **Integrated Generator** feature is configured in the **Hardware** > **Generator** tab of the **Management** screen. For non-integrated systems, the **Manual Technique Entry** option must be configured in the **Management** screen to enable the **Integrated Generator** icon in the shot list control.

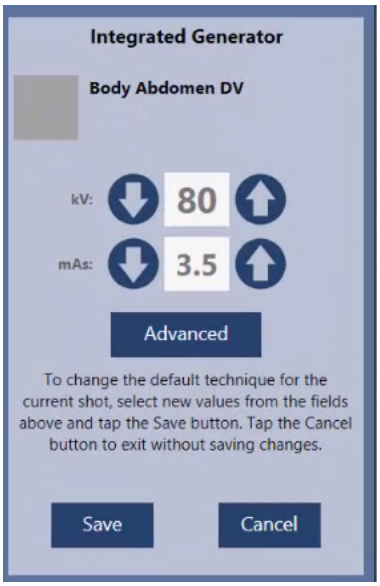
To change the technique for a specific shot, follow these steps.

Procedure

1. In the Acquire/Review screen, select the shot for which you want to adjust the technique settings.

2. Tap the **Integrated Generator** icon.

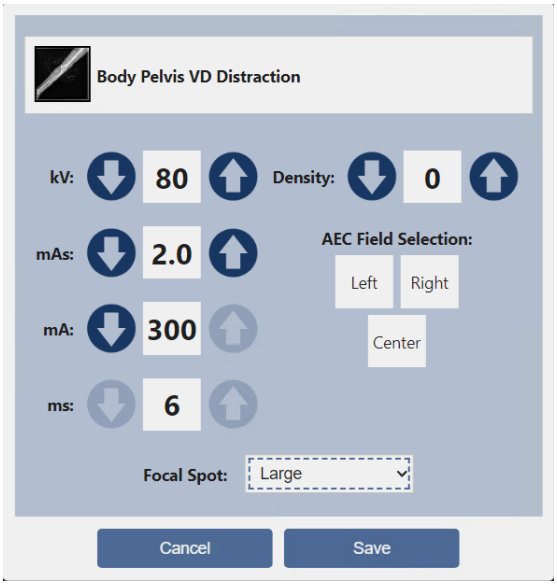
The **Integrated Generator** dialog box is displayed.



3. Adjust the values for the **kV** and **mAs** settings using the up or down arrows.
4. Tap the **Save** button to lock in your changes, or tap the **Cancel** button to exit the dialog box without saving.

Note: Selecting **Save** will save the selected technique as the default acquisition profile (APR) for that position and patient size. You can leave the dialog box open while acquiring an image to use the modified technique without changing the default APR for that position.

5. Select the **Advanced** button to open the advanced options.
   The Advanced Integrated Generator dialog box is displayed.



   This dialog box provides controls for adjusting all of the technique variables, including **kV**, **mAs**, and **mA**. In addition to these technique controls, you will find controls that are used to configure the Automatic Exposure Control (**AEC**) function for those clinics where AEC is used.

6. (Recommended) Only make adjustments to the technique settings.

   Important: Modifying the **Focal Spot** or **Density** values, or activating any of the **AEC Field Selection** controls will render your calibration invalid, resulting in degraded image quality. These settings should be modified only if you are directed to do so by a support technician.

7. Tap the **Save** button to lock in your changes, or tap the **Cancel** button to exit the dialog box without saving.

Renaming shots

About this task

In the event that an image has been captured with the wrong shot information, you are able to rename the shot to match the view that was actually acquired.

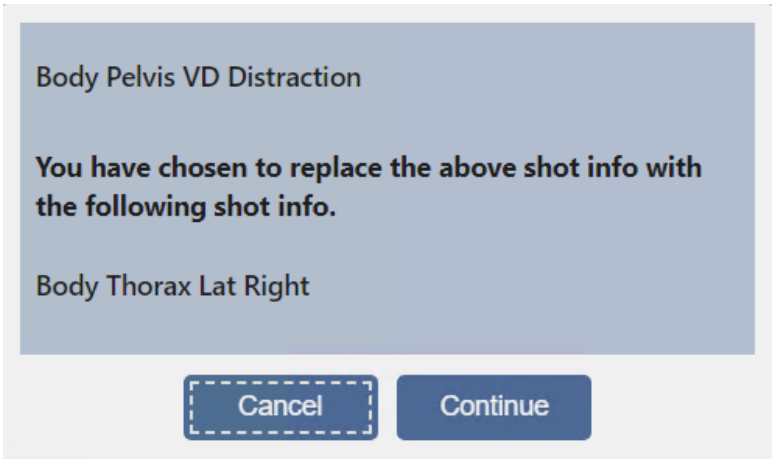
Procedure

1. In the Acquire/Review screen, tap the **Rename Shot** icon, located in the shot list control.

   The **Shotlist** screen is displayed.
2. Select the correct Region, Anatomy, and the Shots that match the acquired image. See the topic, *Adding shots in the Shotlist screen*.

   You can select only one shot at a time for renaming purposes. Once you have selected the new shot, a confirmation message box is displayed in the **Shotlist** screen, asking if you want to replace the current shot with the new shot.

3. Tap the **Continue** button to make the change, or the **Cancel** button to leave the original shot intact.
4. To rename additional shots, select another shot by tapping it in the shot list, and then repeat the above procedure to rename the shot.
5. After all shots have been renamed, tap the **forward-arrow** icon, in the lower-right corner of the **Shotlist** screen, to return to the Acquire/Review screen.

Touch fundamentals

The touch interface control gestures, which replace the familiar mouse and cursor desktop interface, will be new to many of you. This section will help smooth your transition to a primarily touch environment, as you navigate through the various screens of your application.

Tap

Similar to the click of a mouse, the Tap gesture replaces the left-click for selecting objects on the screen. As the name suggests, tap the item you wish to select in situations where you would have clicked using the mouse.

Drag

The Drag gesture is now as simple as touching an object, sliding your finger across the screen and lifting your finger, rather than clicking and holding down the mouse button as you move the mouse to drag an object.

Two-Finger Drag

The Two-finger Drag gesture, as the name suggests, is a variation of the Drag function, which is actuated by touching two fingers to the screen and dragging them across it.

Flick

The Flick gesture allows you to scroll through a list by simply flicking a finger on the screen in the direction you wish to scroll, rather than clicking and holding on an arrow, or dragging a scroll bar with the mouse.

Pinch and Unpinch

The Pinch and Unpinch gestures allow you to zoom an image in and out, without the need to click a control and then hold down a mouse button while dragging the cursor across the screen.

Active panel connection controls

To prevent damage to the detectors, Varex panels come with a built-in timer that automatically deactivates the active panel and places it into standby/low-power mode after 30 minutes of inactivity.

There are several controls available to you that not only provide pertinent information about the active panel, but also allow you to reactivate the panel after it has been deactivated.

- **Detector Status** information box located on most screens of the application.
- 30-minutes detector timeout pop-up dialog box, active only in the Acquire/Review screen.
- System-generated notifications sent to the Notifications bar located at the top of all screens. These notifications provide real-time information about the state of the panel, and when the active panel is deactivated or reactivated. For information about the Notifications bar, see the topic, *Notifications* on page 90.

