Service Manual Small Animal Configuration

Supports the PaxScan 4336R, 4343R, or 4336Wv4 panel

Supports integration with Summit HF X-ray generator

721-722-G1, Rev. I

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 Sound Technologies, Inc. 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.

Standards and compliance

CE for Low Voltage Directive 2006/95/EC, EMC Directive 2004/108/EC
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 Sound 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 equine, 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 Sound 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 Sound 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 Sound SMART DR™ . The detector converts the X-ray energy to digital image data that is then passed to the Sound 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 Sound SMART DR™ software, the images can be archived or printed 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 equine, 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 Chapter 6. *Chapter 6. Backing up the PC Hard Drive*, for information about maintaining and cleaning the system components.

Trademarks

Sound™ and Sound SMART DR™ are trademarks and Sound SMART DR™ is a registered trademark of Sound Technologies, Inc. The Intel Core™ i5 Processor is a trademark of Intel, Santa Clara, Calif. The Dual Band Wireless-AC 7260 is a product of Intel. Windows is a registered trademark of Microsoft Corporation in the United States and other countries; PaxScan 4336R, 4343R, 4343CB, 4336W, 4336X, 2530W panel, and ViVA™ are trademarks or brand names of Varex Imaging Corporation; Pleora is a brand and trade name of Pleora Technologies, Inc., Kanata, Ontario, Canada. Symantec, the Symantec Logo, Altiris, and any Altiris or Symantec trademarks used in the product are trademarks or registered trademarks of Symantec Corporation or its affiliates in the U.S. and other countries.; Dell™ and the Dell logo are trademarks of Dell Inc., All other trademarks are properties of their respective companies.

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

S'il vous plaît lire et suivre les pratiques de sécurité et de manutention 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.

Table 1: Revision table

Revision letter	Issue date	ECO	Changes
A	2015-07-17	1066325	Initial release.
B	2015-07-21	1066819	Added support for installing existing PaxScan panels into a new system.
C	2016-05-26	1070025, ECO-00029 (EtQ)	Updated logos, trademarks, technical support contact information.
D	2016-08-15	1070604, ECO-00007 (EtQ)	Updates content for software versions 3.0 and 3.5. Changes include the addition of the PS4030E panel option, the addition of gain calibration frequency options, pause a study feature, and auto scroll feature. To accommodate these and other changes, several management screens have changed: Config (Basic, Intermediate, Advanced), Acquisition Profiles, Logging, Generator, and DICOM Worklist.

Revision letter	Issue date	ECO	Changes
E	2016-12-16	SAP: 1071837. EtQ: ECO-00049	Updates content for software version 3.6. Changes include support for software integration of the Summit HF generator, PaxScan 4336Wv4 panel, and the Dell OptiPlex 7440 tablet PC. These new features required updates the overview sections, connection diagrams, installation section, as well as several configuration screens.
F	5-15-2017	SAP: 1073461; EtQ: 00119	Updates for software version 3.7. Includes support for PaxScan 4343Rv2 and PaxScan 4336Rv2 detectors. Added 3-bay battery charger. Added information about how the Study Description field is populated when importing a patient from a worklist
G	12-18-2017	SAP: 1074896; EtQ: ECO-00171	Updates for software version 3.8, including changes to Basic and Intermediate configuration screens. Removed 4030E detector and associated components. Added 4343RC and 4343Rv3 panels, Dell 7050 SFF PC, and Logic AIO PC.
H	04-19-2019	ECO-00202	Added section to System Overview for the Planar Monitor, added Planar monitor to System Components table, updated section about connecting the 7050 PC to include the Planar monitor. Updates from IEC testing. Updated DICOM worklist configuration section to include option to enable support for Idexx MWL server. Updated DICOM general configuration section to include setting for the number of results returned from a worklist query. Added section about Help options.

Revision letter	Issue date	ECO	Changes
I	2021-2-12	EC-0001756	New features added in the v3.9 release (rev I) for Management Mode: Set tuning parameters before aquiring images, Region and Anatomy are now translated, Zoom Magnification overlay tag added, batch adjust image tuning options, date range options have been added to Autodelete configuration, System Configuration Tool includes breeds in the selected import and export functions, functionality of the Bluetooth Reject button is now configurable, "Owner Name" has been added to the overlay tag Responsible Person for clarification, default breed can be specified for each species, ability to add additional breeds, global setting to change default window/level values for images received from Musica, image tuning workbench is hidden from Tech users, option to set overlays to off when opening a study, default vet and tech can be specified in list for DICOM tags, the manual technique entry is configurable, Reject Reason entry is configurable, ability to associate the reject reason with the rejected image, Coonhound has been added to breeds list, Tech field name can be customized, Accession number is available in the Overlay Editor, System Configuration Tool now has the ability to recover from SQL database errors, documentation for the System Configuration Tool has been added to the Service Manual, patient weight can be displayed in KG and up to 3 decimal places, EI values added to overlay tags.

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
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.	721-721-G1
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.	721-722-G1
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	Standard/Reference
	Notice. An important aspect of Sound Technologies, Inc. imaging system operation is presented.	N/A. Used in operator and service manuals to note important information
	Caution. On product, indicates need to consult instructions for use for important cautionary information.	ISO 15223-1:2012/5.4.4
	Warning. General warning.	IEC 60601-1:2012/Table D.2 No. 2
	Read accompanying documents or instructions for use.	IEC 60601-1:2005/Table D.2, No. 10
	The date of manufacture is adjacent to this symbol.	ISO 15223-1:2012/5.1.3
	The manufacturer’s serial number is displayed with this symbol.	ISO 15223-1:2012/5.1.7
	The procedure requires making X-ray exposures and producing radiation. Follow safety precautions when operating the X-ray system.	Warning: IEC 60601-1:2012/Table D.2 No. 2; Ionizing Radiation: IEC TR 60878, No. ISO 361; ISO 7010-W003
	Earthing terminal Grounding terminal	IEC 60417-5019; IEC 60601-1/7219
	Warning. Warning, electricity	IEC-60601-1:2012, Table D-2, No. 3; IEC 60601-1/7.2.14, 7.3.2

Symbol	Title/Meaning	Standard/Reference
	Dangerous voltage. Indicates hazard from dangerous voltages.	IEC 60417-5036
	Non-ionizing electromagnetic radiation. Indicates elevated or potentially hazardous levels on non-ionizing electromagnetic radiation.	IEC 60417-5140
	The manufacturer’s catalog number (model number) is displayed with this symbol.	ISO 15223-1:2012/5.1.6
	The name and address of the manufacturer is displayed with this symbol. The date of manufacture may also be included with this information.	ISO 15223-1:2012/5.1.1
	Authorized representative in the European Community	ISO 15223-1:2012/5.1.2

Table of Contents

List of Figures

List of Tables

Chapter

1

System Overview

Contents

System Components

The x-ray system is shipped with the following components:

Table 4: Supported computer hardware

Hardware component	Details	Part numbers
PC	Dell OptiPlex 9020 SFF PC containing: • Intel i5-3550S 3.0GHz CPU • 8GB RAM • 250 GB hard drive • Intel PRO/1000 Ethernet card LP PCIe • Use with PS 4343R and 4336R detectors • Use in single panel configurations	PC: 736-701-G1 Ethernet card: 098-529
PC	Dell OptiPlex 7440 All-in-One (AIO) PC • Intel Core i5-6500 Processor • 6 MB RAM • 4 T hard drive • Use with 4336R v2, 4343R v2, 4336W v4	099-661
PC	Dell OptiPlex 7050 SFF PC • Intel i5-7500 processor • 8GB 2400MHz DDR4 memory • 500 GB HD • Use with PS 4343R and 4336R detectors	099-901
PC	Sound™ Logic All-in-One (AIO) PC • Intel Core i5-6300U processor • 8GB DDR4 memory • 500 GB HD • Use with 4336R v2, 4343R v2, 4336W v4, 4343Rv3, 4343RC	099-671

Hardware component	Details	Part numbers
PC	DT Research DT524 (AIO) PC • Intel® 7th Generation Core™ i5 processor • 8GB to 16GB RAM • 256GB to 512GB Flash storage • Use with 4336Wv4, 4336Wv4+, 4343Rv3, 4343RC, 4336Rv2, 4343Rv2	099-771
USB to Serial Port Adapter	Use with Dell 7440 AIO PC for connection to generator in systems with integrated generator.	099-654
USB to Gigabit Ethernet Adapter	Use with Dell 7440 AIO PC for connection to the DICOM server.	099-653
Monitor	Dell P2314T touchscreen monitor, 23 in (58 cm)	099-602
Monitor	Planar PCT2485 touchscreen monitor, 24 in (61 cm). For use with Dell 7050 desktop PC.	099-902
Keyboard	Dell USB Keyboard (KB212-B)	Included with PC. No separate part number.
Mouse	Dell USB three button mouse	Included with PC. No separate part number.
External speaker bar	The bar comes with a clip and Velcro for mounting.	099-615
System backup thumb drive.	The USB thumb drive contains PC-bootable Ghost backup files (736-723-G1)	736-704-G1 (for use with the Dell OptiPlex 9020, 7050); 736-804-G1 (for use with the Dell OptiPlex 7440); PN TBD: Recovery Media for use with Logic AIO PC

Table 5: Panels and connection boxes

Panels, I/O boxes, footswitch, and access point	Details	Part Numbers
Panels		
PaxScan 4336R DRZ+ flat panel detector	Upgrade packages do not include the panel or panel-related components.	92279: V55 panel with I/O control box and cables specified below. 92280: V55 panel only 128208: V2 panel with I/O control box and cables specified below. 83160: Panel with I/O control box and cables specified below.
PaxScan 4336R CsI flat panel detector	Upgrade packages do not include the panel or panel-related components.	83154: Panel with I/O control box and cables specified below.
PaxScan 4343R DRZ+ flat panel detector	Upgrade packages do not include the panel or panel-related components.	92506: V55 panel with power supply and cables specified below. 92507: V55 panel only 128214: V2 panel with power supply and cables specified below. 82207: Panel with power supply and cables specified below.
PaxScan 4343R CsI flat panel detector	Upgrade packages do not include the panel or panel-related components.	122491: V55 panel with power supply and cables specified below.
PaxScan 4336Wv4 DDCsI flat panel detector	Upgrade packages do not include the panel or panel-related components.	122027
PaxScan 4336Wv4 CsI flat panel detector	Upgrade packages do not include the panel or panel-related components.	133832
PaxScan 4336Wv4 DRZ+ flat panel detector	Upgrade packages do not include the panel or panel-related components.	117365

Panels, I/O boxes, footswitch, and access point	Details	Part Numbers
I/O Boxes		
Sound™ UIO-MK2 I/O box	Connects PC and panels to the x-ray generator.	099-620
I/O box for the PaxScan 4336R DRZ+ flat panel detector	Provides power to the panel, connectivity information, and connects the panel to the x-ray generator through the Sound™ UIO-MK2 I/O box.	13422

Table 6: Interconnect cables

Cable	Length	Details	Part number
Display cable	6 ft (1.8 m)	Connects the monitor to the PC.	099-603
Ethernet patch cable	10 ft (3 m)		099-609
PaxScan 4336R panel interface serial cable	25 ft (7.6 m)	Connects the panel I/O box to the Sound Technologies, Inc. I/O box.	099-607
PaxScan 4343R panel interface serial cable	50 ft (15 m)	Connects the panel to the Sound Technologies, Inc. I/O box.	099-608
PaxScan 4336R Ethernet cable	32 ft 9 in (10 m)	Connects the panel I/O box to the PC NIC1 port.	26359
PaxScan 4336R imager cable	22 ft (7m)	Connects the panel to the Imager port on the panel I/O box.	17463
PaxScan 4336R imager cable	3 ft 4 in (1 m)	Alternate cable for connecting the panel to the Imager port on the panel I/O box.	17461
PaxScan 4343R Ethernet cable	59 ft (18 m)	Connects the panel to the PC NIC1 port.	30754

Cable	Length	Details	Part number
Sound™ USB, A to B cable	6 ft (1.8 m)	Connects PC to I/O box. For configurations with 4030E flat panels	099-636
Six outlet power surge strip			099-610
18AWG 4 Conductor speaker cable	40 ft (12 m)	Connects Sound Technologies, Inc. I/O box to the x-ray generator.	099-612

Important: If anti-virus software is desired, it is the site's responsibility to install and maintain it.

Typically, the x-ray system uses the XStick for wireless communication with the Sound Technologies, Inc. I/O box. Alternatively, a USB cable can be used.

System Overview Diagram with PaxScan 4336R Detector

The following diagrams show a high-level overview of the x-ray system with a single PaxScan 4336R flat panel detector.