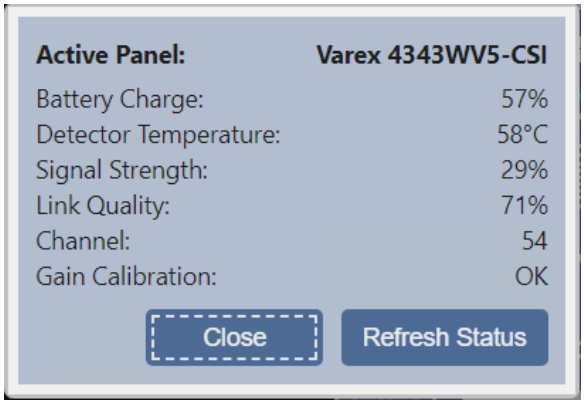
This section describes two of these active panel connection controls.

Detector Status information box

To update the active panel information and reactivate the panel:

1. Tap the **Detector Status** icon located in the top-right corner of any of the screens.

The **Detector Status** information box is displayed.



Note: The **Detector Status** icon can be any color to open the **Detector Status** information box.

Note: For information about the **Detector Status** radiation icon colors, see the topic, *Detector status, temperature, battery status, and connectivity*.

2. Tap the **Refresh Status** button to update the detector's status and connectivity information, and reactivate the detector.

   This update function is necessary, as the detector is placed in standby mode after 30 minutes of inactivity, to prevent damage. The standby mode of the detector is indicated by a flashing **Detector Status** icon.

   Note: When images are aquired less than 30 minutes apart, the timer is reset to 0 with each new image.

3. Tap the **Close** button to close the **Detector Status** information box.

The data displayed in the **Detector Status** information box is described in the following table.

Table 48: Data displayed in Detector Status information box

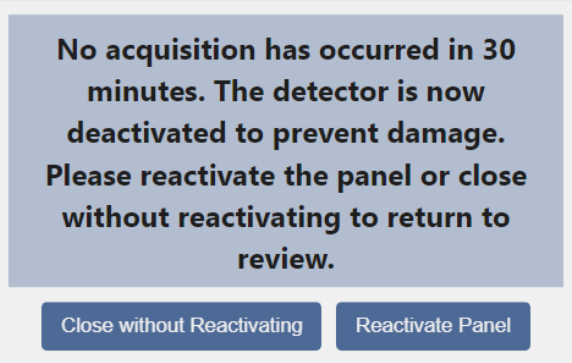
Data	Description
Active Panel	Panel connected to the PC. In systems using dual panel configurations, you can select the active panel from the **Active Panel** drop-down list, in order to view that panel's status and connectivity. The drop-down list includes only those panels configured for use on your system.
Battery Charge	Battery level of the panel. The battery must have a minimum of 5% charge to acquire an image.
Detector Temperature	Temperature of the panel. The optimal temperature range for image acquisition is 10°C – 50°C (50°F – 122°F).
Signal Strength	Strength of the wireless connection from the panel to the host PC. The higher the percentage value, the stronger the signal. A strong sigmal enables faster transmission of the acquired image from the panel to the host PC.
Link Quality	Measures the noise level or interference in the wireless connection from the panel to the host PC. A higher percentage value means that the link quality of the signal is high and, therefore, there is less interference. The less the interference,, the faster the transmission of the acquired image from the panel to the host PC.
Channel	Current wireless channel used for communication between the panel and the host PC.
Gain Calibration	Status of the gain calibration.

Also see the topic, *Detector status, temperature, battery status, and connectivity*.

30-minutes detector timeout pop-up dialog box

A 30-minutes detector timeout control is provided, as a pop-up dialog box, to alert you when the panel has been deactivated, and give you a means to reactivate the panel.

Figure 59: 30-minutes detector timeout pop-up dialog box



The 30-minutes detector timeout pop-up dialog box appears automatically in the Acquire/Review screen when the panel is deactivated after 30 minutes of inactivity. This pop-up dialog box provides a more visible means to know when the detector is in standby mode and reactivate the detector, in case any of the notifications or the flashing detector radiation icon are missed.

Note: The standby mode of the detector is indicated by a flashing **Detector Status** icon.

Note: You must be in the Acquire/Review screen for the 30-minutes detector timeout pop-up dialog box to be displayed.

- To reactivate the detector, tap the **Reactivate Panel** button. The panel is reactivated. The dialog box closes automatically.
- To close the dialog box without reactivating the panel, tap the **Close without Reactivating** button.

Also see the topic, *Detector status, temperature, battery status, and connectivity*.

Calendar controls

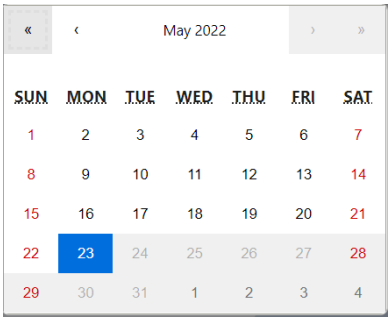
There are several calendar controls located throughout the application; in the **Add Patient Information** dialog box, the **Edit Patient Information** dialog box, the **Reports** screen, the **Batch Send** dialog box, and the **Calibration History** screen. When only a single date selection is required, there is a single control, but where you need to enter a date range, two of the controls are located together.

To open the **Calendar** control:

1. Tap the icon that resembles a desktop calendar.

   On opening, the title bar in the top portion of the calendar displays the current month and year, in addition to back and forward arrow controls, while the main body of the calendar displays the days of the month, up to the current day.

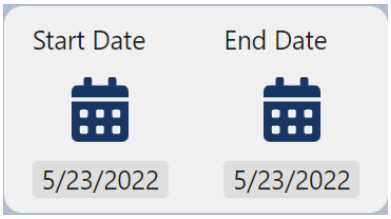
   

2. Tap the title bar to change the displayed value from the current month and year to the current year only, with the main body of the calendar now showing the months for the current year, up to and including the current month.
3. Tap the title bar again to change the displayed value from the current year to a range of 10 years, with the main body of the calendar now showing the years of the range, up to the current year.
4. Tap the arrow controls for any of the various title bar values to move the values backward and forward in increments, which are dictated by the type of data displayed in the title bar.
5. Tap any value in the main body of the calendar to select that value and take you up one level with that value selected in the title bar.

   Once you have determined the year and month, and selected a day, the calendar control closes.

To select a date range:

- Select the first date of the range using the left calendar control, and select the last date of the range using the right calendar control.



Re-ordering various application lists

About this task

You can change the order of the various lists/columns in many screens of the application, at any time.

To change the order of a list/column:

- Drag one of the list/column headers from one position and drop it in another position on the same screen.

  As you move the selected item/column, the remaining items/columns will slide apart to adjust for the position in which the selected item/column will be placed after you lift your finger from the screen.

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Chapter

6

Exporting

Contents

This chapter describes how to export images.

Emergency export

About this task

You can send all of the acquired images to the application's default server, typically the site storage server. This can be done directly from within the Acquire/Review screen using the **Urgent Send** control, located at the bottom of the screen.

This control is inactive until, at least, one image has been acquired.

Procedure

1. Acquire an image(s). See the topic, *Acquiring an image* on page 101.
2. After the image(s) has been acquired, tap the **Urgent Send** icon to automatically send all acquired images to the storage server.