Figure 1: Single PaxScan 4336R detector with desktop PC

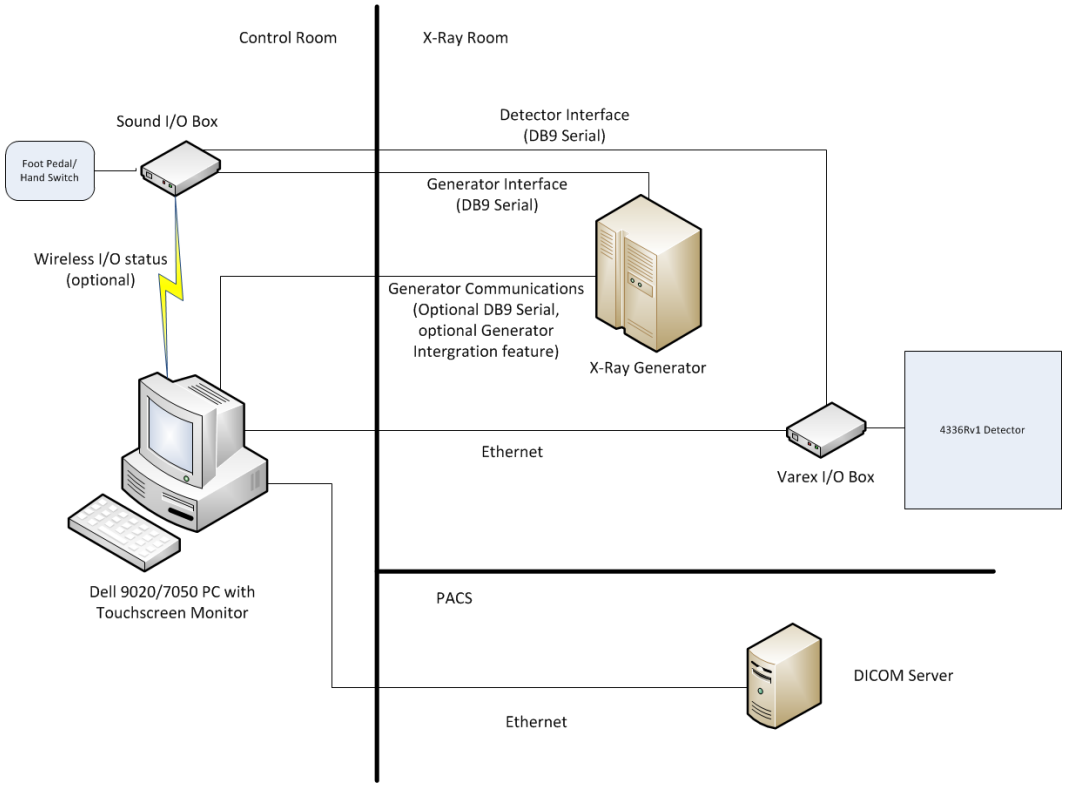


Figure 2: Single PaxScan 4336Rv2 detector with Dell 7440 All-in-One PC

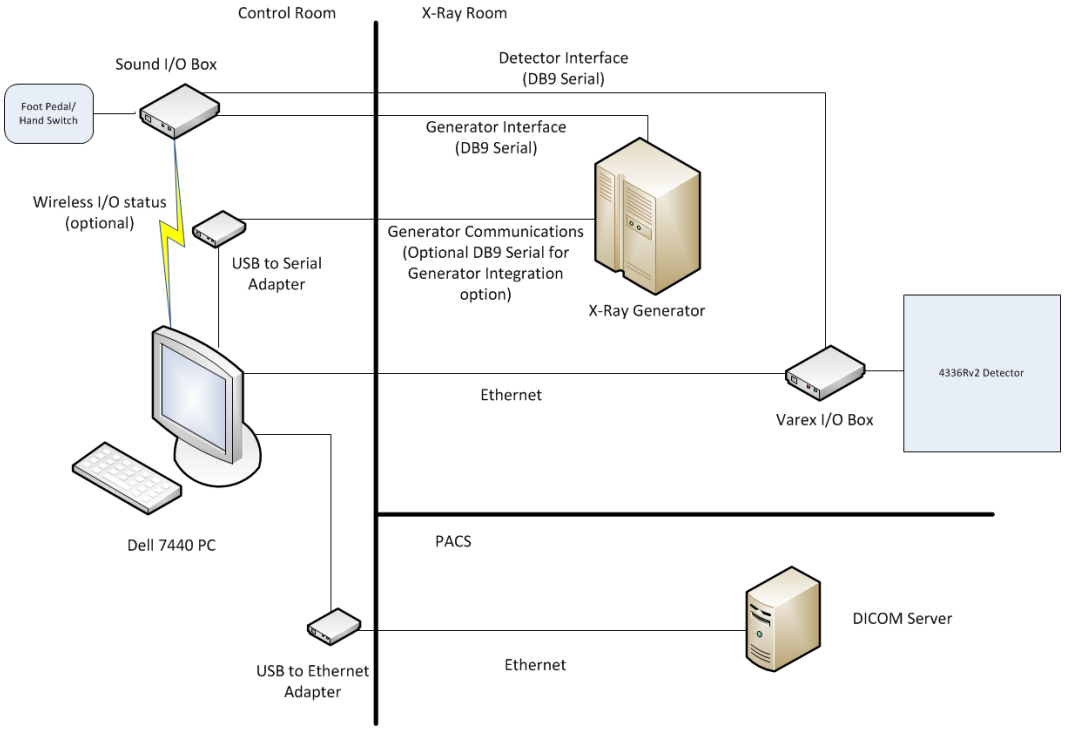


Figure 3: Single PaxScan 4336Rv2 detector configuration with Logic AIO PC

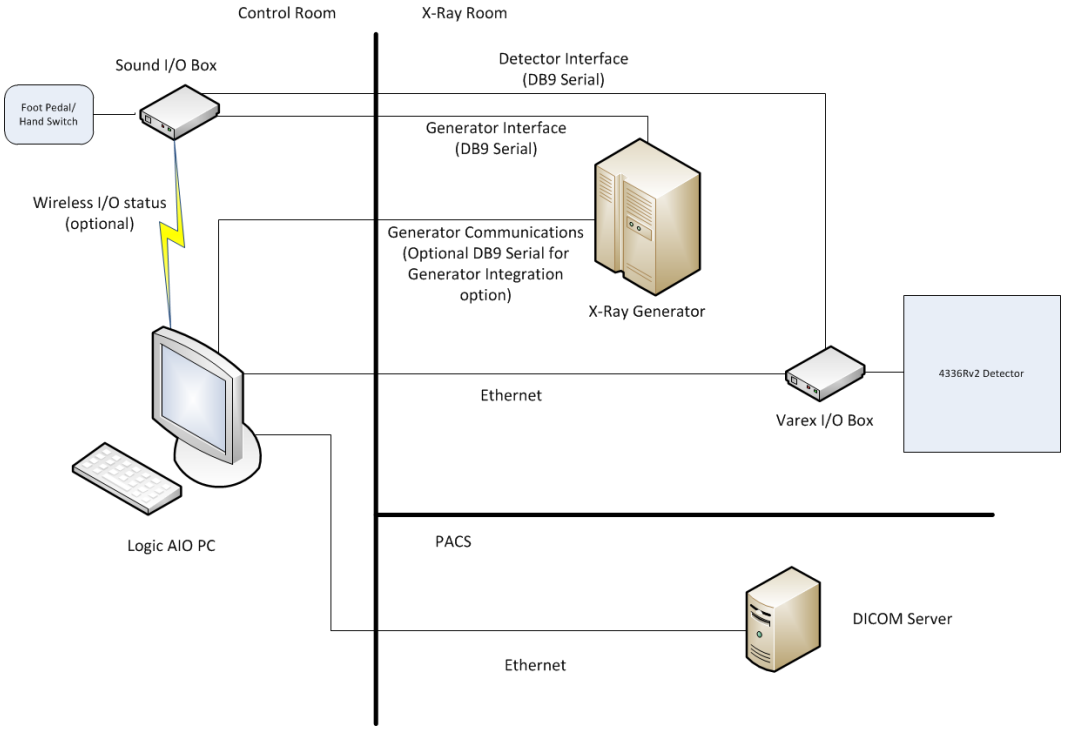
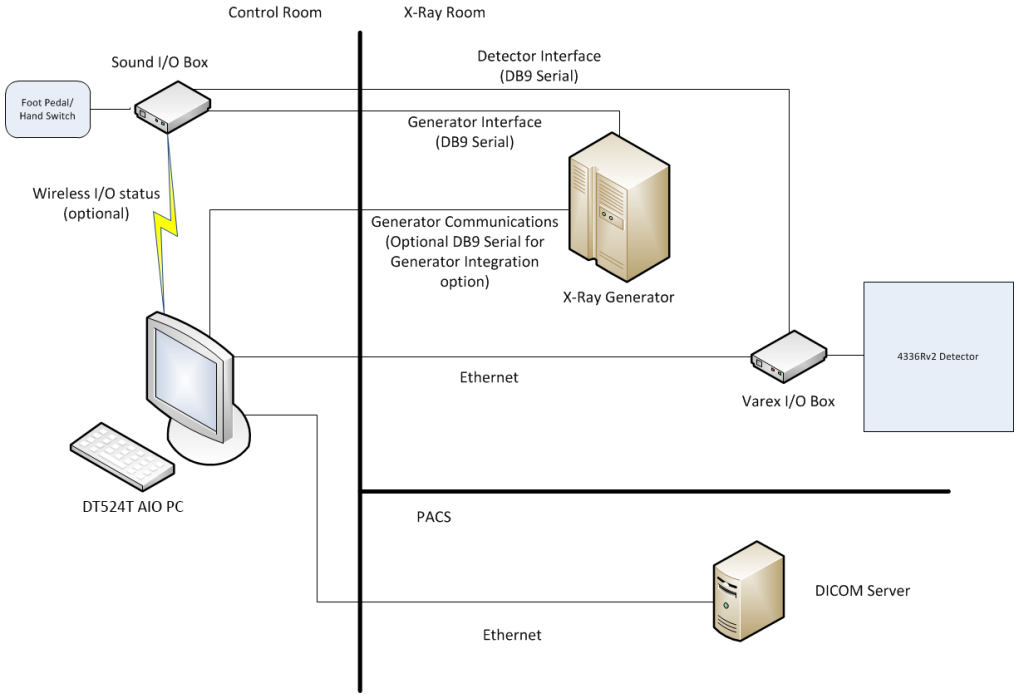


Figure 4: Single PaxScan 4336Rv2 detector configuration with DT524T AIO PC



PaxScan 4336R Detector Technical Specifications

This topic discusses the specifications of the Varex PaxScan 4336R v2 x-ray detector. The detector has an amorphous silicon digital x-ray imager.

This portable x-ray flat panel detector is designed for mobile digital radiographic x-ray systems. It fits 14 x 17 inch standard Bucky trays (36 x 43 cm). The rugged outer shell has a handle. The detector can be used with or without the outer case.

Figure 5: PaxScan 4336R detector

Table 7: PaxScan 4336R v2 detector specifications

Attribute	Description
Manufacturer	Varex Imaging Corporation
Model	PaxScan 4336R v2
Detector technology (array/scintillator)	aSi TFT
Conversion screen	Direct Deposit CsI, Detached CsI, DRZ +
Weight with cables	8.6 lbs (3.9 kg)
Detector size (v x h x d)	18 in x 15 in x 5.9 in (46 cm x 38.4 cm x 15 cm)
Active area (v x h)	16.8 in x 14 in (42.7 cm x 35.6 cm)
Pixel matrix (v x h)	Total: 2560 px x 3072 px; Active: 2540 px x 3052 px
Pixel pitch	139µm
Image size	2540 px x 3052 px
Limiting resolution	3.6 lp/mm
Scan method	Progressive
Data output	Gigabit Ethernet
A/D conversion	14-bit

Attribute	Description
Cycle time (min./stand.)	4 / 5 sec.
Exposure control	Inputs: Prepare, Expose-Request Output: Expose-OK
Environment	Operating: 10°-35°C (50°-95°F), 10-90% RH non-condensing Storage: -20°-70°C (-4°-158°F), 10-90% RH non-condensing
Input voltage	100-240 VAC
Input frequency	50 to 60 Hz
Input current	1.5 A
Power dissipation	Cont.: 30 W; Max: 35 W

System Overview Diagram with PaxScan 4343R Detector

The following diagram shows a high-level overview of the cable connections between the components of a non-integrated x-ray system with a single PaxScan 4343R flat panel detector.