   After the image(s) has been sent, the **Urgent Send** icon becomes inactive. You will see a Send Status notification displayed in the Notifications bar as the images are sent to the storage server.

   When the send is complete, a notification will reflect that status.

   The **Urgent Send** function recognizes which images you sent previously and ignores them, sending only the newly acquired images. If you wish to resend an entire study, you can use the export controls from the main **Patient** screen.

Patient tile/record export

About this task

You can manually export single or multiple studies for each patient to the DICOM Storage servers, the Windows **Downloads** directory, or a USB flash drive from an expanded patient tile/record in the main **Patient** screen.

Procedure

Choose the desired export option from the following list.

Option	Instructions
Export patient studies to a DICOM storage server.	See *Exporting patient studies to a DICOM storage server* on page 146 for instructions.
Export patient studies to the local hard drive or a USB drive.	See *Downloading patient studies* on page 147 for instructions.
Export patient studies to a USB drive.	See *Exporting patient studies to a USB drive* on page 149 for instructions.

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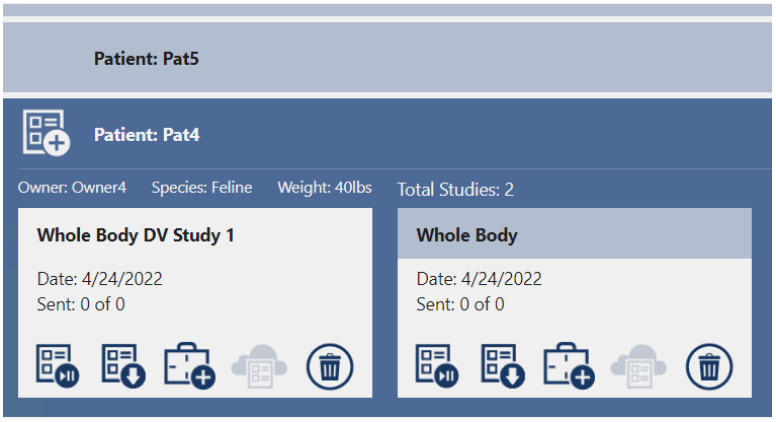
Exporting patient studies to a DICOM storage server

Patient studies can be exported to a DICOM storage server.

Procedure

1. Tap a patient tile/record in the main **Patient** screen to expand it.
2. To send a single study or multiple studies, tap the desired study or studies in the patient tile/record.

   The study tile(s) you select will be highlighted. In the following image, the **Whole Body DV Study 1** tile is highlighted.



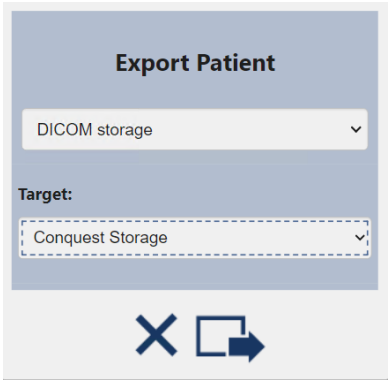
Note: To select multiple studies, either tap the studies you want to export, or press and hold the **Ctrl** button on your keyboard while selecting each of the studies that you want to export.

3. Tap the **Export Patient** icon in the upper-right corner of that **Patient** tile/record.

Note: This icon is inactive until an image has been acquired.

The **Export Patient** dialog box is displayed.

Figure 60: Export Patient dialog box – DICOM storage server export option



4. Select from a list of available **Target** servers that have been configured in the **Management** screen.

   Note: To export to DICOM storage, the DICOM Storage servers must be configured in the **DICOM** > **Storage** tab of the **Management** screen, and can only be performed using the Sound User account.

5. Tap the **Send** icon to either perform a server export, download the study(s) to the local Windows **Downloads** directory, as a .zip file, or save the study(s) to the `SmartDRExports` folder on your USB flash drive.

   When the send process completes, the **Export Patient** dialog box will close automatically. The export status for both server and download exports is shown in the **DICOM Export Queue** screen.

6. Select the **DICOM Export Queue** icon, in the upper-right corner of the main **Patient** screen, to display the list of exported studies.

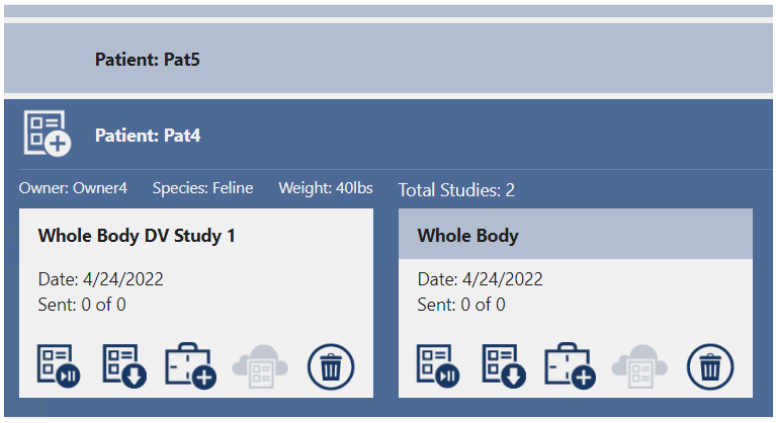
Downloading patient studies

Patient studies can be downloaded to the local drive as a zip file or to a USB drive.

Procedure

1. Tap a patient tile/record in the main **Patient** screen to expand it.
2. To export a single study or multiple studies, tap the desired study or studies in the patient tile/record.

   The study tile(s) you select will be highlighted. In the following image, the **Whole Body DV Study 1** tile is highlighted.



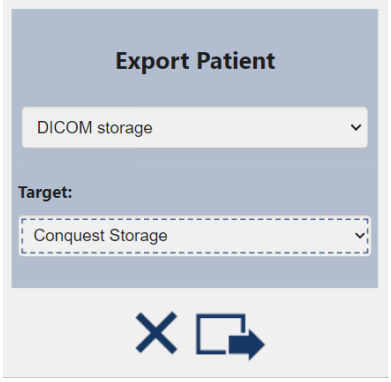
   Note: To select multiple studies, either tap the studies you want to export, or press and hold the **Ctrl** button on your keyboard while selecting each of the studies that you want to export.

3. Tap the **Export Patient** icon in the upper-right corner of that **Patient** tile/record.

Note: This icon is inactive until an image has been acquired.

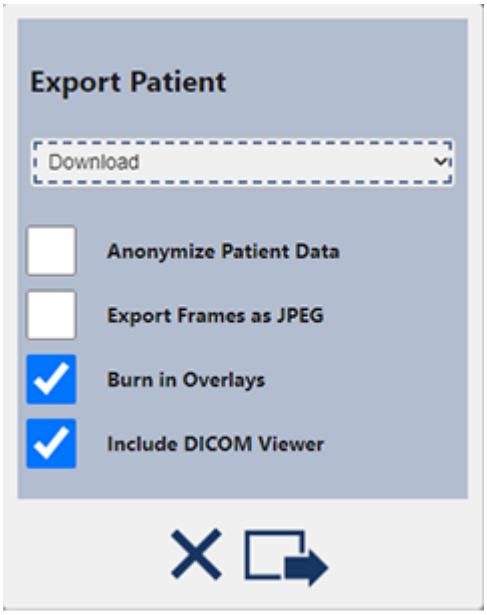
The **Export Patient** dialog box is displayed.

Figure 61: Export Patient dialog box – DICOM storage server export option



4. Select the desired check boxes for options to include in the download.

Figure 62: Export patient to zip file – Download export



5. Tap the **Send** icon to perform a server export, download the study(s) to the local Windows **Downloads** directory as a .zip file, or save the study(s) to the `SmartDRExports` folder on your USB flash drive.

   When the send process completes, the **Export Patient** dialog box will close automatically. The export status for both server and download exports is shown in the **DICOM Export Queue** screen.
6. Select the **DICOM Export Queue** icon, in the upper-right corner of the main **Patient** screen, to display the list of exported studies.

Exporting patient studies to a USB drive

Patient studies can be exported to a USB drive.

About this task

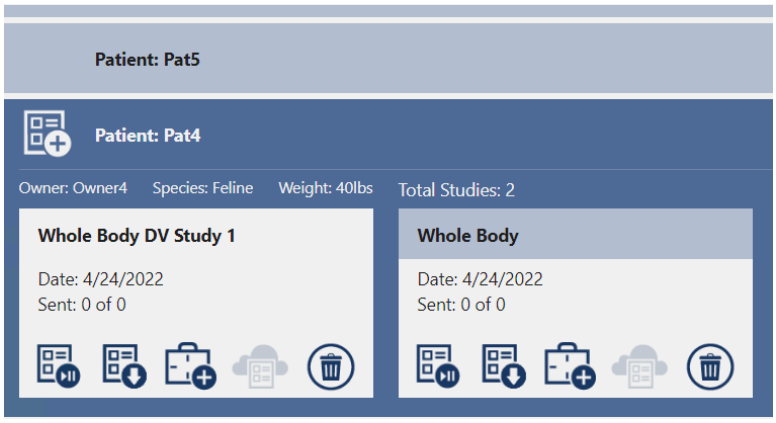
Note: It is recommended that USB 2.0 or above be used for saving study(s).

All files are saved to the `SmartDRExports` folder on the USB flash drive.

Procedure

1. Tap a patient tile/record in the main **Patient** screen to expand it.
2. To send a single study or multiple studies, tap the desired study or studies in the patient tile/record.

   The study tile(s) you select will be highlighted. In the following image, the **Whole Body DV Study 1** tile is highlighted.

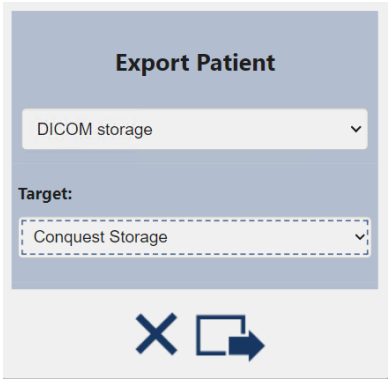
Note: To select multiple studies, either tap the studies you want to export, or press and hold the **Ctrl** button on your keyboard while selecting each of the studies that you want to export.

3. Tap the **Export Patient** icon in the upper-right corner of that **Patient** tile/record.

Note: This icon is inactive until an image has been acquired.

The **Export Patient** dialog box is displayed.

Figure 63: Export Patient dialog box – DICOM storage server export option



4. Insert your USB flash drive into the USB port on your device.

   The **Save to USB** option is available in the Export Patient drop-down list only if a USB drive is inserted into the device.

5. In the **Export Patient** dialog box, select the desired check boxes for options to include in the saved study(s).
6. Tap the **Send** icon to either perform a server export, download the study(s) to the local Windows **Downloads** directory, as a .zip file, or save the study(s) to the `SmartDRExports` folder on your USB flash drive.

When the send process completes, the **Export Patient** dialog box will close automatically. The export status for both server and download exports is shown in the **DICOM Export Queue** screen.

7. Select the **DICOM Export Queue** icon, in the upper-right corner of the main **Patient** screen, to display the list of exported studies.

Batch send export

About this task

The **Batch Send** function allows you to simplify the export process and send batches of studies based on selectable criteria.

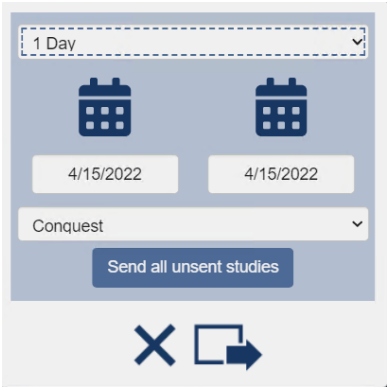
Note: This control is inactive if the Storage server is not configured in the **DICOM** > **Storage** tab of the **Management** screen.

Procedure

1. Tap the **Batch Send** icon, located in the top-right corner of the main **Patient** screen.

   The Batch Send dialog box is displayed.

2. Do one of the following:
   - To send all of the unsent studies in the system, regardless of date, tap the **Send all unsent studies** button.
   - To send all of the studies within a certain date range, use the list of pre-defined date ranges in the drop-down fields, or choose a specific date range using the calendar controls.
3. After selecting your date range, choose the destination server from the drop-down list.

   Note: The destination server is configured in the **Management** screen.

4. Tap the **Send** icon to export the studies.

Results

- If all studies have already been sent to the selected server, a notification will be displayed, stating that there are no eligible studies found. The notification will appear in the Notifications bar at the top of the screen. For more information, see the topic, *Notifications* on page 90.
- The export status is shown in the **DICOM Export Queue** screen. Tap the **DICOM Export Queue** icon, at the top-right of the main **Patient** screen, to display a list of exported studies in the **DICOM Export Queue** screen.

- The **DICOM Export Queue** icon displays a notifications badge that shows you the number of studies currently in the **DICOM Export Queue** screen.

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Using the DICOM queue

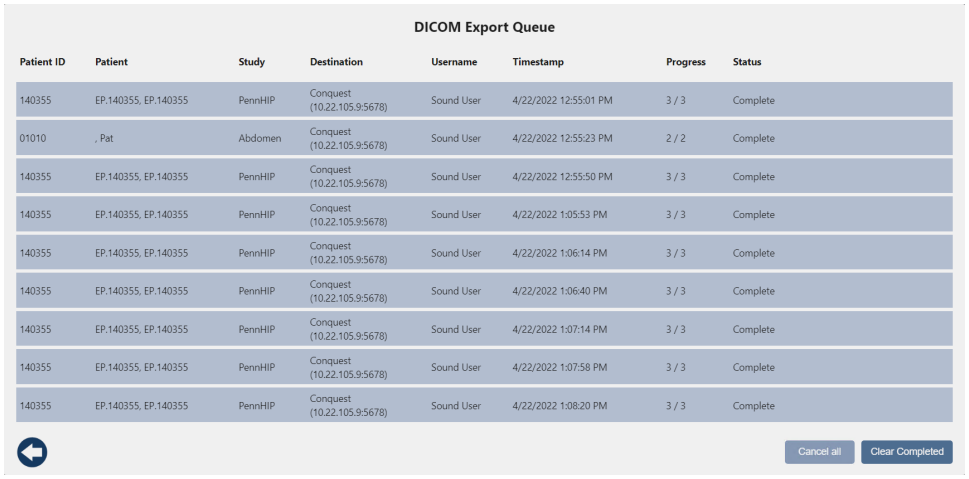
About this task

The **DICOM Export Queue** screen allows you to view information about DICOM exports in progress or completed, clear the completed exports from the list, or cancel all exports.