Figure 6: Single PaxScan 4343R panel configuration with desktop PC

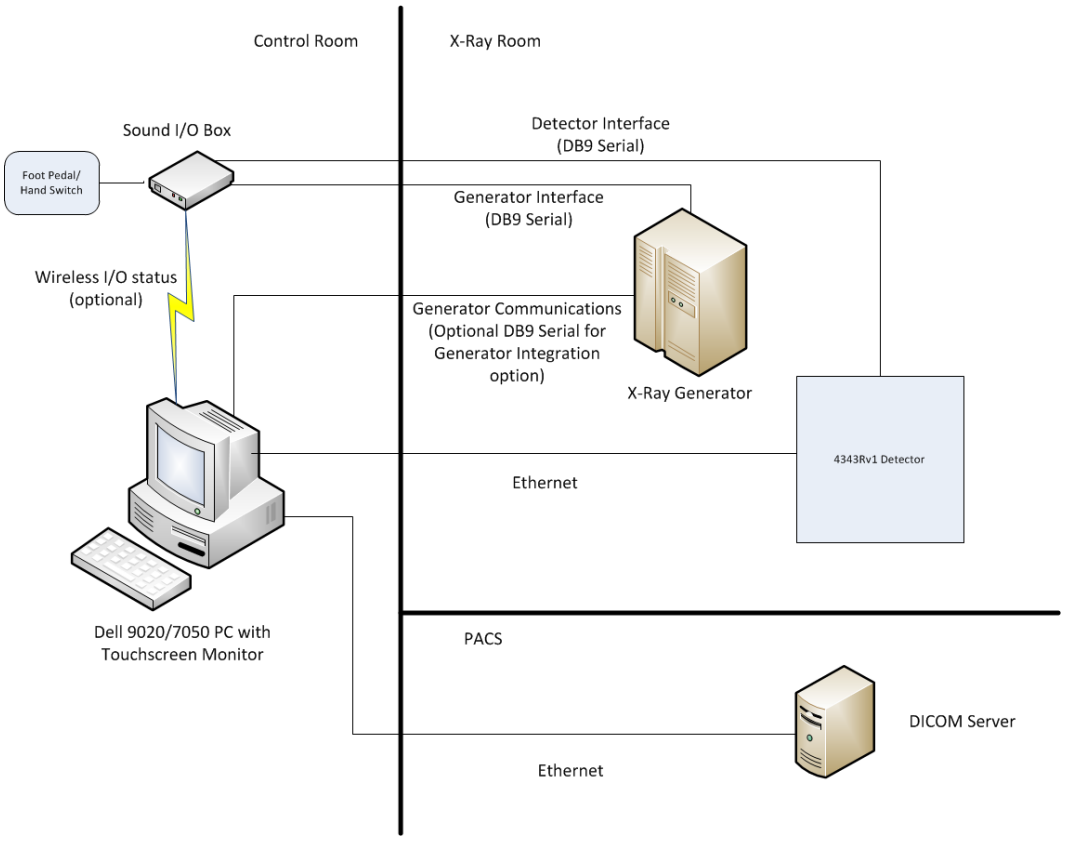


Figure 7: Single PaxScan 4343R panel configuration with Dell 7440 PC

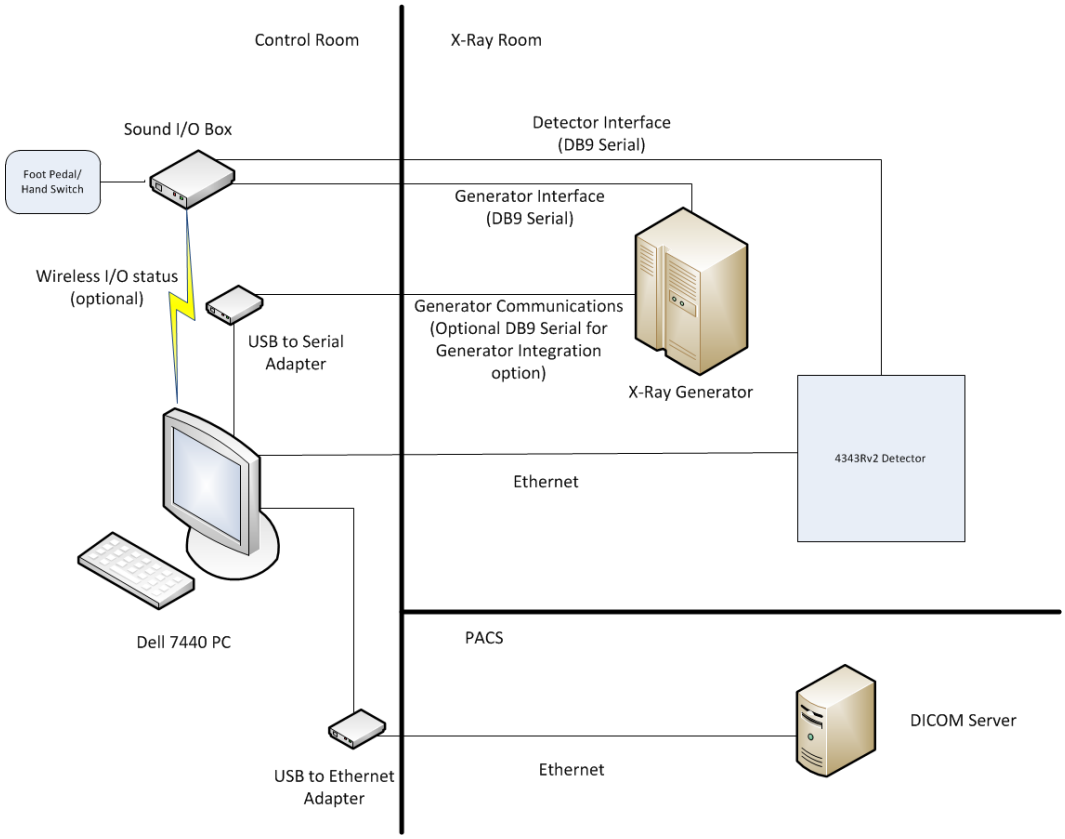


Figure 8: Single PaxScan 4343Rv2 with Logic AIO PC

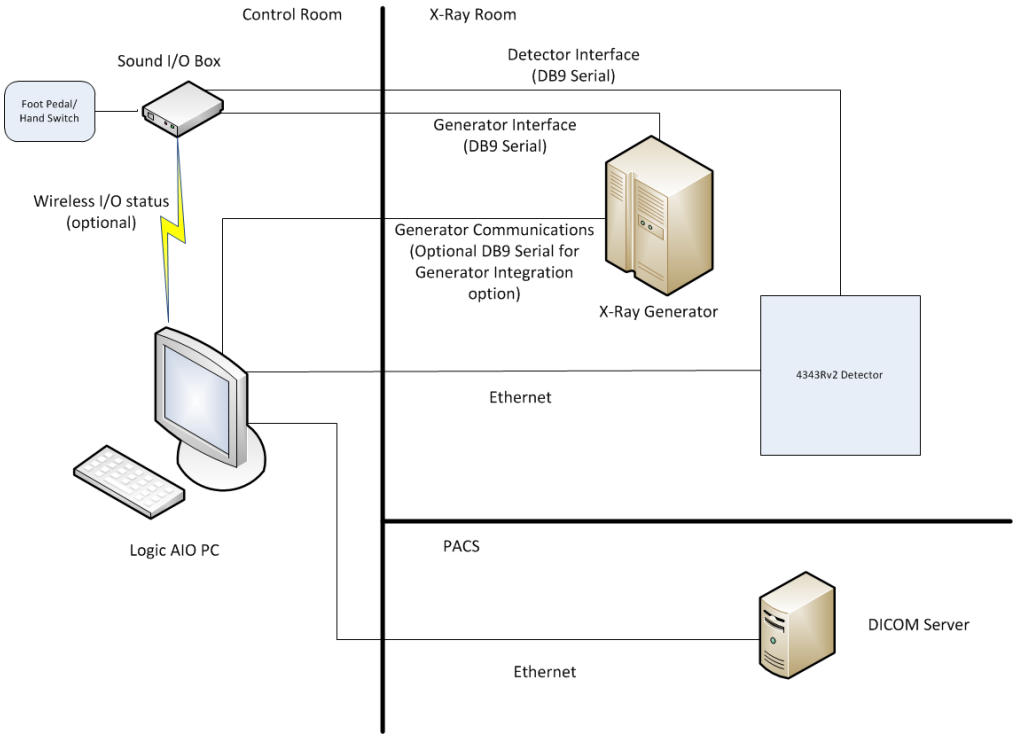


Figure 9: Single PaxScan 4343Rv2 with DT524T AIO PC

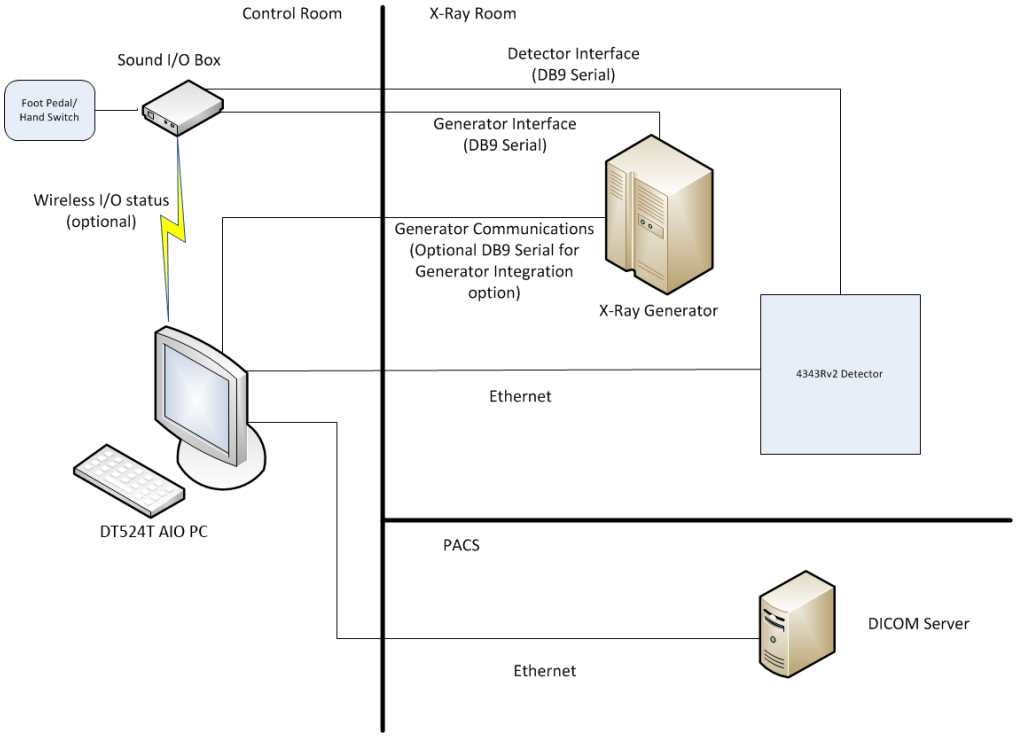


Figure 10: Single PaxScan 4343Rv3 with Logic AIO PC

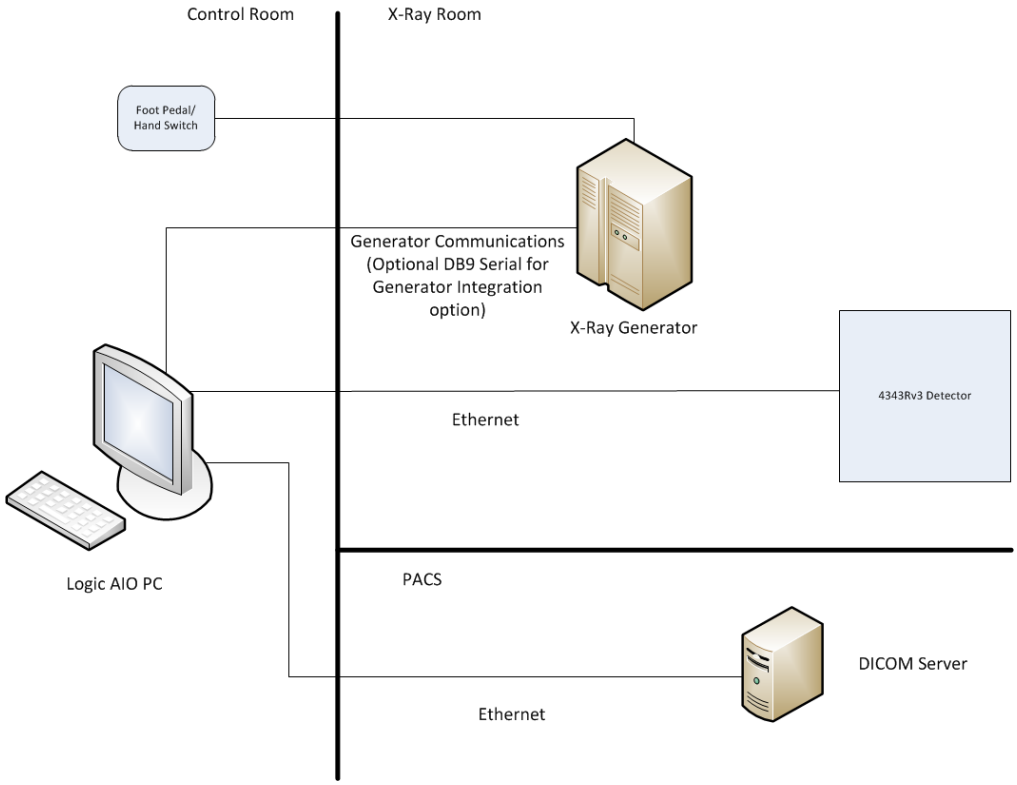


Figure 11: Single PaxScan 4343Rv3 with DT524T AIO PC

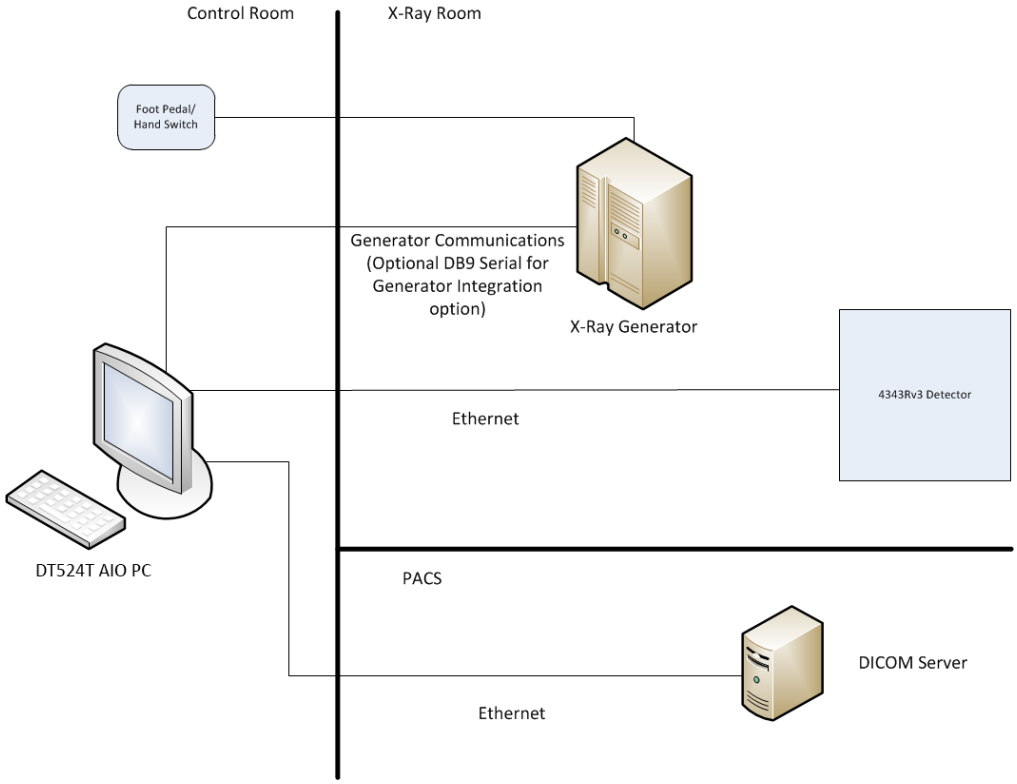


Figure 12: Single PaxScan 4343RC detector with Logic AIO PC

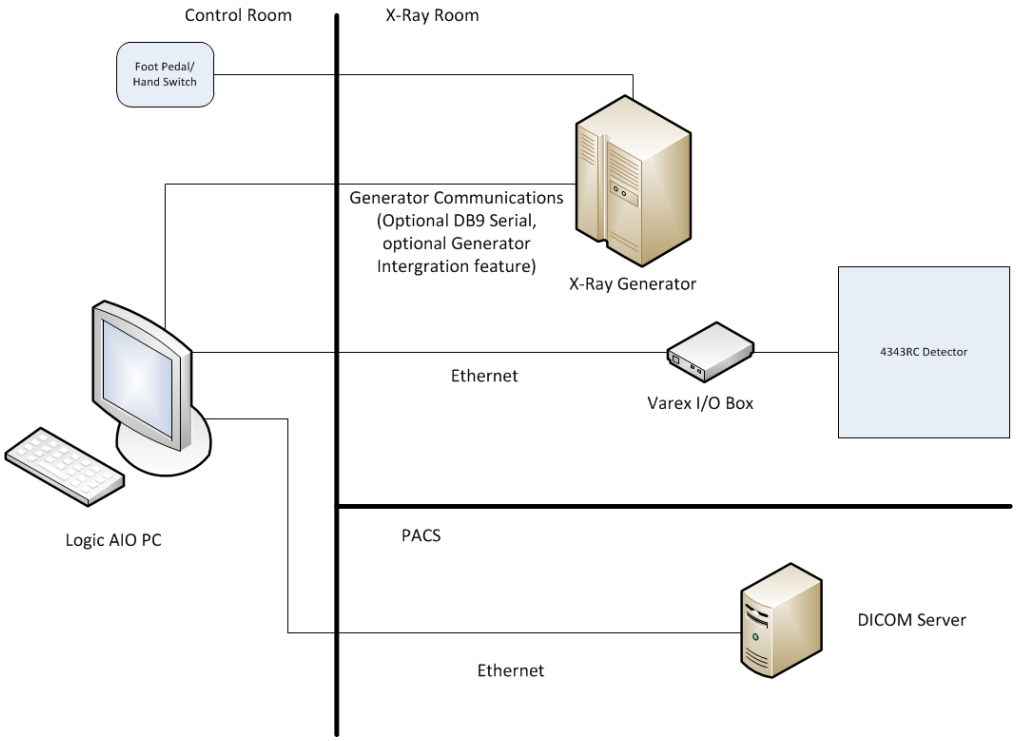
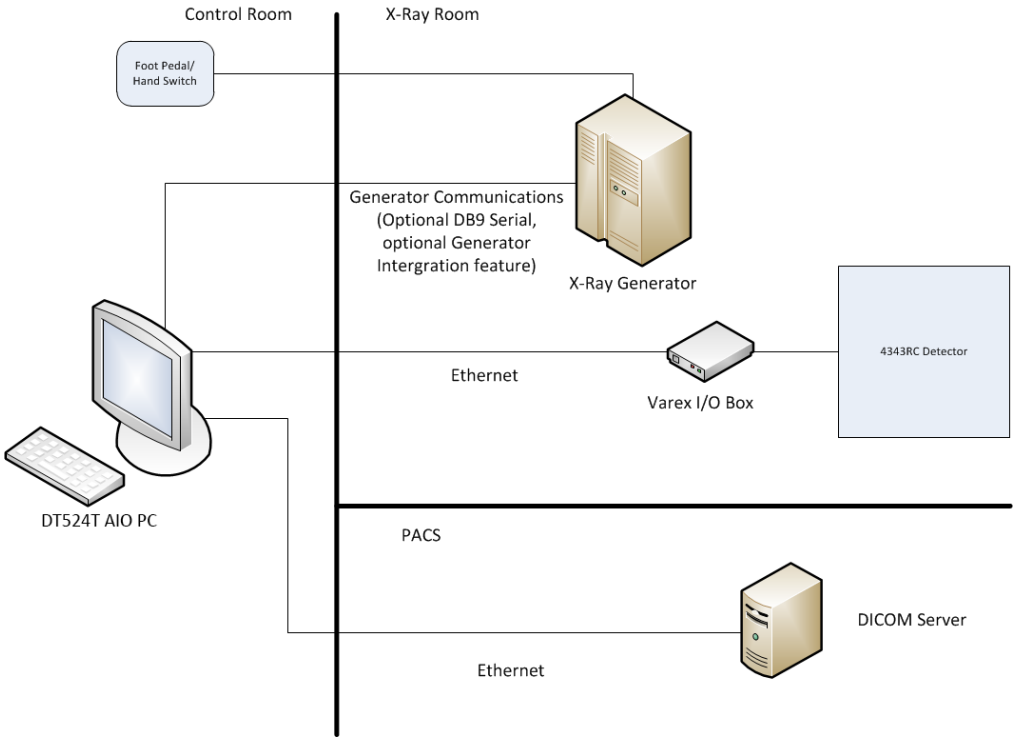


Figure 13: Single PaxScan 4343RC detector with DT524T AIO PC



PaxScan 4343R detector specifications

The following table provides the specifications for the PaxScan 4343R v2 and v3 detector.

Figure 14: PaxScan 4343R detector

Table 8: PaxScan 4343R v2, v3 detector specifications

Attribute	Description
Manufacturer	Varex Imaging Corporation
Model	PaxScan 4343R v2, v3
Receptor type	Amorphous Silicon with PIN technology
Conversion screen	CsI, DRz+
Detector dimensions	18.5 in x 18.5 in x 1.4 in (46.9 cm x 46.9 cm x 3.6 cm)
Weight with cables	DRZ: 13.4 lbs (6.1 kg); CsI: 13.6 lbs (6.2 kg)
Active area (h x v)	16.7 in x 16.7 in (42.4 cm x 42.4 cm)
Pixel area	total: 3072 px x 3072 px; effective: 3052 px x 3052 px
Pixel pitch	139 µm
Limiting resolution	3.6 lp/mm
Cycle time with 550 ms	4.1 sec (RCT)
X-ray window	350 - 4000 ms
Linear dose (maximum)	DRz+:131 µGy; CsI 50 µGy
Noise equivalent dose	DRz+: 324nGy; CsI: 165 nGy
Fill factor	63%
Scan method	Progressive

Attribute	Description
Data output	Gigabit Ethernet
A/D conversion	16-bit
Workstation interface	Ethernet port
Exposure control	Inputs: Expose-Request and Prep; Outputs: Expose-OK
AED:	vTrigger
Power dissipation	14 watts (max)
Power supply/adaptor	9-240 VAC, 47-63 Hz
Temperature range (at back cover)	Operating: 10 deg. C to 40 deg. C (max); Storage: -20deg. C to +70 deg. C
Humidity (non-condensing)	10% to 90%
Regulatory	US: ANSI/AAMI ES 60601-1; Canada: CAN/CSA C22.2 No. 60601-1:08

PaxScan 4343R detector cables

The following cables are supplied for the detector:

External synchronization cable

This connector synchronizes the Sound Technologies, Inc. application with the imager.

The synchronization interface to the detector consists of two inputs and one output, all through opto-couplers. The expected inputs to the detector are PREPARE and EXPOSURE_REQUEST. The output from the detector is EXPOSE_OK, which can be used to trigger the x-ray generator. This active low signal is used to identify when the detector is ready for exposure. The detector currently ignores PREPARE and responds only to EXPOSURE_REQUEST. The exposure delay is defined as the worst case time between EXPOSURE_REQUEST and EXPOSE_OK.

Gigabit Ethernet connection

The Sound Technologies, Inc. host PC communicates with and transfers image data through dedicated Ethernet interface controllers.

Connect the Ethernet connector to a gigabit-capable interface in the host computer.

Ground lug

Chassis ground lug to acceptable ground connection.

Power supply

The detector includes its own UL-approved multi-output power supply.

This component provides all the power required for the detector. The power supply is approved as UL 2601-1 and UL 60950 multi-output supply with self-adjusting 90-264 V AC, 47-63 Hz input mains.

Connect the power supply connector to receptor then plug into the main AC supply.

PaxScan 4343RC detector specifications

The following table provides the specifications for the PaxScan 4343RC detector.

Figure 15: PaxScan 4343RC detector

Table 9: PaxScan 4343RC detector specifications

Attribute	Description
Manufacturer	Varex Imaging Corporation
Model	PaxScan 4343RC
Receptor type	Amorphous Silicon with PIN technology
Conversion screen	CsI, DRz+
Detector dimensions	18.1 in x 18.1 in x 0.6 in (46.0 cm x 46.0 cm x 1.52 cm)
Weight with cables	DRZ: 7.7 lbs (3.5 kg); CsI: 8.3 lbs (3.76kg)
Pixel area (h x v)	total: 16.8 in x 16.8 in (42.7 cm x 42.7 cm); active: 16.7 in x 16.7 in (42.4 cm x 42.4 cm)
Pixel matrix (effective)	3052 px x 3052 px
Pixel pitch	139 µm
Limiting resolution	3.6 lp/mm
Cycle time with 550 ms	3.4 sec
X-ray window	350 - 4000 ms
Linear dose (maximum)	DRz+:132 µGy; CsI 59 µGy
Noise equivalent dose	DRz+: 367 nGy; CsI: 179 nGy
Energy range	40-150 kVp
Fill factor	63%

Attribute	Description
Scan method	Progressive
Data output	Gigabit Ethernet
A/D conversion	16-bit
Workstation interface	Ethernet port
Exposure control	Inputs: Expose-Request and Prep; Outputs: Expose-OK
AED:	vTrigger
Power dissipation	14 watts (max)
Power supply/adaptor	9-240 VAC, 47-63 Hz
Temperature range (at back cover)	Operating: 10 deg. C to 40 deg. C (max); Storage: -20 deg. C to +70 deg. C
Humidity (non-condensing)	10% to 90%
Regulatory	US: ANSI/AAMI ES 60601-1; Canada: CAN/CSA C22.2 No. 60601-1:08

System overview diagram with PaxScan 4336Wv4 detector

The following diagram shows a high-level overview of the system with a PaxScan 4336Wv4 detector.