Procedure

1. In the top-right corner of the main **Patient** screen, tap the **DICOM Export Queue** icon.

The **DICOM Export Queue** screen is displayed.



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2. Complete the following actions, as necessary:

Task	Instructions
Clear a completed export.	**a.** Select the patient record in the queue. **b.** Select the **Clear** button in the patient record.
Clear all of the completed or aborted exports from the list.	At the bottom of the **DICOM Export Queue** screen, select **Clear Completed**.
Cancel all exports in progress.	At the bottom of the **DICOM Export Queue** screen, select **Cancel all**.
Retry a failed export.	**a.** Select the patient record in the queue. **b.** Tap **Retry**. **Note:** The **Retry** button will appear on the screen only if the export fails due to an incorrect DICOM server configuration, or if there is no communication between the DICOM server and the SMART DR™ PC.
Return to the main Patient screen.	At the bottom of the **DICOM Export Queue** screen, tap the **back-arrow** icon. 

AIS export

Prerequisites

1. Make sure that AIS device support is configured in the **Management** screen.
2. Make sure that a study contains at least one image to export. To acquire an image, see the topics, *Acquire/Review screen* on page 92 and *Acquiring an image* on page 101.

About this task

You can export a selected study and images to the Antech Imaging Services (AIS) website, and submit a consultation for the study and these images on the AIS website, using the **AIS** export control, located on each study tile in the expanded patient tile/record.

Procedure

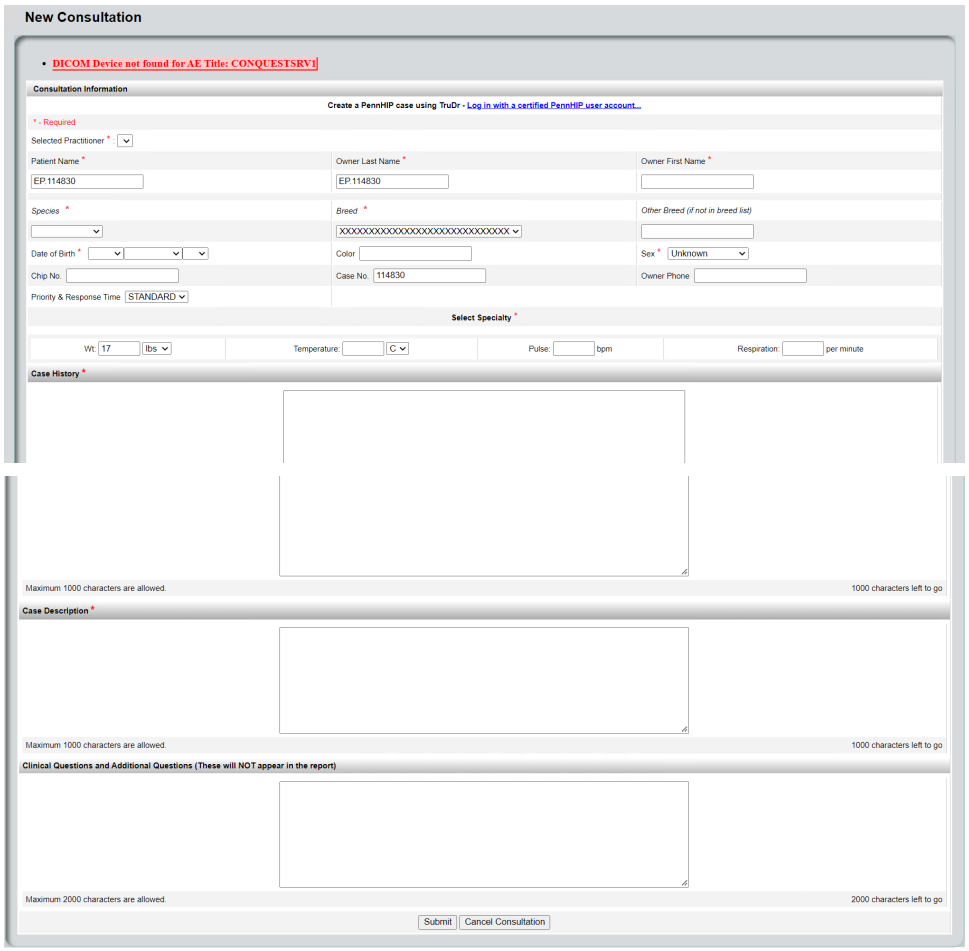
1. In the main **Patient** screen, tap a patient tile/record to expand it.

2. Select a study to export to the AIS website.
3. Tap the **AIS** export control icon, located at the bottom of the selected study tile/record.

Note: This control is inactive if there is no AIS device support configured in the **Management** screen, or if the selected study has no images.

This will begin DICOM Send of the images for that study in the background while a browser window opens the AIS **New Consultation** page.

Figure 64: AIS New Consultation page



4. In the **New Consultation** page, enter all required information. Required information is marked with a red asterisk.

Tip: Use the up and down arrows on your keyboard to scroll through the page.

5. Enter any optional information, as needed.
6. After you have entered all the information, tap the **Submit** button at the bottom of the page.

7. Close the browser window to return to the main **Patient** screen.

Auto-route export

The system can be set up to select a server to which each study will be auto-routed when you close a study, returning to the main **Patient** screen. Setting up an auto-route server is done in the **DICOM** > **Storage** tab of the **Management** screen, and can only be performed using the Sound User account.

Once configured, each study will be auto-routed to the selected default server when you close/end a study and return to the main **Patient** screen.

Email study feature

To provide you with additional flexibility when exporting images, an email function is added to the Sound SMART DR™ software. You can access this function from the main **Patient** and the Acquire/Review screens.

Note: To enable the **Email Study** feature, an email server must be added and configured in the **DICOM** > **Email** tab of the **Management** screen.

Emailing a study from the main Patient screen

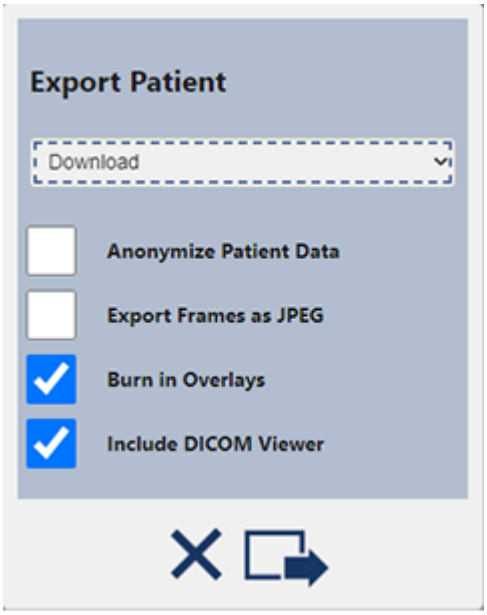
To email a study from the main **Patient** screen:

1. Select the desired patient tile/record and choose the study to be emailed.
2. Tap the **Export Patient** icon located in the upper-right corner of the selected patient tile/record.

Note: The **Export Patient** icon is inactive if the DICOM server is not configured in he **Management** screen.

The **Export Patient** dialog box is displayed.

Figure 65: Export Patient dialog box



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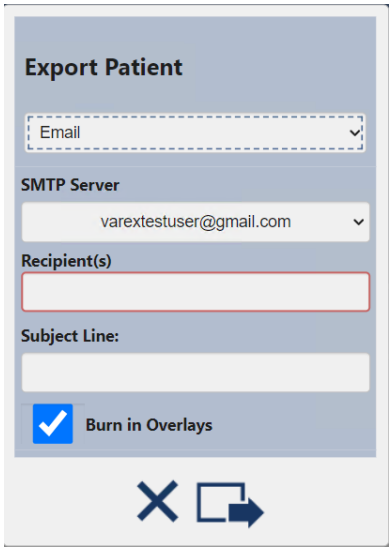
3. From the drop-down list, select the **Email** option.

   The **Export Patient** dialog box with the email functionality is displayed.

   Figure 66: Export Patient dialog box with Email option selected



   a. From the **SMTP Server** drop-down list, select the sender's email address, This is the email address you added and configured in the **Management** screen.
   b. In the **Recipient(s)** field, enter the recipient's email address. This is a required field.

      To add multiple recipients, place a comma after each recipient's email address, then press **Enter**. The recipients are listed underneath the **Recipient(s)** field.
   c. (Optional) In the **Subject Line** field, enter the subject of the email.
   d. (Optional) If you wish to burn overlays in to the image you are emailing, select the **Burn in Overlays** check box. This check box is selected, by default.

      The default compression set by the system is 50%.

4. Tap the **Send** icon.

   The studies are emailed to the recipient(s).

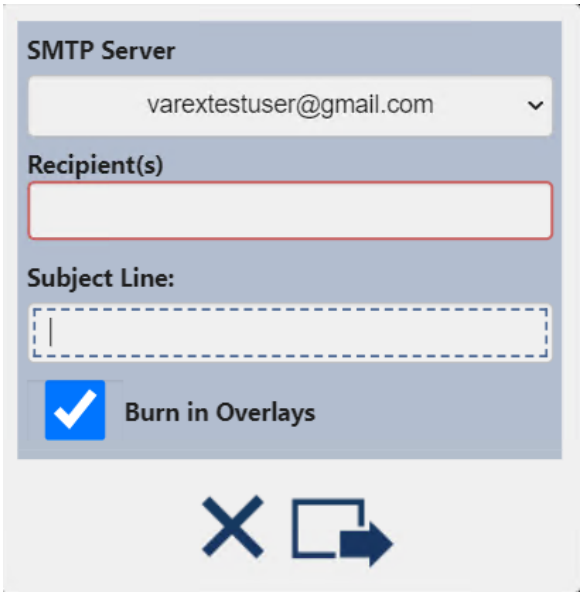
Emailing a study from the Acquire/Review screen

To email a study from the Acquire/Review screen:

1. At the bottom of the Acquire/Review screen, tap the **Email envelope** icon.

The Email Study dialog box is displayed.

Figure 67: Email Study dialog box



2. From the **SMTP Server** drop-down list, select the sender's email address,

   This is the email address you added and configured in the **Management** screen.
3. In the **Recipient(s)** field, enter the recipient's email address. This is a required field.

   To add multiple recipients, place a comma after each recipient's email address, then press **Enter**. The recipients are listed underneath the **Recipient(s)** field.
4. (Optional) In the **Subject Line** field, enter the subject of the email.
5. (Optional) If you wish to burn overlays in to the image you are emailing, select the **Burn in Overlays** check box. This check box is selected, by default.

   The default compression set by the system is 50%.
6. Tap the **Send** icon.

The studies are emailed to the recipient(s).

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Chapter

7

Reporting

Contents

This chapter describes the reporting controls used for generating different types of reports.

Reports screen

The **Reports** screen allows you to aggregate and view different types of study and patient data in a report format. You can generate and export AAHA, billing, study, rejected images, and detailed billing reports. The reports can be generated in both PDF and Excel formats, and exported to folders on the local system, a network, or a thumb drive.

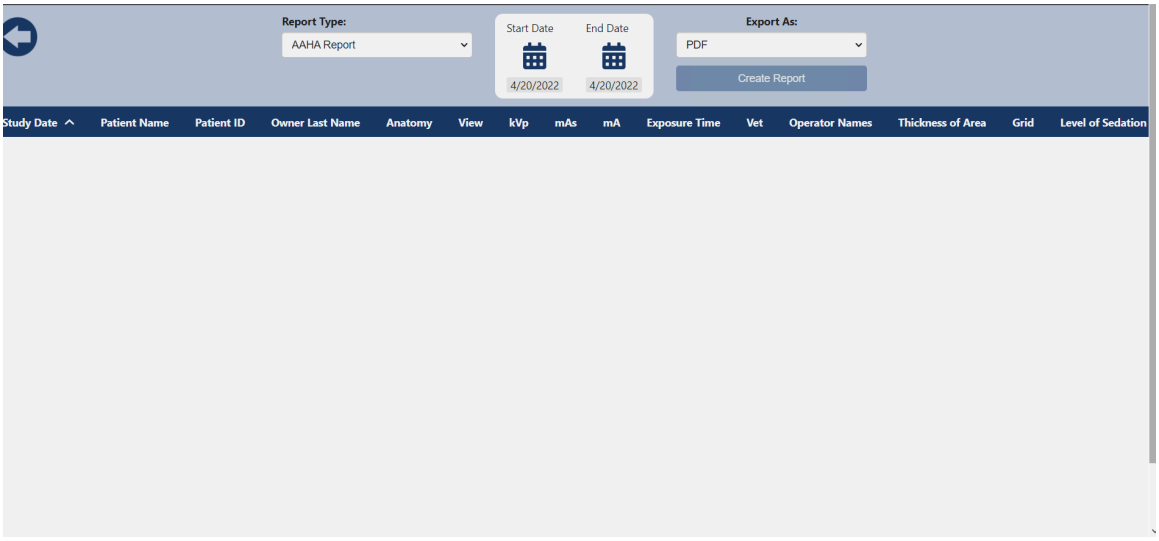
Accessing the Reports screen

To access the **Reports** screen, tap the **Reports** control/icon, in the upper-right corner of the main **Patient** screen.

Figure 68: Location of Reports icon on main Patient screen

The **Reports** screen is displayed.

Figure 69: Reports screen



Reports screen parameters

Table 49: Reports screen parameters

Parameter	Description
Report Type	Allows you to select the type of report you want to generate: AAHA Report, Billing Report, Study Report, Rejected Images Report, Detailed Billing Report. The reports are displayed on the screen in a table/list format.
Start Date	Allows you to select the start date for searching the report you want to generate.
End Date	Allows you to select the end date for searching the report you want to generate.
Export As	Allows you to select the export format for the report: PDF or Excel
Create Report button: 	Creates the report in the export format you specified.
Back-arrow button: 	Takes you to the main **Patient** screen.
Table Parameters	The results of the search are automatically displayed in the main body of the screen in a table/list format. The columns in a table vary, depending on the type of report you generate. Therefore, the table parameters vary, depending on the report type.

Reordering Reports screen columns

The columns in the **Reports** screen can be arranged in any order desired. The order is maintained each time you enter the **Reports** screen.

If multiple users are viewing the **Reports** screen at the same time, reordering the columns in one user's screen does not affect the other users until they leave and reenter the screen.