Figure 16: Single PaxScan 4336Wv4 detector with Dell 7440 PC

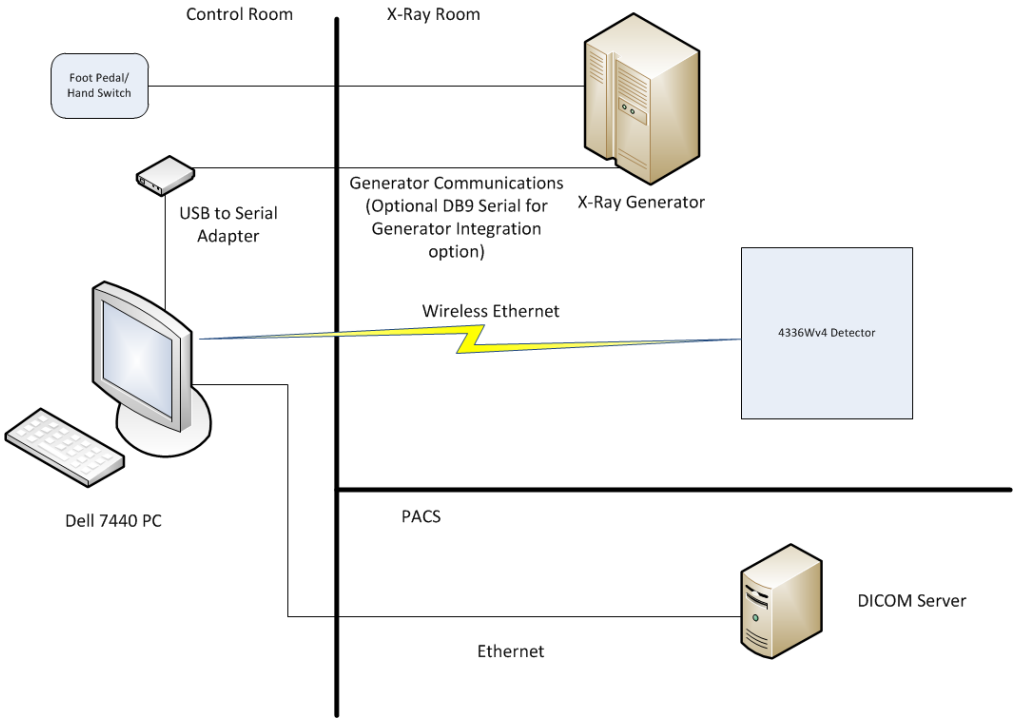


Figure 17: Single PaxScan 4336Wv4 detector with Logic AIO PC

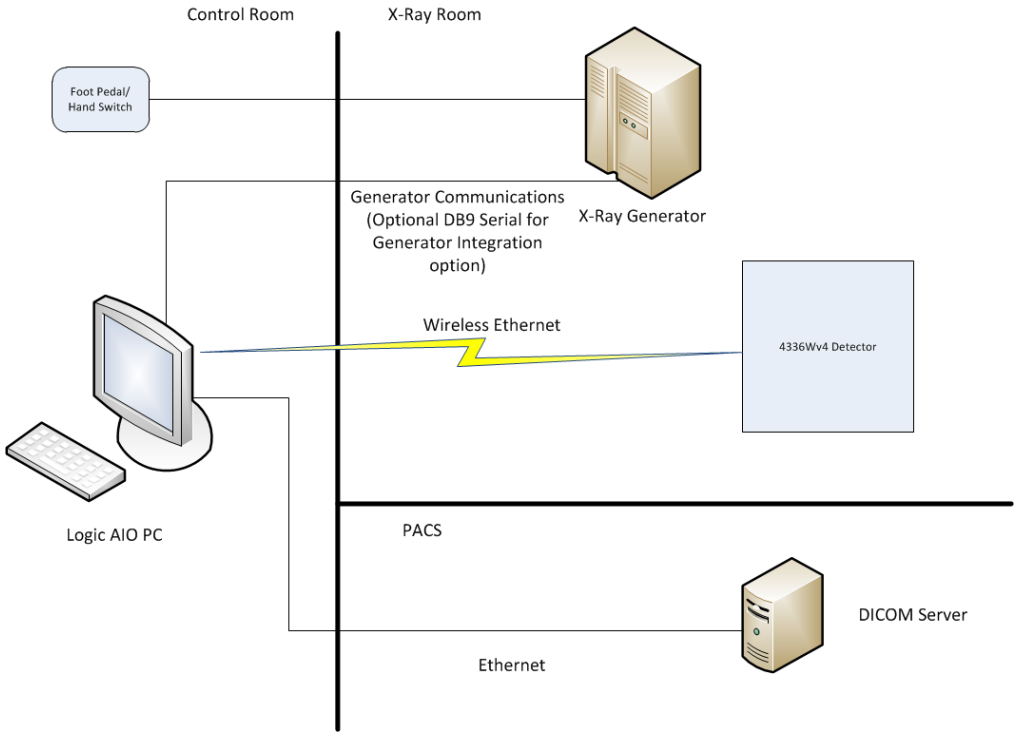
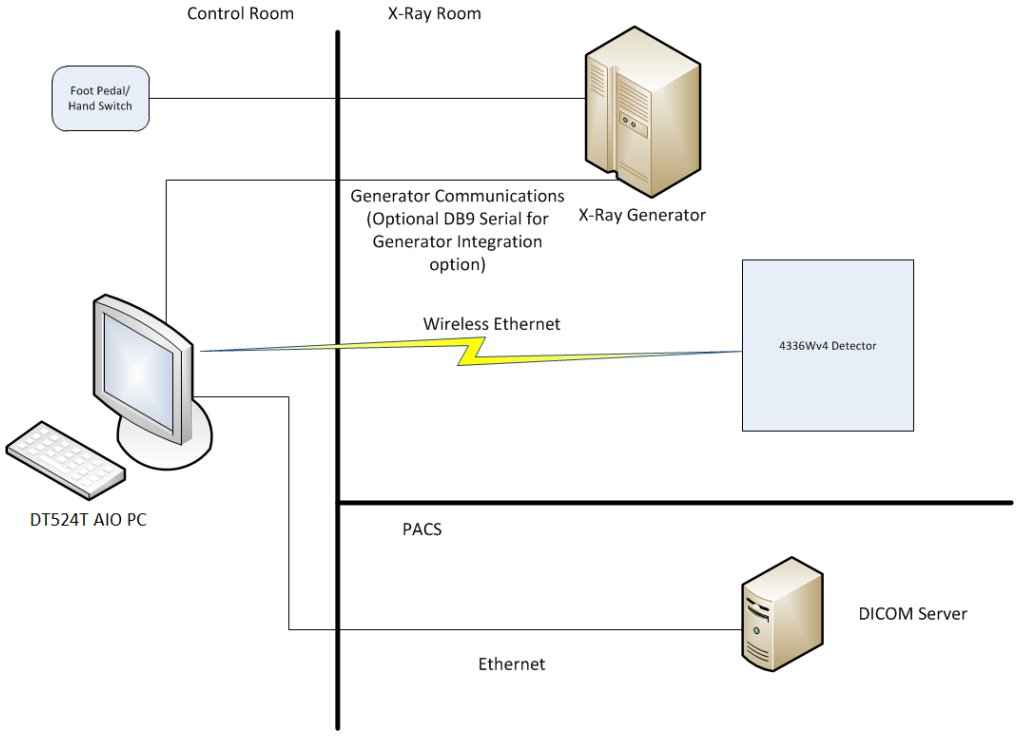


Figure 18: Single PaxScan 4336Wv4 detector with DT524T AIO PC



PaxScan 4336Wv4 detector specifications

Review the specifications for the detector before installing, configuring, or using the detector.

Figure 19: PaxScan 4336Wv4

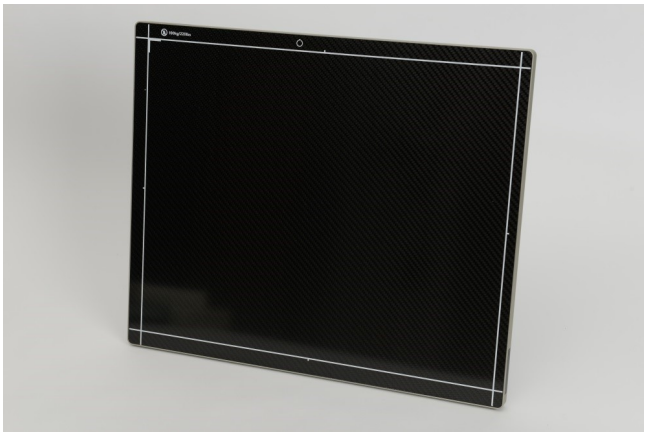


Table 10: Specifications of the PaxScan 4336Wv4 X-ray detector

Characteristics	Specifications
Receptor type	Amorphous silicon with TFT PIN diode technology
Technology (panel converter)	CsI, DRZ+
Detector size	46 x 38 x 1.5 cm (18 x 15 x .6 in)
Detector weight (with battery)	DRZ+: 3.6 kg 7.9 lbs ± 0.25 kg, 0.55 lbs. CsI: 3.8 kg (8.4 lbs.) ± 0.25 kg (0.55 lbs)
Housing material	Aluminum/Magnesium
Sensor protection material	Carbon fiber plate
Weight limit	Uniform load across carbon surface: 150 kg (330 lbs.) Concentrated 40 mm (1.6 in) diameter load at center of imager: 100 kg (220 lbs.)
Active area (h x v)	DRZ+: 42.4 x 34.1 cm (16.7 x 13.4 in) () CsI: 42.4 x 33.9 cm (16.6 x 13.3 in) ()
Pixel matrix (active)	DRZ+ 2456 (h) x 3052 (v) pixels CsI: 2436 (h) x 3032 (v) pixels
Pixel pitch	139 µm
Limiting resolution	3.6 lp/mm
Cycle time @ 550 ms	7 sec (MSR2, RCT)

Characteristics	Specifications
X-ray window	350 – 3500 ms
Dose range — Maximum linear dose	DRZ+: 100 µGy CsI: 69 µGy
Dose range— NED	DRZ+: 0.65 µGy () CsI: 0.4 µGy
Fill factor	60%
Scan method	Progressive
Data output	Wireless
A/D conversion	16 bits
Exposure control	Inputs: Prepare, Expose-Request Outputs: Expose-OK
Minimum signal strength required	->80 dBm (or no image acquired)
Wireless	802.11 a/b/g/n/ac 2 x 2 MIMO Wireless modes: STA or AP

Table 11: PaxScan 4336Wv4 power specifications

Characteristics	Specifications
Power, energy rating	Standard, 40 – 150kVp
Power consumption	Idle: 3.3 Watts Acquisition: 7.8 Watts Image Transfer: 10.2 Watts

Table 12: PaxScan 4336Wv4 power specifications

Characteristics	Specifications
Battery charge capability	1000 images over 6 hrs
Battery life (expected)	300 cycles of charge/discharge
Battery weight	0.66 lbs; 0.3 kg

Table 13: RF Power Output (PS4336Wv4, 802.11a mode)

Operating Ch.	e.i.r.p. Limit (dBm)	Ch0 (dBm)	Ch1 (dBm)	Max Power (dBm)	e.i.r.p. Power (dBm)	Margin (dBm)
802.11a mode for module						
5180.00	22.48	16.96	15.78	17.06	19.96	2.52
5200.00	22.48	16.27	15.64	17.06	19.27	3.21
5240.00	22.48	17.06	15.48	17.06	20.06	2.42
802.11a mode for module inside receptor						
5180.00	22.48	16.07	15.78	16.07	19.07	3.41
5200.00	22.48	16.27	15.64	16.27	19.27	3.21
5240.00	22.48	16.20	15.48	16.20	19.20	3.28

Conditions:

- Antenna type: Patch
- Max. Direction Gain: +3 dBi (5.2 GHz)
- Beam Forming Gain: +6 dBi (5.2 GHz)
- Signal state: Modulated at 100%
- Ambient temperature: 24 degrees C
- Relative humidity: 39%

Notes:

1. Highest output power observed at 802.11a mode, 6.0 Mbps, 1 data stream.
2. The measured emission bandwidth for 802.11a is 17.71 MHz. The calculated output power limit is 22.48 dBm.
3. The power levels at Ch0 were adjusted to SAR valuation when module installed inside the PS4336Wv4.

Table 14: RF Power Output (PS4336Wv4. 802.11n mode)

Operating Ch	e.i.r.p. Limit (dBm)	Ch0 (dBm)	Ch1 (dBm)	Max Power (dBm)	e.i.r.p. Power (dBm)	Margin (dBm)
802.11n mode for module						
5180.00	22.69	16.93	15.81	16.93	19.93	2.76
5200.00	22.69	17.40	15.55	17.40	20.40	2.29
5240.00	22.69	17.51	15.97	17.51	20.51	2.18
802.11n mode for module inside receptor						
5180.00	22.69	16.18	15.81	16.18	19.18	3.51
5200.00	22.69	16.32	15.55	16.32	19.32	3.37

Operating Ch	e.i.r.p. Limit (dBm)	Ch0 (dBm)	Ch1 (dBm)	Max Power (dBm)	e.i.r.p. Power (dBm)	Margin (dBm)
5240.00	22.69	16.28	15.97	16.28	19.28	3.41

Conditions:

- Antenna type: Patch
- Max. Direction Gain: +3 dBi (5.2 GHz)
- Beam Forming Gain: +6 dBi (5.2 GHz)
- Signal state: Modulated at 100%
- Ambient temperature: 24 degrees C
- Relative humidity: 39%

Notes:

1. Highest output power observed at HT20 MCSO, 1 data stream.
2. The measured emission bandwidth for 802.11n HT20 MCSO is 18.59 MHz. The calculated output power limit is 22.69 dBm.
3. The power levels at Ch0 were adjusted to SAR valuation when module installed inside the PS4336Wv4.

Table 15: RF Power Output (PS4336Wv4, 802.11n 2x2 mode)

Operating Ch	e.i.r.p. Limit (dBm)	Ch0 (dBm)	Ch1 (dBm)	Max Power (dBm)	e.i.r.p. Power (dBm)	Margin (dBm)
5180.00	22.53	11.33	10.31	13.86	19.86	2.67
5200.00	22.53	11.58	10.63	14.14	20.14	2.39
5240.00	22.53	11.68	10.75	14.23	20.23	2.30

Conditions:

- Antenna type: Patch
- Max. Direction Gain: +3 dBi (5.2 GHz)
- Beam Forming Gain: +6 dBi (5.2 GHz)
- Signal state: Modulated at 100%
- Ambient temperature: 24 degrees C
- Relative humidity: 39%

Notes:

1. Highest output power observed at HT20 MCSO, 2 data streams.
2. The measured emission bandwidth for 802.11n HT20 MCSO is 17.91 MHz. The calculated output power limit is 22.53 dBm.
3. Beam forming antenna gain is less than 6dBi; therefore no adjustment to power limit.

Table 16: RF Power Output (PS4336Wv4, 802.11ac mode)

Operating Ch	e.i.r.p. Limit (dBm)	Ch0 (dBm)	Ch1 (dBm)	Max Power (dBm)	e.i.r.p. Power (dBm)	Margin (dBm)
802.11ac mode for module						
5180.00	22.74	17.19	16.09	17.19	20.19	2.55
5200.00	22.74	17.81	15.73	17.81	20.81	1.93
5240.00	22.74	17.19	16.43	17.19	20.19	2.55
802.11ac mode for module inside receptor						
5180.00	22.74	16.21	16.09	16.21	19.21	3.53
5200.00	22.74	16.42	15.73	16.42	19.42	3.32
5240.00	22.74	16.18	16.43	16.43	19.43	3.31

Conditions:

- Antenna type: Patch
- Max. Direction Gain: +3 dBi (5.2 GHz)
- Beam Forming Gain: +6 dBi (5.2 GHz)
- Signal state: Modulated at 100%
- Ambient temperature: 24 degrees C
- Relative humidity: 39%

Notes:

1. Highest output power observed at VHT20 Nss2 MCSO, 1 data stream.
2. The measured emission bandwidth for 802.11ac VHT20 Nss2 MCSO, is 17.92 MHz. The calculated output power limit is 22.53 dBm.
3. The power levels at Ch0 were adjusted to SAR valuation when module installed inside the PS4336Wv4.

Table 17: RF Power Output (PS4336Wv4, 802.11ac 2x2 mode)

Operating Ch	e.i.r.p. Limit (dBm)	Ch0 (dBm)	Ch1 (dBm)	Max Power (dBm)	e.i.r.p. Power (dBm)	Margin (dBm)
5180.00	22.53	11.87	10.47	14.24	20.24	2.29
5200.00	22.53	12.07	10.50	14.37	20.37	2.16
5240.00	22.53	11.74	11.38	14.57	20.57	1.96

Conditions:

- Antenna type: Patch
- Max. Direction Gain: +3 dBi (5.2 GHz)
- Beam Forming Gain: +6 dBi (5.2 GHz)

- Signal state: Modulated at 100%
- Ambient temperature: 24 degrees C
- Relative humidity: 39%

Notes:

1. Highest output power observed at VHT20 Nss2 MCSO, 2 data streams.
2. The measured emission bandwidth for 802.11ac VHT20 Nss2 MCSO, is 17.92 MHz. The calculated output power limit is 22.53 dBm.
3. Beam forming antenna gain is less than 6dBi; therefore no adjustment to power limit.

Regulatory compliances

The following regulatory compliances also apply:

- US: UL 60601-1
- Canada: CSA 22.2 No. 601.1-M90
- Electromagnetic Capability: IEC60601-1.2

Dell OptiPlex 9020 Desktop PC

The Dell OptiPlex 9020 Small Form Factor (SFF) is desktop PC. Use with the Dell P2314T touchscreen monitor. For use in systems employing the PaxScan 4336R and, 4343R detector panels.

The PC contains the following components:

- Intel i5-3550S 3.00GHz CPU
- 8GB RAM
- 250 GB HD
- 4 USB 3.0 ports (2 rear, 2 front)
- 6 USB 2.0 ports (4 rear, 2 front)
- 2 DisplayPort connectors, 1 VGA connector
- power cord

Figure 20: Dell OptiPlex 9020 desktop PC

A wired keyboard and mouse are included with the PC. The use of the physical keyboard and mouse is optional. The computer displays an on-screen keyboard whenever you open a screen where text can be entered, or when you touch an area of the screen where text can be entered. Use with the Dell P2314T touchscreen monitor.

The following technical specifications apply.

Table 18: Specifications: Dell OptiPlex 9020 desktop PC

Parameter	Value
Processor	Intel Core i5-3550S
Memory type	DDR3
Memory capacity	8 GB
Video controller (integrated)	Integrated Intel HD graphics
Video memory	shared memory
Network adapter	Intel 10/100/1000 Mbps RJ-45 Ethernet
Serial port	9-pin connect; 16550 C compatible
Hard drive	250 GB SATA drive
DVD drive	slim optical drive bay
USB 2.0 ports	2 front, 4 rear
USB 3.0 ports	2 front, 2 rear
Video port	2 20-pin DisplayPort connectors, one 15-pin VGA connector
Power Supply	255 Watt
Frequency	50 Hz - 60 Hz
Voltage	100 VAC - 240 VAC
Input current	4.6 A
Dimensions	3.66 in (w) x 11.42 in. (h) x 12.28 in. (d); 93 mm (w) x 290 mm (h) x 312 mm (d)
Weight	13.22 lbs (6 kgs)
Operating temperature	41 degrees F to 95 degrees F (5 degrees C to 35 degrees C)
Storage temperature	-40 degrees F to 149 degrees F (-40 degrees C to 65 degrees C)
Humidity (operating, max.)	20% to 80% (non-condensing)
Humidity (storage, max.)	5% to 95% (non-condensing)

Points of Connection

The follow figure shows the ports on the Dell 9020 PC. You will use these ports to connect the PC to the Sound SMART DR™ system.

Figure 21: Dell 9020 Desktop, Points of Connection

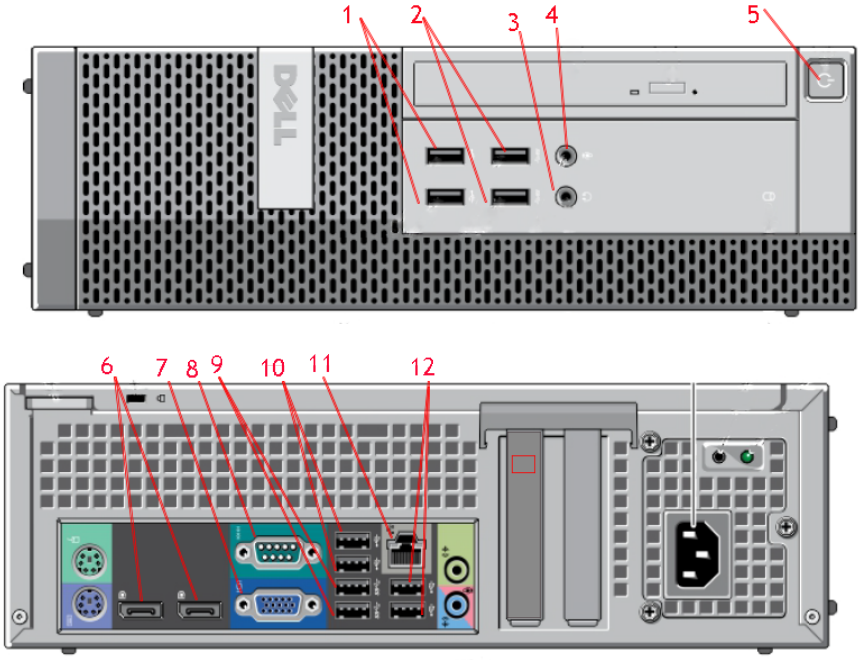


Table 19: Dell 9020 Desktop, Points of Connection

Item	Description
1	USB 2.0 connectors
2	USB 3.0 connectors
3	Microphone connector
4	Headphone connector
5	Power button
6	DisplayPort connectors (2)
7	VGA connector
8	Serial connector
9	USB 3.0 connectors (2)
10	USB 2.0 connectors (2)
11	Network/LAN connection
12	USB 2.0 connectors (2)

Dell OptiPlex 7050 Desktop PC

The Dell OptiPlex 7050 Small Form Factor (SFF) is a desktop PC. Use with the Dell P2314T touchscreen monitor. For use in systems employing the PaxScan 4336Rv1 and 4343Rv1 detectors.