- To change the order of a column, select and drag a column heading to move the column to a new location.

Sorting Reports screen data

Data in the **Reports** screen can be sorted in ascending or descending order by tapping the arrow in the header of the first column. The arrow in the header indicates the order in which the column is sorted.

This sorting feature applies only to the first column on the screen.

Figure 70: Ascending order

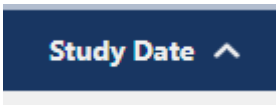
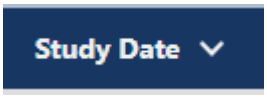


Figure 71: Descending order



Generating a report

About this task

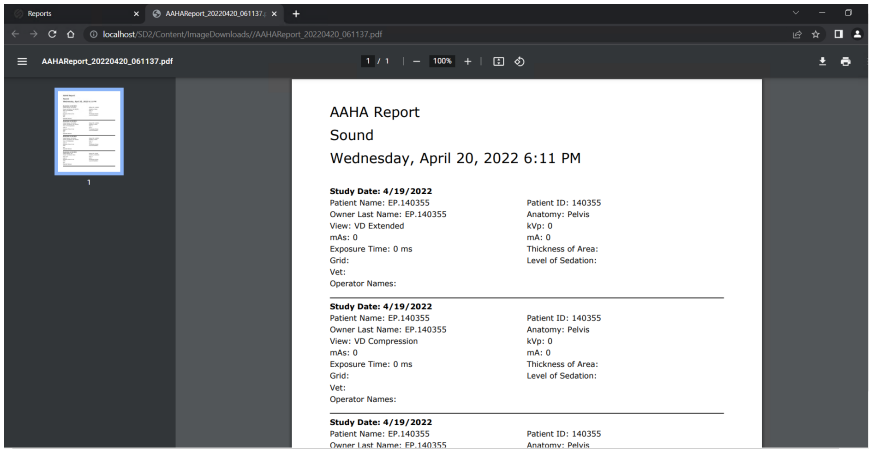
Use this procedure to generate a report from the **Reports** screen.

Procedure

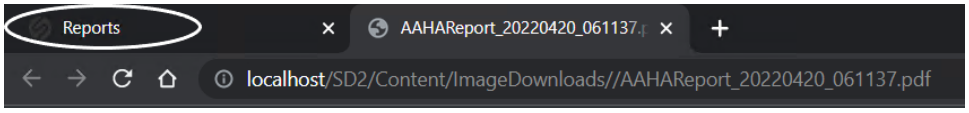
1. Access the **Reports** screen. See the topic, *Reports screen* on page 162.
2. In the **Report Type** drop-down list, select the type of report you want to generate. By default, the **AAHA Report** is selected.
3. Select the date range to be covered in the report using the **Start Date** and **End Date** calendar controls located next to the **Report Type** drop-down list.
   When you select the options, the results are automatically displayed in the main body of the screen.
4. In the **Export As** drop-down list, select the export format for the report: **PDF** or **Excel**

5. Tap the **Create Report** button next to the calendar controls.

   The report is created and displayed in a browser tab.



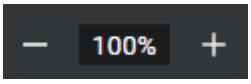
6. To close the report, close that specific report's tab in the browser.
7. Select the **Reports** tab, at the top of the browser, to return to the **Reports** screen and run a different report, if desired.



Reviewing reports

After the report is created, it is displayed in a separate browser tab. You can review, adjust the appearance, export, or save the report in this screen.

1. Page through the report:
   - Swipe up or down the screen to move through the report.
   - Select the desired page from the list of thumbnails.
   - In the **Page Number** field, type the number of the page you want to review.
2. Zoom in or out on the report:
   - To zoom in or out on the report incrementally, select the **+** or **-** icons next to the zoom level field.



   - To zoom in or out in one tap, select the **Maximize/Minimize** control. The control is modal and changes depending on the current magnification level of the page.

Maximize 

Minimize 

3. Rotate the pages by tapping the **Page Rotation** icon until the pages reach the desired orientation.

Printing reports

About this task

Use this procedure to print a specific report.

Procedure

1. In the screen where the report is displayed, select the **Printer** icon.

The **Print** window is displayed. In the **Destination** drop-down list, **Save as PDF** is selected, by default.

2. To choose a printer, select **Destination** > **See more...**.

A window with a list of printers configured on the system is displayed.

3. Do one of the following:

   - If the list of printers is large, use the **Search Destinations** field to locate the printer.
   - If the printer you want to use is missing from the list, select **Manage**.

   The Windows **Settings** window is displayed.

4. Select **Add a printer or scanner** to add the printer.
5. In the **Pages** drop-down list, select the desired page range, if you do not want to print the entire report .

   All is selected, by default.

6. In the **Pages per sheet** drop-down list, select the number of report pages to print per sheet of paper.
7. Do one of the following:
    - If you are saving to a PDF, select **Save**. The **Save As** dialog box opens, and you can choose the location to save the file. See the topic, *Downloading or saving reports* on page 167.
    - If you are sending the report to a printer, select **Print**.

Downloading or saving reports

About this task

Use this procedure to download or save a report on your local system, a network, or a thumb drive.

Procedure

1. In the browser tab where the report is displayed, select the **Download** icon.

    The **Save As** dialog box is displayed.
2. Select the location where the report will be saved.

    The file is downloaded in the format selected when the report was created in the **Reports** screen: **PDF** or **Excel**
3. Select **Save**.
    The report is saved to the selected location.

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Adding AAHA study details to the AAHA report

The American Animal Hospital Association (AAHA) report contains the AAHA-required columns of **Area**, **Grid**, and **Level of Sedation**. These columns are populated in the main body of the **Reports** screen with information that you provide during the acquisition process using the **AAHA Study Info** control/icon in the Acquire/Review screen.

About this task

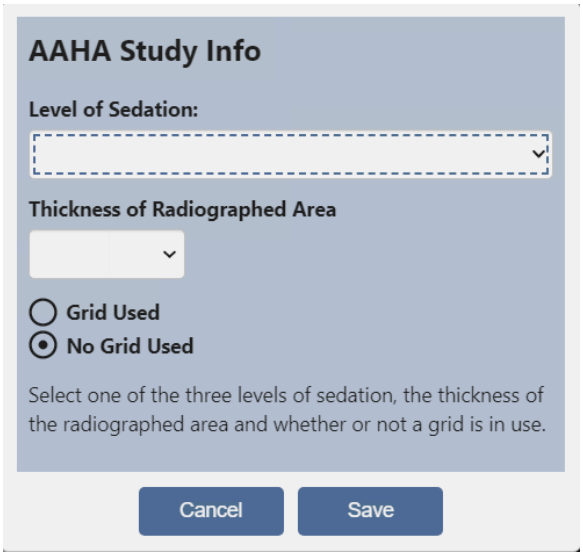
Use this procedure to add AAHA study details to the AAHA Report.

Procedure

1. In the Acquire/Review screen, select the **AAHA Study Info** icon.

   The **AAHA Study Info** dialog box is displayed.

2. Select your desired options from the drop-down lists.
3. Select the **Save** button.

   The selected information will be included in your AAHA Report when you generate it in the **Reports** screen.

Chapter

8

Cleaning the x-ray system

Contents

About this task

The x-ray system is designed and suitable for use in typical clinical environments. During use, the system, all peripherals, and the detector should be adequately protected against spilled or splashed fluids and should, therefore, not require disinfection beyond routine cleaning as part of preventive maintenance of the equipment.

Cleaning performed during preventative maintenance requires only compressed air and a mild soap and water solution. If disinfection is desired or becomes necessary, a disinfectant solution may be used in place of soap and water to clean the x-ray system equipment. In either case, prepare the solution in accordance with instructions provided by the manufacturer of the cleaning agent.

Warning: Do not pour or spray liquid directly onto any component of the x-ray system. Apply the cleaning agent to a clean cloth and gently wipe the equipment to clean.

Warning: Ne pas verser ou vaporiser de liquide directement sur l'un des composants du système x-ray. Appliquer l'agent de nettoyage sur un chiffon propre et essuyez doucement l'équipement à nettoyer.

Procedure

Review the information in the following topics, and perform cleaning and maintenance tasks in accordance with the information provided.

- *Approved disinfection agents* on page 170
- *Cautions* on page 170
- *Removing dust from fans and heatsinks* on page 171

Important: Cleaning and preventative maintenance should be performed approximately every six months, or as required by the site.

Approved disinfection agents

Any EPA-registered agent classified as a low- or intermediate-level product for hard, non-porous surfaces and equipment may be used. Prepare and use disinfectants in accordance with manufacturer’s instructions.

Cautions

The system must be out-of-service for the duration of cleaning. Cleaning should, therefore, be performed during scheduled maintenance unless made necessary by contamination. Do not use the x-ray system for patient imaging when cleaning the equipment.

- All system components, including the table and x-ray generator must be powered down prior to cleaning the equipment. Covers are removed and, typically, a cleaning liquid is used. The removal of power is required to protect service personnel and the equipment against injury or damage caused by unintentional or excessive application of liquid to electrical components of the system.

- Allow 15 minutes after cleaning before turning equipment back on. This period allows any residual cleaning fluid to evaporate before power is re-applied to the equipment.
- After turning equipment back on, allow at least 15 minutes for the detector subsystem to initialize before attempting to use the x-ray system for imaging or calibration.

Removing dust from fans and heatsinks

Even in a clinical environment, dust and other contaminants accumulate around fans and heatsinks inside the x-ray system computer. Special attention must be paid to these areas so that the airflow that cools the electronics can pass freely through the computer case and heatsinks. Surfaces inside the computer are typically very dry and can be blown clean with compressed air available at most retail stores that sell electronics.

- Observing ESD precautions, use the compressed air to carefully remove all dust, hair, and other impediments from the openings in the front and rear of the computer case, from in and around the CPU heatsink and fan, and from the fan in the bottom of the power supply.
- Do not use a cloth, with or without cleaning solution, to clean internal components of the computer. Cloth may be used, dampened with cleaning solution as desired, only to clean external surfaces of the computer.

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Chapter

9

Access Help

Contents

Sound provides options for help with the user interface. Access them from the **Help** icon on the main screen and in other locations in the application.

Help Options window

The **Help Options** window provides access to information about icons used in the Sound SMART DR™ software, training videos, and the Sound™ Support Portal.

In the Sound SMART DR™ application, select the question mark icon in the upper-right corner of the screen.

Figure 72: Help Options window

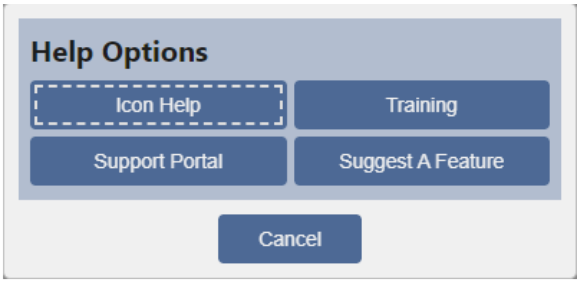
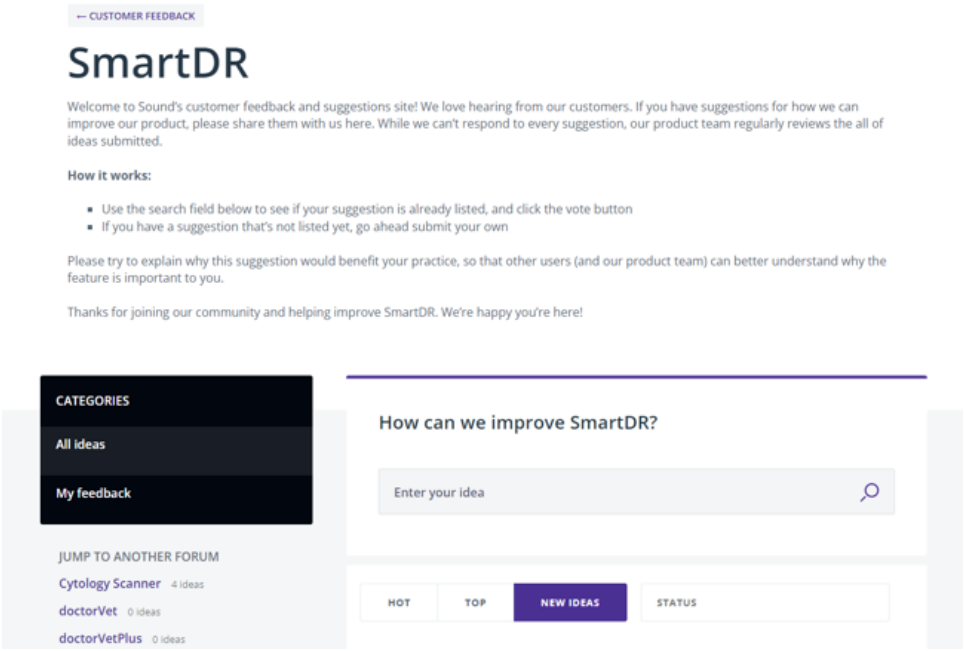


Table 50: Help Options

Option	Description
	Accesses **Help Options** window.
Icon Help	Displays tips identifying icons displayed on the current screen.
Training	Accesses training videos that demonstrate how to perform common tasks using the interface.
Support Portal	Accesses the **Support Portal**. • First-time users, select **Register New User** to set up a login and password. • Use the portal to chat with Sound™ support professionals, submit a support ticket, review training videos, and view warranty information.
Suggest a Feature	Accesses a portal you can use to provide feedback to Sound™ about the Sound SMART DR™ software. See *Figure 73: Suggest A Feature* on page 175.

Option	Description
Cancel	Closes the window.

Figure 73: Suggest A Feature



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Chapter

10

Technical Support

Contents

Use the following information for contacting customer support.

Office hours	Weekdays 8:00 A.M. - 5:00 P.M. Pacific time. Emergency 24-hour support is available.
Toll free	800-819-5538
Telephone	760.918.9626
Fax	760.918.9620
International	+1.760.918.9626

Shipping address

Sound Technologies, Inc.
3200 Lionshead Avenue
Suite 100
Carlsbad, CA 92010
USA

Website

http://www.soundvet.com/

Locating the system serial number

When you contact technical support, you must provide the serial number of the system for which you are requesting assistance.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen*, for instructions.
2. Select the **Config** > **Site Information** tab.
   The system serial number is located under **Model Information**, in the **Serial Number** field.

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