The PC contains the following components:

- Intel i5-7500 processor
- 8GB 2400MHz DDR4 memory
- 500 GB HD
- 6 USB 3.1 ports (2 rear, 4 front)
- 4 USB 2.0 ports (2 rear, 2 front)
- 2 DisplayPort connectors, 1 serial connector, 1 HDMI port
- power cord

Figure 22: Dell OptiPlex 7050 desktop PC

A wired keyboard and mouse are included with the PC. The use of the physical keyboard and mouse is optional. The computer displays an on-screen keyboard whenever you open a screen where text can be entered, or when you touch an area of the screen where text can be entered. Use with the Dell P2314T touchscreen monitor.

The following technical specifications apply.

Table 20: Specifications: Dell OptiPlex 7050 desktop PC

Parameter	Value
Processor	Intel Core i5-7050
Memory type	DDR4
Memory capacity	8 GB
Video controller (integrated)	CPU-GPU combination
Network adapter	Intel i219 Gigabit Ethernet LAN 10/100/1000
Serial port	9-pin connect; 16550 C compatible
Hard drive	500GB SATA drive
DVD drive	slim optical drive bay
USB 2.0 ports	2 front, 2 rear
USB 3.1 ports	4 front, 2 rear
Video ports	2 20-pin DisplayPort connectors, 1 HDMI
Power Supply	180 Watt
Frequency	47 Hz - 63 Hz
Voltage	90 VAC - 264 VAC
Input current	3 A / 1.5 A
Dimensions	3.65 in (w) x 11.42 in. (h) x 11.50 in. (d); 93 mm (w) x 290 mm (h) x 292 mm (d)
Weight	11.42 lbs (5.14 kgs)
Operating temperature	32 degrees F to 95 degrees F (0 degrees C to 35 degrees C)
Storage temperature	-40 degrees F to 149 degrees F (-40 degrees C to 65 degrees C)
Humidity (operating, max.)	10% to 90% (non-condensing)
Humidity (storage, max.)	5% to 95% (non-condensing)

Points of Connection

The follow figure shows the ports on the Dell 7050 PC. You will use these ports to connect the PC to the Sound SMART DR™ system.

Figure 23: Dell 7050 Desktop, Points of Connection

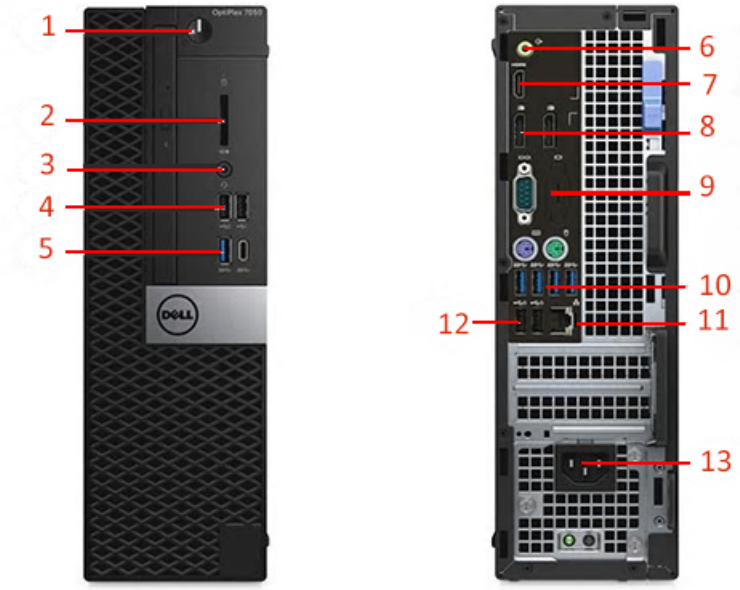


Table 21: Dell 7050 Desktop, Points of Connection

Item	Description
1	Power button
2	SD Media Cart slot
3	Universal audio jack
4	USB 2.0 ports
5	USB 3.1 ports
6	Line out
7	HDMI port
8	DisplayPort connectors
9	Accessory port
10	USB 3.1 ports
11	Network/LAN connection
12	USB 2.0 ports
13	Power supply connection

Dell OptiPlex 7440 All-in-One PC

The Dell OptiPlex 7440 is 24-inch all-in-one PC with a touchscreen interface. Use the Dell 7440 AIO in systems employing the PaxScan 4336Wv4 panel.

The PC contains the following components:

- Intel i5-6500 Processor
- 3.2 GHz CPU
- 8GB RAM
- 500 GB HD
- 6 USB 3.0 ports (2 side, 4 rear)
- 2 USB 2.0 ports (rear)
- 1 HDMI 1.4 (in/out_ port
- 1 DisplayPort 1.2
- Intel Dual Band Wireless 8260 (802.11ac) + Bluetooth
- power cord

Figure 24: Dell OptiPlex 7440 touchscreen PC with optional mouse and keyboard

A wireless keyboard and mouse are included with the PC. The use of the physical keyboard and mouse is optional. The computer displays an on-screen keyboard whenever you open a screen where text can be entered, or when you touch an area of the screen where text can be entered.

The following technical specifications apply.

Table 22: Specifications: Dell OptiPlex 7440 All-in-One PC

Parameter	Value
Processor	Intel Core i5-6500
Chipset	Intel Q170

Parameter	Value
Memory type	unbuffered non-ECC, dual-channel DDR4 2213 configuration
Memory capacity	8 GB
Video controller (integrated)	Integrated Intel HD graphics (Gen 9 Gfx), 2 GB GDDR5 for dGPU
Video memory	shared memory
External display	Display port, HDMI in and HDMI out
Network adapter	Intel 10/100/1000 Mbps RJ-45 Ethernet
Wireless	Intel dual band wireless 8260 (802.11ac) + Bluetooth
Display type	23.8 in., FHD and UHD (4K0
Maximum resolution	3840 x 2160
Refresh rate	60 Hz
Operating angle	178 horizontal/178 vertical
Pixel pitch	0.2475 mm
Hard drive	2.5 in. SATA drive
DVD drive	8X Slimline DVD +/-RW
USB 2.0 ports	2 rear
USB 3.0 ports	2 side, 4 rear
USB port with PowerShare	1 side USB 3.0
Video port	one display port
HDMI port	one 19-pin input port/one 19-pin output port
Media card reader	one 4-in-1 slot
Power Supply	155 Watt for UMA, 200 Watt dGPU and UHD (4K)
Frequency	47 Hz - 63 Hz
Voltage	90 VAC - 264 VAC
Input current	2.6 A max. (low AC range); 1.3 A max. (high AC range)
Camera - image resolution	2.0 megapixel
Camera - video resolution	FHD (1080 p)
Stand	Tilt: -5 degrees to 30 degrees

Parameter	Value
Dimensions	22.65 in (w) x 15.47 in. (h) x 2.47 in. (d); 575. 24 mm (w) x 392.90 mm (h) x 62.79 mm (d)
Weight with stand	24.25 lbs (11 kgs)
Operating temperature	32 degrees F to 95 degrees F (0 degrees C to 35 degrees C)
Storage temperature	-40 degrees F to 149 degrees F (-40 degrees C to 65 degrees C)
Humidity (operating, max.)	20% to 80% (non-condensing)
Humidity (storage, max.)	20% to 80% (non-condensing)

Ports

The follow figure shows the ports on the Dell 7440 All-in-One PC. You will use these ports to connect the PC to the Sound SMART DR™ system.

Figure 25: Dell 7440 AIO, Points of Connection

Table 23: Dell 7440 AIO, Points of Connection

Item	Description
1	Memory card reader
2	USB 3.0 connector
3	USB 3.0 connector with PowerShare
4	Headset connector
5	DisplayPort connector
6	HDMI out connector

Item	Description
7	USB 3.0 connectors (4)
8	HDMI in connector
9	USB 2.0 connectors (2)
10	Network connection
11	Input power connection

Logic All-in-One (AIO) PC

The Logic All-in-One is a 21.5-inch touch panel PC. For use in systems employing the PaxScan 4336Wv4, 4336Rv2, 4343Rv2, 4343Rv3, and 4343RC detectors.

The PC contains the following components:

- Intel Core i5-6300U processor
- 8GB DDR4 memory
- 500 GB HD
- 4 USB 3.0 ports
- 1 USB 2.0 port
- 1 VGA port, 1 DVI-D port, 2 GbE LAN ports, 6 COM ports
- power supply

Figure 26: Logic All-in-One PC

The Logic AIO comes with an integrated touchscreen monitor. The computer displays an on-screen keyboard whenever you open a screen where text can be entered, or when you touch an area of the screen where text can be entered.

The following technical specifications apply.

Table 24: Specifications: Logic AIO PC

Parameter	Value
Display type	LCD
Display size	21.5" (16:9)
Brightness (cd/m2)	300
Contrast ratio	5000:1
LCD colors	16.7M
Pixel pitch (mm)	0.24825 (h) x 024825 (v)
Viewing angle (h/v)	178/178

Parameter	Value
Backlight MTBF	50,000 hrs (LED backlight)
Processor	Intel Core i5-6300U
Memory type	DDR4
Memory capacity	8 GB
Graphics	Intel HD Graphics 520
Network adapter	Intel i219 Gigabit Ethernet LAN 10/100/1000
Hard drive	512GB SATA drive
DVD drive	slim optical drive bay
USB 2.0 ports	1
USB 3.0 ports	4
Video ports	2 20-pin DisplayPort connectors, 1 HDMI
Input Voltage	9~48VDC
Dimensions	21.65 in (w) x 13.01 in. (h) x 3.48 in. (d); 550 mm (w) x 330.5 mm (h) x 88.5 mm (d)
Weight	18.7 lbs (8.48 kgs)
Operating temperature	32 degrees F to 140 degrees F (0 degrees C to 60 degrees C)
Storage temperature	-4 degrees F to 140 degrees F (-20 degrees C to 60 degrees C)
Humidity	20% to 80% (non-condensing)

Points of Connection

The follow figure shows the ports on the Logic AIO PC. You will use these ports to connect the PC to the Sound SMART DR™ system.

Figure 27: Logic AIO PC, Points of Connection

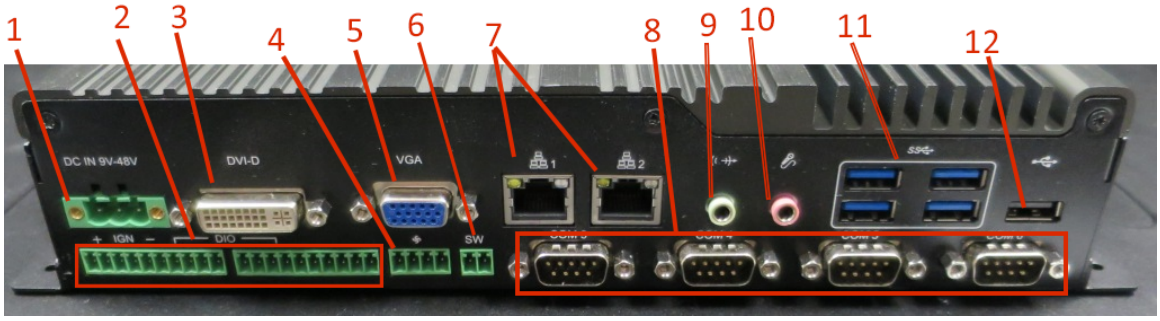


Table 25: Logic AIO PC, Points of Connection

Item	Description
1	DC input
2	Digital I/O terminal block
3	DVI-D port. Used to connect to a monitor with digital signal interface.
4	Fan power terminal block
5	VGA port
6	Connection to remote power on/off switch
7	LAN 1, LAN 2
8	COM ports for connection to serial devices
9	Line-out for connection to external speakers
10	Connection to microphone
11	USB 3.0 ports
12	USB 2.0 port

DT524T All-in-One PC

The 524T medical grade all-in-one system integrates a 24-inch TFT-LCD with an energy efficient Intel® Core™ i platform in a fanless, slim, bacteria-resistant enclosure. Designed for medical and healthcare applications, this LCD-integrated system provides space-saving solutions for health professionals to monitor, record and retrieve patient information as well as other point-of-care applications. The built-in Wi-Fi and Bluetooth connections also make data access efficient and optimizes staff workflow.

Features

Figure 28: DT524T All-In-One PC Front Without Stand

Figure 29: DT524T All-In-One Back With Stand

The DT524T All-in-One PC has the following features:

- 24in capacitive touch screen
- Intel® 7th Generation Core™ i5 processor
- Microsoft® Windows® 10 IoT enterprise or Ubuntu operating system
- Slim, all-in-one, fanless design
- Optional integrated UPS battery
- IP65-rated front panel with IPX2-rated enclosure
- VESA-mountable for flexibility in mounting and placement

Specifications

Table 26: DT524T system specifications

Components	Specifications
CPU	Intel® Core™ i5-7500T, 2.7GHz (up to 3.3GHz)
RAM	8GB to 16GB
Storage	256GB to 512GB Flash
Operating System	Microsoft® Windows® 10 IoT Enterprise or Ubuntu

Components	Specifications
Display	23.6in/59.9cm capacitive touch screen
Display Resolution	1920 x 1080 (Full-HD)
Battery Pack	Optional integrated UPS battery x 1
Bluetooth	Bluetooth 4.2 LE
Network Interface	WLAN: Wi-Fi 802.11ac, 2.4GHz/ 5GHz dual band Bluetooth: 4.2 LE

Figure 30: DT524T AIO ports and buttons

Table 27: DT524T I/O ports specifications

Port	Specification
USB 2.0	2 (ESD protection: ±18KV by air, ±12KV by contact)
USB 3.0	4 (ESD protection: ±17KV by air, ±12KV by contact)
COM Port	3
Audio-out	1
HDMI-out	1 (ESD protection: ±17KV by air, ±12KV by contact)
Ethernet	RJ45 connector for Ethernet x 2 (ESD protection: ±30KV by air, ±30KV by contact)
DC-in	1
Potential Equalization Conductor	1 (optional)

Table 28: DT524T mechanical and environmental specifications

Item	Specification
Fan/Fanless	Fanless
AC/DC Adapter	Input: 100-240V AC; Output: 19V DC, 6.31A
Enclosure	Aluminum alloy, antimicrobial enclosure
VESA-compliant Mounting	100mm × 100mm VESA standard
Dimensions (H x W x D)	13.7 x 22.3 x 1.8 in/ 350 x 567 x 45 mm
Weight	17.6 lbs/ 8 kg

Item	Specification
Water Resistance	Front panel: IP65 Enclosure: IPX2
Regulatory	UL60601-1, FCC Part 18 Class B, CE, CCC compliant
Temperature	Operation: 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

Dell P2314T Color Touchscreen Monitor

The Dell OptiPlex 9020 Small Form Factor (SFF) uses the Dell P2314T touchscreen monitor. For use in systems employing the PaxScan 4336R and 4343R detector panels.

Figure 31: Dell P2314T color touchscreen monitor

The following technical specifications apply.

Table 29: Specifications: Dell P2314T Monitor

Parameter	Value
Diagonally viewable size	23 in. (584 mm)
Horizontal	20.5 in. (509.18 mm)
Vertical	11.28 in (286.42 mm)
Maximum resolution	1920 x 1080 at 60 Hz
Aspect ratio	16:9
Brightness (typical)	cd/m^2
Color support	Color gamut (typical): 83% (CIE 1976); color depth: 16.7 million colors
Contrast ratio	1000:1 (typical); 8 million: 1 (dynamic contrast ratio)
Maximum viewing angle (typical)	178 degrees vertical/ 178 degrees horizontal

Parameter	Value
Response time (typical)	8 ms (gray to gray)
Panel type	In-plane switching
Panel backlight	LED
Touch technology	Projected capacitive system
Sensor stack thickness	0.019685 in. (1.1 mm)
Touch method	Fingers, thin gloves
Touch point	10 touch-points
Response point	<10 ms
Tilt	Up to 60 degrees
Security	Security lock slot

Points of Connection

The Dell P2314T provides the following ports: a DisplayPort 1.2, HDMI (MHL), VGA, USB upstream port (for touch capability), USE 2.0/3.0 downstream port, and an audio line out.

Planar PCT 2485 Color Touchscreen Monitor

The Dell OptiPlex 7050 Small Form Factor (SFF) uses the Planar PCT 2485 touchscreen monitor. For use in systems employing the PaxScan 4336R and 4343R detector panels.

Figure 32: Planar PCT 2485 Color Touchscreen Monitor

The following technical specifications apply.

Table 30: Planar PCT 2485 Monitor Specifications

Parameter	Value
Viewable size	23.6" diagonal (20.52" horizontal x 11.54" vertical)
Touchscreen type	Multi-touch Projected Capacitive (up to 10 points)
Number of touch points	10
Interface	USB
Contrast ratio (typical)	1000:1
Viewing angle (typical)	178° H, V
Response time (typical)	14 ms
Brightness	220 cd/m^2(w/touchscreen); 250 cd/m^2 (w/o touchscreen)
Display type	Edge-lit LED LCD
Display resolution	1920 x 1080, full HD
Aspect ratio	16:9
Tilt range	+15° to +70° and flat
Palette	16.7 million colors
Pixel pitch	0.2715 mm

Parameter	Value
Refresh rate	56 to 75 Hz, 60 Hz recommended
Panel depth	1.8' (44.5 mm)
Dimensions (W x H x D)	22.5" x 13.7" x 1.8" (571.8 mm x 347.0 mm x 44.6 mm)
Display weight	13.7 lb (6.2 kg)
Video inputs	Analog, HDMI, DisplayPort (w/HDCP)
Audio output	2 speakers, 1 w/ch, headphone out
Compatibility	Windows®7, 8, 10 - HID compliant
External connections	VGA 15-pin, HDMI 19-pin, DisplayPort 20-pin, 3.5 mm audio in, 3.5 mm headphone out, USB (A to B), USB 2.0 A type x 2, AC power in
Power supply	Internal
Power requirements	100-240 VAC, 50/60 Hz
Power consumption (max)	35W typical (<1.0W standby, off)
Operating temperature	0 to +70°C
VESA	Built-in 100 mm VESA, back
Recommended usage	Up to 16 hours per day
Product approvals	UL/c-UL, FCC-Class B, CE, TUV/Bauart, RoHS

Points of Connection

This monitor provides the following connections: VGA 15-pin, HDMI 19-pin, DisplayPort 20-pin, 3.5 mm audio in, 3.5 mm headphone out, USB (A to B), USB 2.0 A type x 2, and AC power in.

Sound Technologies, Inc. I/O Box

Sound SMART DR™ uses the Sound Technologies, Inc. I/O box to interface with the x-ray generator.

The PaxScan 4336R detector connects to the Varex I/O box which then connects to the Sound Technologies, Inc. I/O box. The PaxScan 4343R connects directly to the Sound Technologies, Inc. I/O box. The following image shows how the cables connect to the back of the box.

Figure 33: Sound Technologies, Inc. I/O box

Table 31: Connections - Sound I/O box

Port (Label)	Connection
Power	Connect to power supply.
Foot Switch	Connect to foot/hand switch.
Receptor Interface	4336R panel: Connect to Ext Synch port on Varex I/O (controller) for 4336R using DB9 serial cable. 4343R panel: Connect to Receptor Interface on panel using DB9 serial cable.
Generator Interface	Connect to Generator using DB9 serial cable.

Varex Imaging Corporation I/O Boxes

The PaxScan 4336R and 4343RC detectors connect to the x-ray system through a Varex Imaging Corporation I/O box.

The following images show where the cables connect to the back of the I/O box.

Figure 34: Varex I/O box for the PaxScan 4336R detector

Table 32: Connections - I/O Box (Controller) for the 4336R detector

Connection (Label)	
Power (no label)	Connect to power source
External Synch	Connect to Sound I/O box using DB9 serial cable.
Imager	Connect to 4336R panel
Ethernet	Connect to PC

Figure 35: Varex I/O box for the PaxScan 4343RC detector

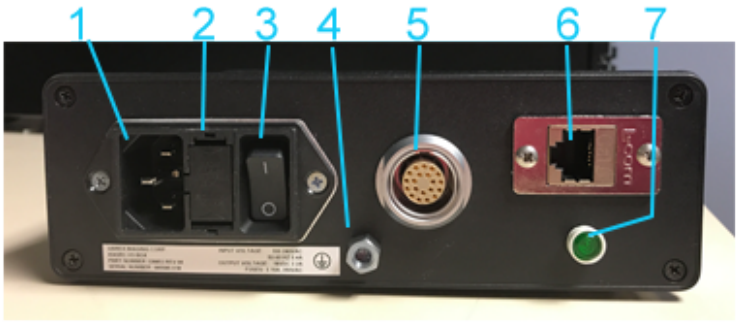


Table 33: Connections on Varex 4343RC I/O Box

Callout	Description
1	AC power input for I/O box. Input voltage: 100-240VAC

Callout	Description
2	Fuse. 3.15A, 250 VAC
3	Power switch
4	Ground
5	Point of connection for tether cable
6	Ethernet port. Connect to PC.
7	Power LED. Lights when unit is powered.

Adapters

The USB to serial port adapter allows you to connect the imaging PC to a serial cable. The USB to Gigabit Ethernet adapter allows you to use a USB port on the imaging PC for connection to an Ethernet cable.

USB to Serial Port Adapter

Connect this adapter to a USB 3.0 port on the Dell 7440 tablet PC in systems with the integrated generator feature enabled. This adapter allows connection to the serial cable, which is connected to the generator.

Figure 36: USB to Serial Adapter

USB to Gigabit Ethernet Adapter

Connect this adapter to a USB 3.0 port on the Dell 7440 tablet PC and then use the Gigabit Ethernet connection to connect to the DICOM server.

Figure 37: USB to Gigabit Ethernet Adapter

System backup thumb drive

The system backup thumb drive (64 GB) is used to create a ghost backup of the system after it has been configured with the site's settings. It can then be used to restore a system to the desired settings when necessary.

The thumb drive contains bootable Ghost backup files.

Software

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

- Windows 8.1 or 10 PRO
- PaxScan Virtual CP L06 5.2 R3 (for 4336R and 4343R), L08 2.1 (for 4336R V2 and 4343R V2), and M01R1.6 (for 4336Wv4)
- Musica2 v1.12.10.1
- Sound SMART DR™ 3.9

Chapter

2

Safety, Warranty, and Licensing Information

Contents

Safety, Warranty, and Licensing Information

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.

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.

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, *Technical Support* on page 216, 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 Sound SMART DR™ .

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 base request.

Electromagnetic compatibility

The system complies with EN 60601-1-2 fourth edition (2014) Section 5. 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 system 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: Medical 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 doit 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 Sound 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 Sound 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.

Emissions, immunity, and separation distances

The tables in this topic provide guidance for emissions, immunity, and separation distances. Follow these guidelines when installing and maintaining the X-ray system.

Warning: Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Sound SMART DR™ system, including cables specified by the manufacturer.

Les équipements portatifs de communications RF (y compris les périphériques tels que les câbles d'antenne et les antennes externes) ne doivent pas être utilisés à plus de 30 cm (12 pouces) de n'importe quelle partie du prochain système Sound SMART DR™ , y compris les câbles spécifiés par le fabricant

Use the following guidance tables for emissions and separation distances:

Table 34: Emissions — Sound SMART DR™ equipment and systems

Emissions test	Compliance	Electromagnetic environment guidance
RF emissions CISPR 11	Group 1	Sound SMART DR™ uses RF energy only for its internal function; therefore, its RF emissions are very low and unlikely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A or B	Class A
Harmonics IEC 61000-3-2	Class A, B, C, D or NA	Class A
Flicker IEC 61000-3-3	Complies or NA	Complies
		Sound SMART DR™ is suitable for use in all establishments other than domestic and those directly connected to public low-voltage power supply network that supplies buildings used for domestic purposes.

Table 35: Electromagnetic Immunity — All equipment and systems not life-supporting

Immunity test	EN/IEC 60601 test level	Compliance level	Electromagnetic environment — guidance
ESD EN/IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete, or ceramic tile. If floors are synthetic, relative humidity should be at least 30%.
EFT EN/IEC 61000-4-4	±2 kV mains ±1 kV I/Os	±2 kV mains ±1 kV I/Os	Mains power quality should be that of a typical commercial or hospital environment
Surge EN/IEC 61000-4-5	±1 kV differential ±2 kV common	±1 kV differential ±2 kV common	Mains power quality should be that of a typical commercial or hospital environment
Voltage dips/ dropout EN/IEC 61000-4-11	>100% drop for 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°: 100% dip for 1 cycles 30% dip for 25/30 cycles >100% dip for 5 s	>100% drop for 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°: 100% dip for 1 cycles 30% dip for 25/30 cycles >100% dip for 5 s	Mains power quality should be that of a typical commercial or hospital environment If the user of the system requires continued operation during power mains interruptions, it is recommended that the system be powered from an uninterruptible power supply or battery.
Power frequency 50/60 Hz magnetic field EN/IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be that of a typical commercial or hospital environment.

Table 36: Immunity — All equipment and systems not life-supporting

Emissions test	EN/IEC 60601 test level	Compliance level	Electromagnetic environment — guidance
Conducted RF EN/IEC 61000-4-6	3 Vrms 150 kHz – 80 MHz	(V1)=3Vrms	D=(3.5/V1)(√P)

Emissions test	EN/IEC 60601 test level	Compliance level	Electromagnetic environment — guidance
Radiated RF EN/IEC 61000-4-3	3 V/m 80 MHz – 2.5 GHz	(E1)=3V/m	D=(3.5/E1)(√P) 80 to 800 MHz
			D=(7/E1)(√P) 800 MHz to 2.5 GHz Where P = max power in watts and D = recommended separation distance in meters. Field strengths from fixed transmitters, as determined by an electromagnetic site survey, should be less than the compliance levels (V1 and E1). Interference may occur in the vicinity of equipment containing a transmitter.
Note: Portable and mobile communications equipment should be separated from the system by no less than the distances calculated or listed in *Table 36: Immunity — All equipment and systems not life-supporting* on page 57.			

Table 37: Separation — Equipment not life-supporting

Max output power (watts)	Separation (m) at specified frequencies:		
	Separation (m) 150 kHz to 80 MHz D=(3.5/V1)(√P)	Separation (m) 80 to 800 MHz D=(3.5/E1)(√P)	Separation (m) 800 MHz to 2.5.0 GHz D=(7/E1)(√P)
0.01	0.11667	0.11667	0.23333
0.1	0.36894	0.36894	0.73785
1.	1.1667	1.1667	2.3333
10.	3.6894	3.6894	7.3785
100.	11.667	11.667	23.3333

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

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 display monitor 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

To avoid the risk of electric shock, this equipment must only be connected to a supply main with protective earth.

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.

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.

- Electronic components can be damaged by electrostatic discharges. Sound Technologies, Inc. has tested the exposed components for ESD, and it 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. 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.
- Use rated electrical components to forestall single fault conditions.

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 the *User 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 and in the User 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 pent unnecessary or unintentional radiation exposure.

Observe all cautions and warnings in this manual and in the *User 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 pent 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 pent 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.

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, the detector control unit (CP2), 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.

Table 38: Environmental parameters for transportation storage, and operation of computer and peripherals

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

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.

Licensing

This application is a collection of several special functions. In the unlikely event that the license for one of the functions is unavailable, the software alerts you. The alert asks if you want to enter a license key, ignore the matter for this instance, or ignore always.

We recommend 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.

Warranty

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

- Modification, abuse, misuse, or operation of Sound SMART DR™ 's 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 the Sound SMART DR™ system without authorization by the seller.

Faire aucune tentative pour connecter d'autres équipements ou de pièces de Sound SMART DR™ système sans autorisation par le 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.

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.

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.

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.

Table 39: Environmental parameters for transportation, storage, and operation of computer and peripherals

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

Chapter

3

Room Readiness

Contents

Review this section carefully before you begin the installation process.

Pre-installation Site Survey

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

Sound Technologies, Inc. requires that dealers of our products assess the facilities into which Sound SMART DR™ 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 Sound SMART DR™ . If necessary, contact to see if a copy was submitted or if you have any questions or problems.

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 Sound SMART DR™ .

Room Layout

Discuss with the site personnel the preferred location for each component. Sketch the room layout to assist with placement of the components and cabling of Sound SMART DR™ .

Power

Sound SMART DR™ system power must meet the specifications in the following table. Power must be from a dedicated AC line. Dedicated is defined as having no other branch circuits and the outlet is powered directly from a circuit breaker in the local AC distribution panel.

Table 40: System power specifications

Power phase	V	Hz	A
Single	115±10%	50/60	8
Single	230±10%	50/60	4

Power must be free of noise, spikes, surges, and brownouts that exceed the nominal voltage by ±10%. If these conditions cannot be met, the optional power conditioner is required. The following conditions must also be met:

- Peak impulse levels (line to neutral) are to be under 100 V peak above nominal (peak time interval 2 ms or less).
- The neutral wire must be the same gauge as the line wire.
- Frequency requirements are: 60 Hz system: 60 Hz ±0.5 Hz, 50 Hz systems: 50 Hz ±0.5 Hz.
- Neutral to ground potential: 2 V p-p or less.

For sites using 230 V AC, an approved plug must be used on the isolation transformer provided it has ratings of 250 V AC and 5 A or greater.

Notice: The power source must meet the power supply requirements defined in this service manual. Use of the system outside these limits voids the product warranty.

Table, Cart or Shelf Space

A flat work surface (table or cart) is required to hold the operator's controls.

Check that the area has enough room for comfortable use of the keyboard and pointing device, if used, and that the table or cart is at a suitable height. If space is limited, consider using a retractable keyboard shelf (not supplied by Sound Technologies, Inc.). Some configurations replace the physical keyboard with an on-screen touch keyboard. Consult the site personnel for their preferences.

Image Monitors

Consult site personnel to determine preferred location of the image monitors. Monitors often have removable bases.

Sound Technologies, Inc. recommends you remove the tilt-swivel base from the monitor before mounting the monitor to an unstable surface such as a cart or hanging bracket. If using a cart, Sound Technologies, Inc. recommends that you attach a handle to the cart for safe use of the cart and monitor. To attach the monitor to a cart or to a hanging bracket, consider how the monitor will be attached to the surface.

PC Placement

Ensure that the placement of the PC meets the following requirements.

- PC station provides 4 in. of clearance behind and in front of the tower for adequate ventilation.
- surface where the tower is installed is flat and level. Use a PC stand if necessary.
- PC station allows service personnel adequate access to the inside of the PC cabinet.

PaxScan Detector Placement

The PaxScan x-ray detector is specifically designed for fixed applications where the detector is installed in a table, chest stand, or other holding fixture.

The detector must be within 50 cable ft (15 m) of PC system. The detector is powered by an external AC power supply. This power supply must be located within 6 ft (2 m) of the detector.

For detectors with I/O interface/control modules, position the detector within 7.5 ft (2.25 m) of the Varex power supply and I/O interface/control module.

Important: The PaxScan 4343R detector can run hot. Set up a fan to keep the air circulating around it to reduce the detector temperature.

Cable Layouts and Routing

Review this manual for details on required cables, routing restrictions, cable sizes and lengths.

Also consider cables for other devices in the x-ray room and control room. Ensure that there is an acceptable path for each cable.

Network Connection

The site must provide the network connection cable. Work with the site's network administrator to have this arranged.

Sound SMART DR™ supports 10/100/1000 Base-T connections.

Network Information

The network address must be obtained from the local network administrator. This information can then be entered into Sound SMART DR™ when the system parameters are set.

DICOM Device Connectivity Information

The site must provide connectivity data for DICOM service classes, store, worklist, and so forth that are necessary for the particular site.

X-ray Generator Function

Ensure that the x-ray generator is functioning properly before making any connections between it and Sound SMART DR™ .

Chapter

4

Installing the X-ray System

Contents

This section provides conceptual, reference, and task-related content needed for installing components of the X-ray system.

Tools Needed for Installation

The following basic tools are needed for installing the x-ray system:

Digital volt-ohm meter (20,000 Ω/V)	Basic hand tools including screwdrivers
Dosimeter	ESD wrist strap. Must be able to read uR per exposure.
X-ray phantoms	Calibration filter supplied with panel or with the x-ray system.

Connecting the PC (Dell OptiPlex 9020) to the Monitor, Optional Peripherals, and Ethernet

This task describes how to connect the Dell OptiPlex 9020 PC to monitor, peripherals, and Ethernet.

Prerequisites

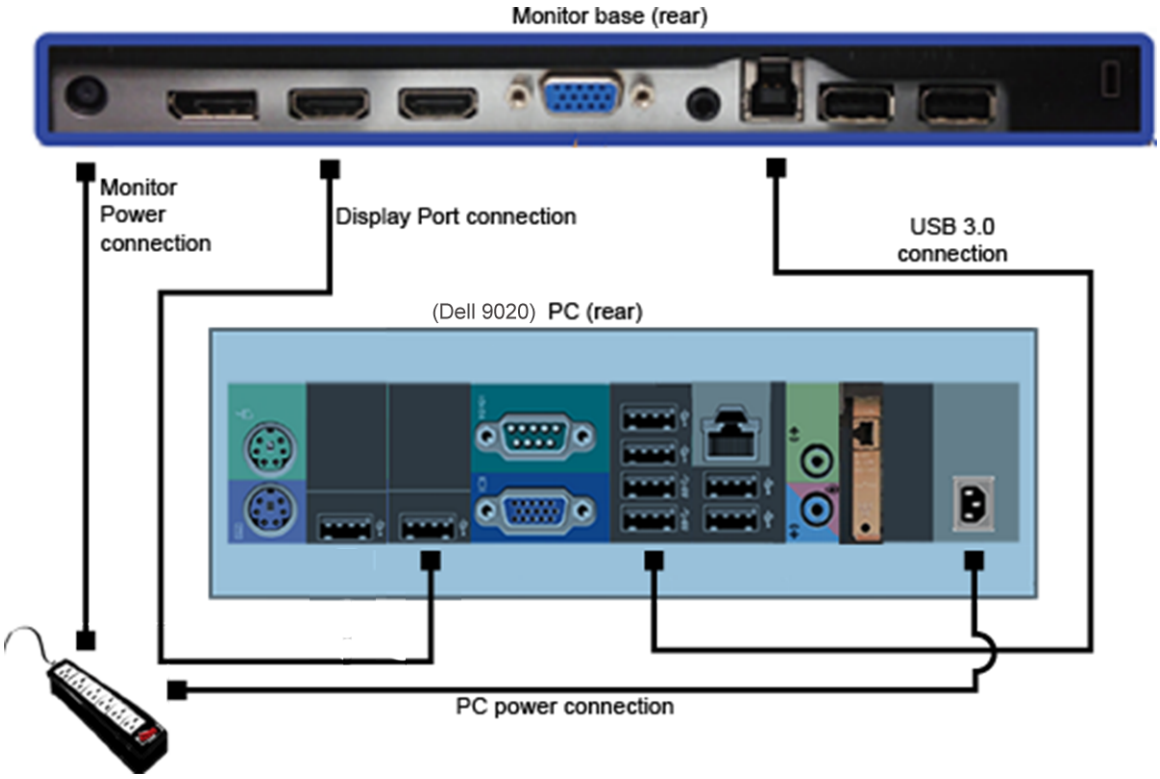
Before you begin this task, read Chapter 2. *Chapter 2. Safety, Warranty, and Licensing* and Chapter 3. *Chapter 3. Room Readiness*.

Procedure

1. Verify that the surface where the PC and its components are to be placed is flat and level.
2. Place the PC and its components in the control room or area where they will be used.

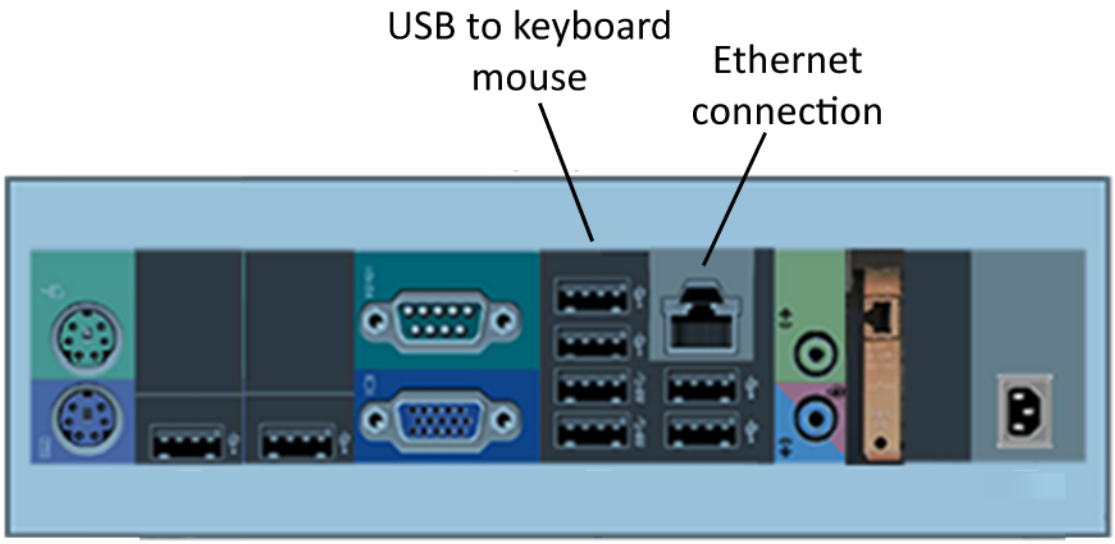
3. Make the following connections.
   a) Connect the monitor cables and PC power cable as shown in the following diagram. Do not turn on the monitor or the PC yet.

Figure 38: Monitor to Dell OptiPlex 9020 PC connections



   b) If desired, install the optional keyboard and mouse by connecting the USB cables to the appropriate USB ports as shown in the following diagram.
   c) Connect the Ethernet cable to the PC and the Ethernet wall port.

Figure 39: Keyboard and mouse connections (optional) and Ethernet connection



Connecting the PC (Dell OptiPlex 7050) to the Monitor, Optional Peripherals, and Ethernet

This task describes how to connect the Dell OptiPlex 7050 PC to monitor, peripherals, and Ethernet.

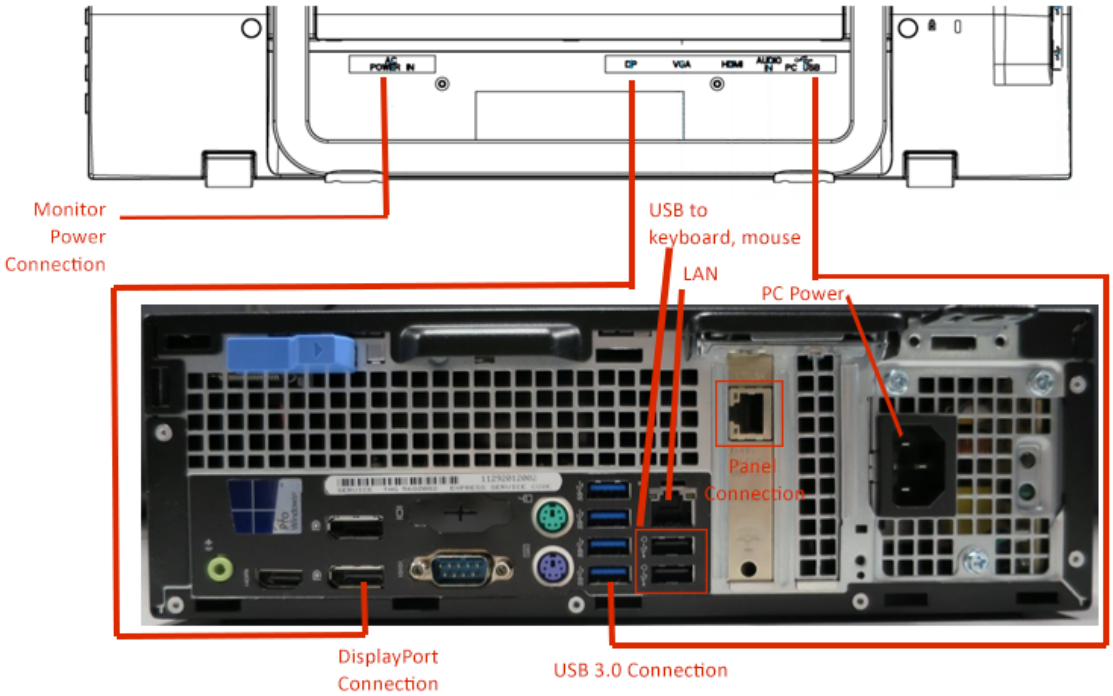
Prerequisites

Before you begin this task, read Chapter 2. *Chapter 2. Safety, Warranty, and Licensing* and Chapter 3. *Chapter 3. Room Readiness*.

Procedure

1. Verify that the surface where the PC and its components are to be placed is flat and level.
2. Place the PC and its components in the control room or area where they will be used.
3. Make the following connections.
   a) Connect the monitor cables and PC power cable as shown in the following diagram. Do not turn on the monitor or the PC yet.

Figure 40: Planar Monitor to Dell OptiPlex 7050 PC connections



   b) If desired, install the optional keyboard and mouse by connecting the USB cables to the appropriate USB ports as shown in the following diagram.
   c) Connect the Ethernet cable to the PC and the Ethernet wall port.

Connecting the PC (Dell OptiPlex 7440) to the Monitor, Optional Peripherals, and Ethernet

This task describes how to connect the Dell OptiPlex 7440 PC to monitor, peripherals, and Ethernet.

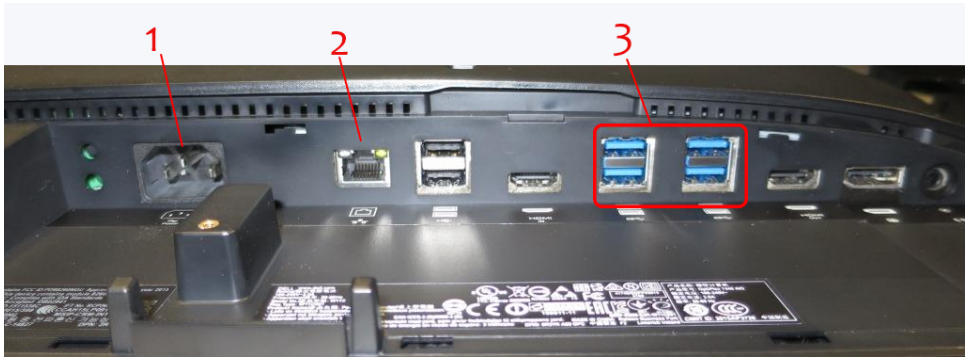
Prerequisites

Before you begin this task, read Chapter 2. *Chapter 2. Safety, Warranty, and Licensing* and Chapter 3. *Chapter 3. Room Readiness*.

Procedure

1. Verify that the surface where the PC and its components are to be placed is flat and level.
2. Place the PC and its components in the control room or area where they will be used.
3. Make the following connections.

Figure 41: Dell 7440 tablet PC connections (rear panel)



a) Connect the power supply shipped with PC to power input (1, in Figure).
b) Connect the ethernet cable from the DICOM server to Ethernet port (2). Or, in systems using a 4336R or 4343R detector, connect the USB to Ethernet adapter to one of the USB 3.0 ports (3) and then connect the Ethernet cable from the DICOM server to the Ethernet connector on the adapter.
c) In systems using the integrated generator feature, connect the USB to Serial Adapter to one of the USB 3.0 ports (3). Connect the serial port on the adapter to the serial cable from the generator.

Connecting the PC (Logic AIO) to the Optional Peripherals and Ethernet

This task describes how to connect the Logic AIO PC to monitor, peripherals, and Ethernet.

Prerequisites

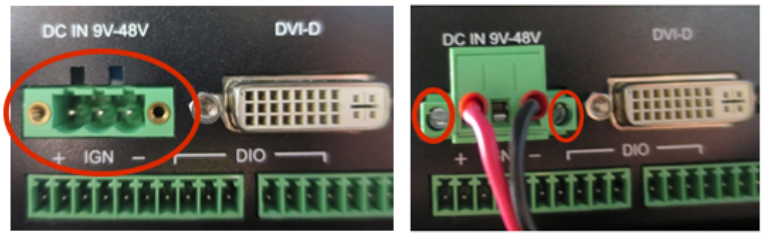
Before you begin this task, read Chapter 2. *Chapter 2. Safety, Warranty, and Licensing* and Chapter 3. *Chapter 3. Room Readiness*.

Procedure

1. Verify that the surface where the PC and its components are to be placed is flat and level.
2. Place the PC and its components in the control room or area where they will be used.

3. Make the following connections.

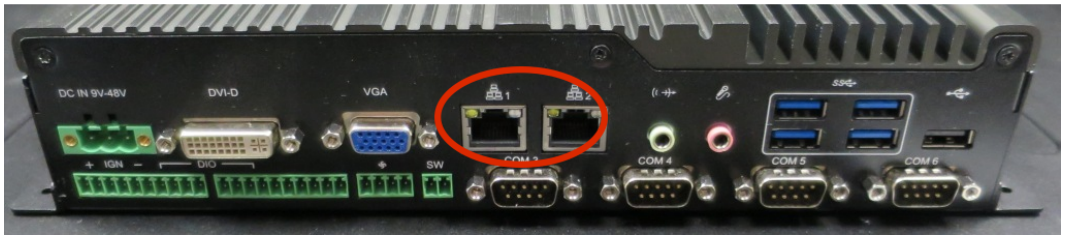
Figure 42: Logic All-in-One PC power connection



a) Connect the power supply shipped with PC to power input. To do so, connect the 3-pin power connector to the DC input and tighten the two screws. Then, connect the power supply to an AC power outlet.

b) Connect the Ethernet cable from the DICOM server to Ethernet port (2). Or, in systems using a 4336R or 4343R detector, connect the USB to Ethernet adapter to one of the USB 3.0 ports (3) and then connect the Ethernet cable from the DICOM server to the Ethernet connector on the adapter.

Figure 43: Logic All-in-One PC Ethernet connections



c) In systems using the integrated generator feature, connect the USB to Serial Adapter to one of the USB 3.0 ports (3). Connect the serial port on the adapter to the serial cable from the generator.

Figure 44: Logic All-in-One USB connections

Connecting the PC (DT524T AIO) to the Optional Peripherals and Ethernet

If desired, a mouse and keyboard can be connected to the DT524T AIO PC.

Procedure

1. On the underside of the mouse, use the switch to power it on.
   The mouse will connect to the PC wirelessly.

2. On the rear edge of the keyboard, use the switch to power it on.
   The keyboard will connect wirelessly to the PC.
3. Connect the computer power supply to the power port on the computer, then plug the other end into an outlet.

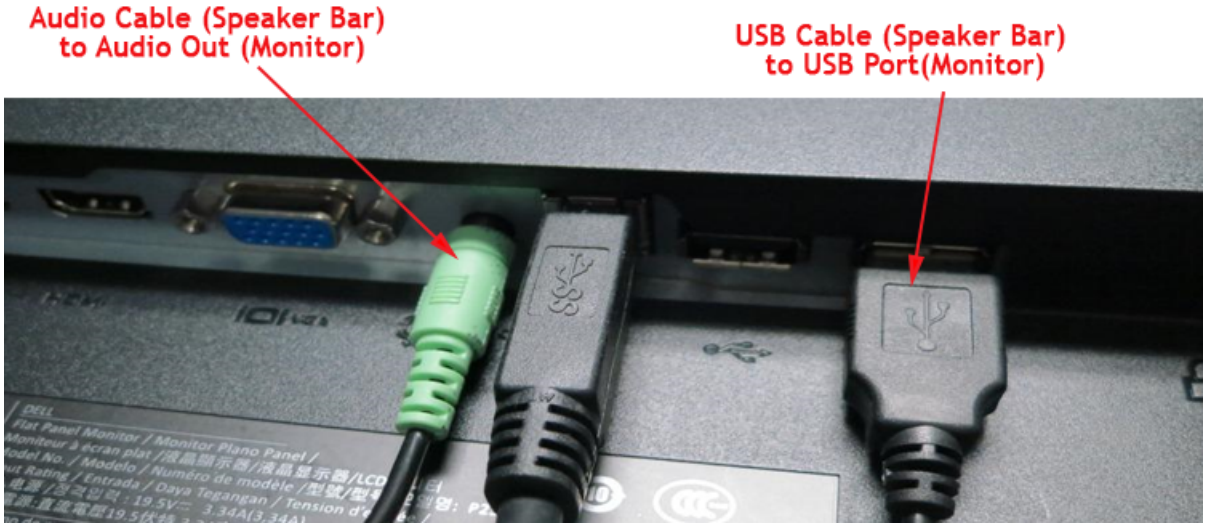
4. Connect the Ethernet cable to the LAN 1 port on the PC, and connect the other end to the site network drop.

Connecting the Speaker Bar to the P2314T Monitor

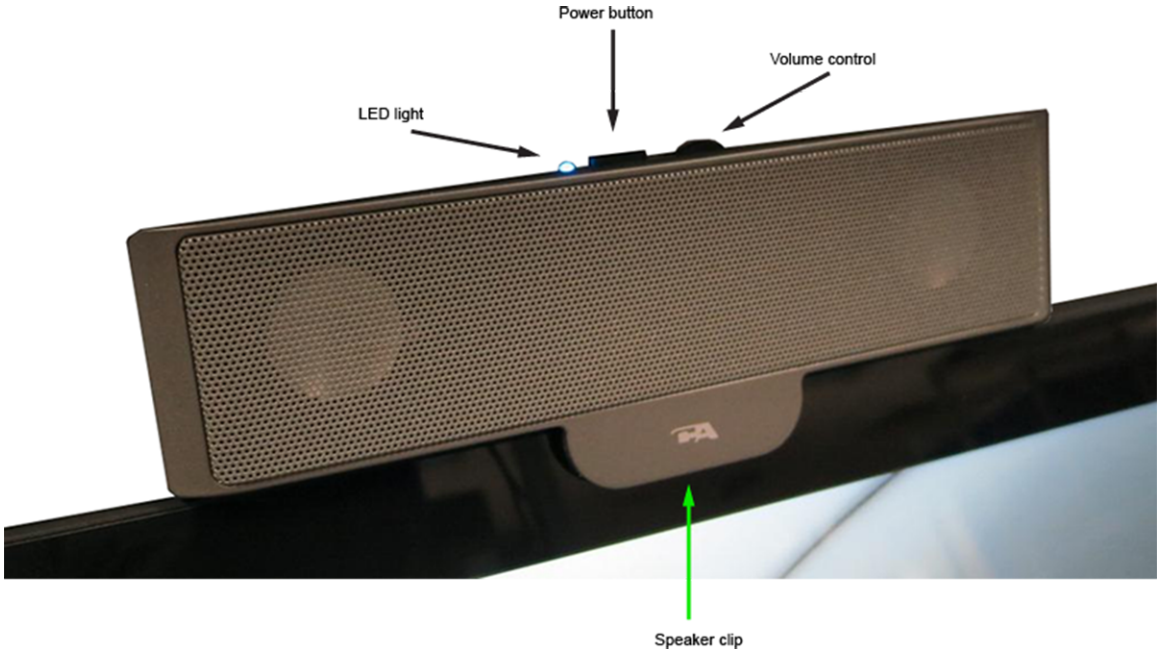
A speaker bar is included with the system, and it connects to the back of the monitor.

Procedure

1. Insert the 3.5 mm speaker cable into the audio output jack on the back of the monitor.



2. Insert the speaker's USB cable into an available USB port on the back of the monitor.
3. Attach the speaker to the top of the monitor using the clip attached to the bottom of the speaker. Note that the LED light is lit only when the monitor is powered on.



4. Press the **Power** button on top of the speaker to ensure that the speaker bar is turned on when the system is powered up.

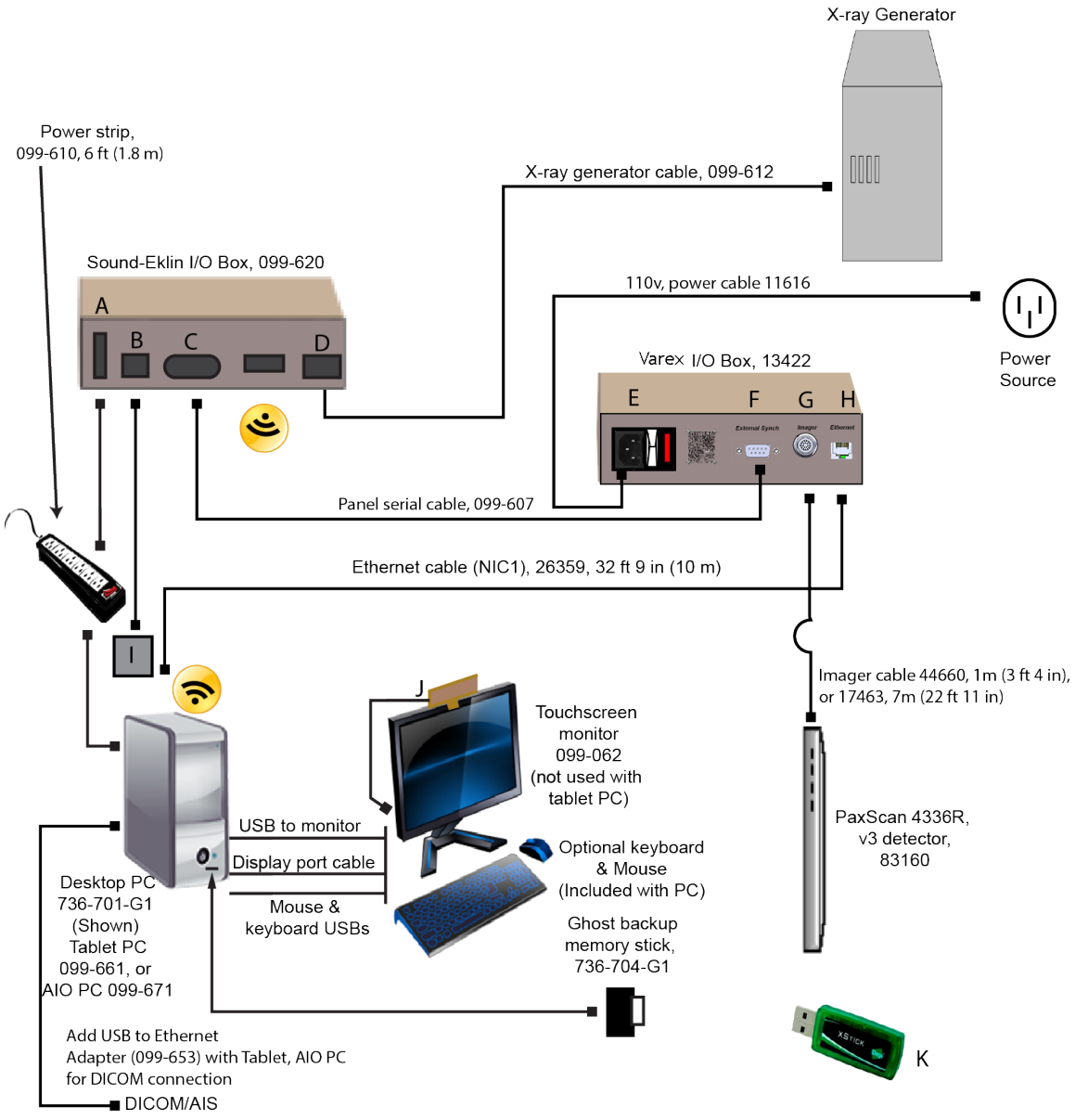
Connecting the PaxScan 4336R Detector

The PaxScan 4336R detector is a cabled detector with an I/O box that interfaces between the panel and x-ray system.

About this task

The following diagram shows the connections for the PaxScan 4336R panel.

Figure 45: PaxScan 4336R detector connections



Procedure

1. Connect the panel to the Varex Imaging Corporation I/O box.
2. Connect the USB cable from the PC to the Varex Imaging Corporation I/O box.

3. Connect the DB9 serial cable from the Varex Imaging Corporation I/O box to the Sound Technologies, Inc. I/O box.

PaxScan 4336R x-ray generator interface

The x-ray system's digital I/O interface accommodates all interactions between the x-ray generator and the PaxScan 4336R v3 X-ray detector. No interface signals are required between the host x-ray system and the detector. Input and output signals from the host x-ray must be direct current (DC) voltages greater than 5 V and less than 32 V when active.

The x-ray system generates the I/O signals that the PaxScan 4336R v3 detector requires to synchronize with the x-ray generator. The signals are V-PREP, V-REQUEST, and V-X-RAY ENABLE. The signals pass through the x-ray system's digital I/O interface board to the detector via the interface cable.

Connecting the PaxScan 4343R Panel

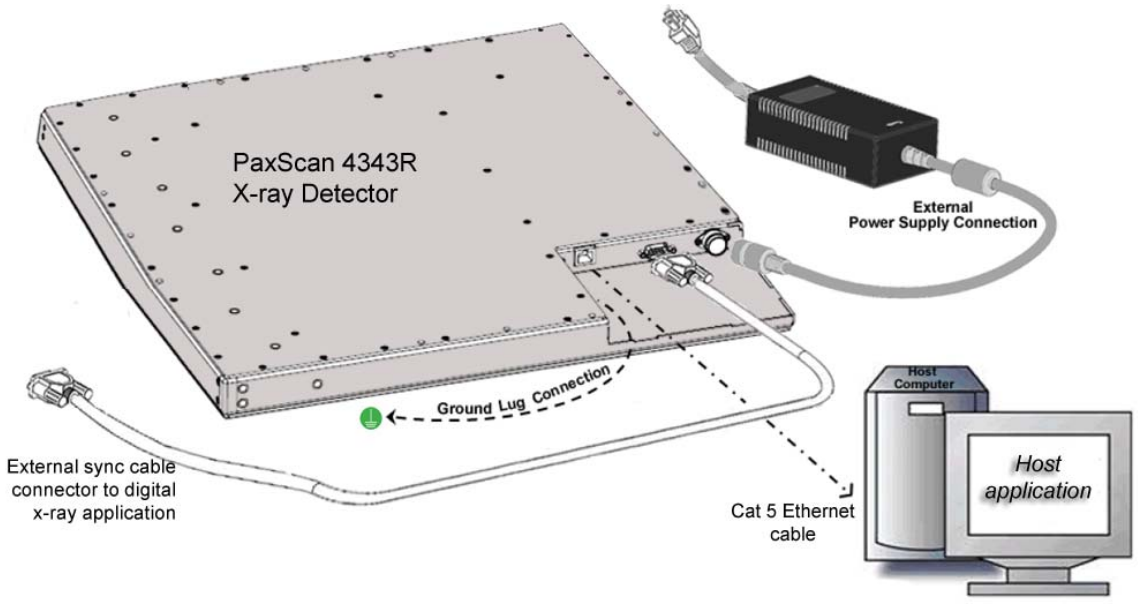
The PaxScan 4343R amorphous silicon digital x-ray detector is designed for digital radiographic imaging.

About this task

The panel communicates with the PC through an Ethernet connection and with the x-ray generator through the Sound Technologies, Inc. I/O box. The following figures show a detail of the cabling for the panel itself.

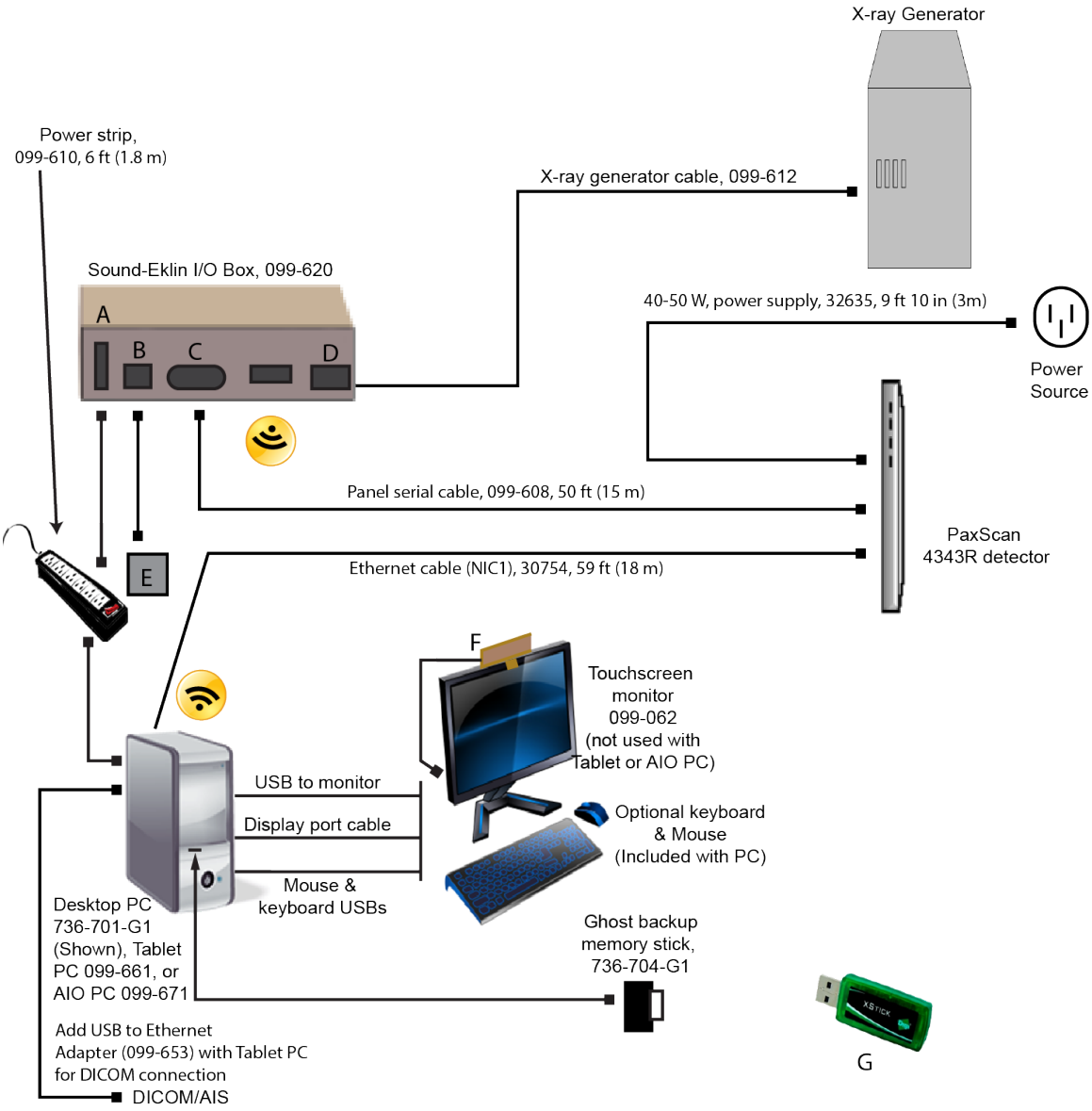
Procedure

1. Connect the cables to the panel as shown in the following image.



2. Connect the remaining cables. The figure below provides an overview of the system connections using the 4343R detector.

Figure 46: System connections with PaxScan 4343R detector



A. Power port, cable 099-626
B. Footswitch port
C. Receptor Interface port
D. Generator Interface port
E. Footswitch, 099-622
F Speaker bar, 099-615, connects to the back of the monitor
G. XStick, 099-621, for wireless communication with the Sound-Eklin I/O Box. Insert it into a USB 2.0 port on the PC.

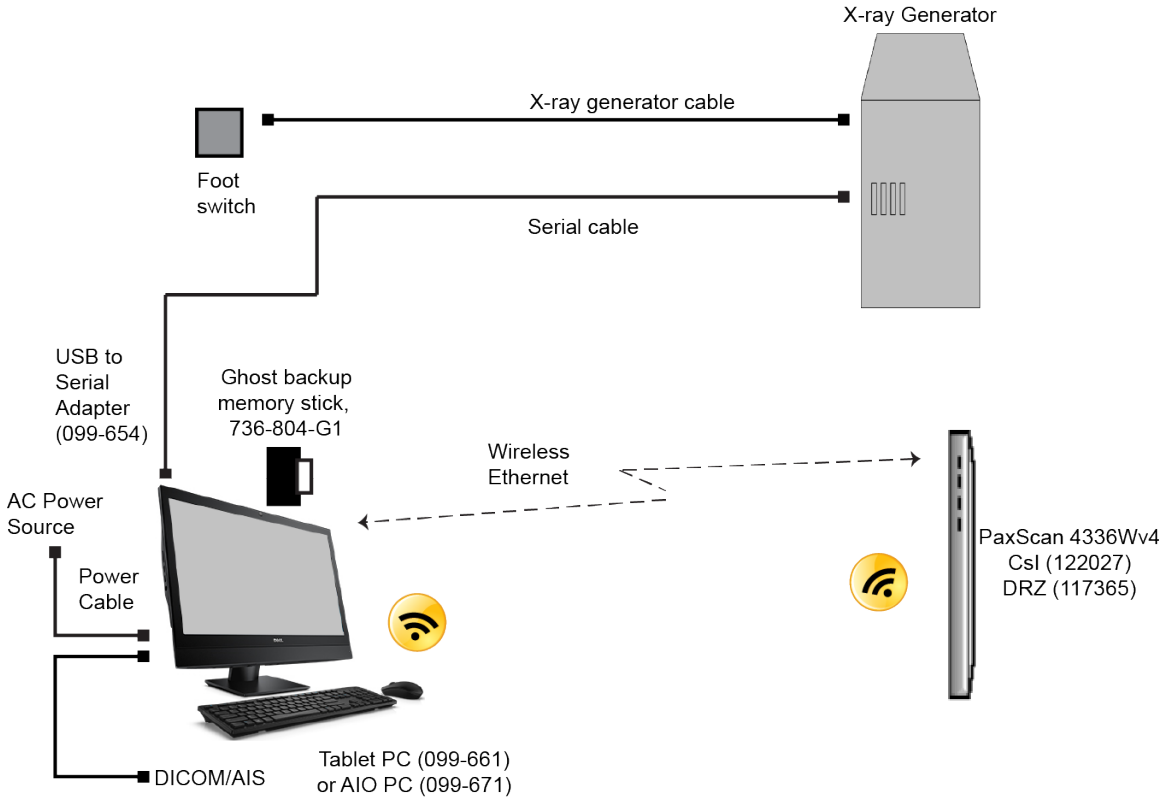
Connecting the PaxScan 4336Wv4 Panel

The PaxScan 4336Wv4 flat panel detector is a wireless detector with a wireless access point to facilitate communication between the detector subsystem and the imaging subsystem.

About this task

The following diagram shows the connections for the PaxScan 4336Wv4 panel.

Figure 47: PaxScan 4336Wv4 panel connections



Procedure

Insert a charged battery into the panel's battery compartment. See *Removing PaxScan 4336Wv4 batteries* on page 84, *Installing PaxScan 4336Wv4 batteries* on page 85, and *Charge the battery (single bay charger)* on page 86 or *Charge the battery (3-bay charger)* on page 88.

Removing PaxScan 4336Wv4 batteries

About this task

The PaxScan 4336Wv4 wireless detector is powered up when you insert a charged battery into the battery compartment. Batteries are shipped in the locked mode. You must charge them fully before use.

Note: The use of accessories, batteries, battery chargers, or cables other than those specified in this manual, with the exception of those sold or provided by the manufacturer as replacement parts for internal components, may result in increased emissions, decreased immunity, or abnormal system operation. Use only the equipment and accessories provided or specifically approved by the manufacturer.

Caution: Handle the detector with care. Dropping the detector or batteries may damage them. When changing batteries, place the detector on a sturdy, flat surface to prevent the detector and battery from falling to the floor. Install the batteries following the instructions provided below.

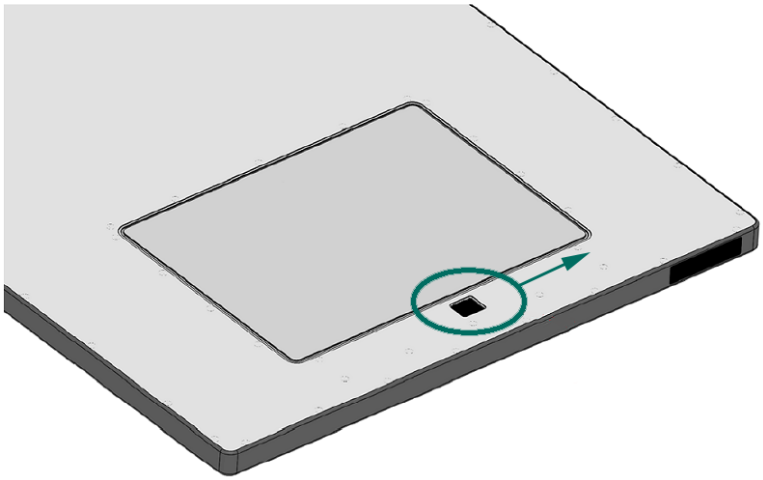
Caution: Manipulez le détecteur avec précaution. La chute du détecteur ou des piles peut les endommager. Lorsque vous changez de pile, placez le détecteur sur une surface plane et solide pour éviter que le détecteur et la batterie ne tombent au sol. Installez les piles en suivant les instructions fournies ci-dessous.

Detector batteries must be removed for recharging.

Procedure

1. Place the detector on a sturdy, flat surface.
2. Slide the battery latch to the side, which lifts out one side of the battery.

Figure 48: Battery latch on 4336Wv4 panel detector



3. Lift out and remove the battery.

Installing PaxScan 4336Wv4 batteries

The PaxScan 4336Wv4 detector battery must be charged upon receipt of the detector and installed before the detector can be connected to and configured on the system.

Procedure

1. Insert a charged battery at a slight angle so that the side with contacts sits over the adjoining contacts in the battery compartment.

   Note: The use of accessories, batteries, battery chargers, or cables other than those specified in this manual, with the exception of those sold or provided by the manufacturer as replacement parts for internal components, may result in increased emissions, decreased immunity, or abnormal system operation. Use only the equipment and accessories provided or specifically approved by the manufacturer.

   Figure 49: Insert detector battery

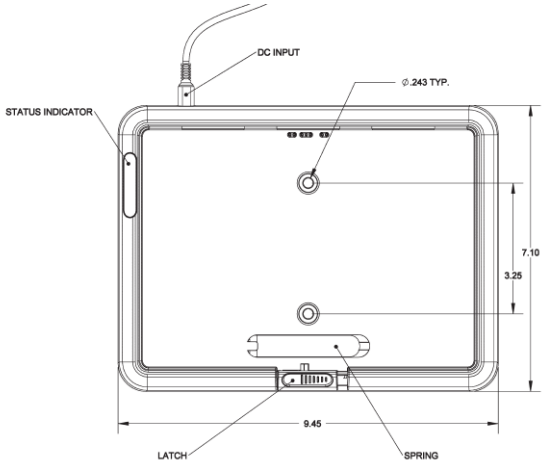
2. Press down on the lifted side of the battery, snapping it into place in the compartment.
   The panel automatically powers up after the battery is installed.
3. Allow up to 90 seconds for the detector to initialize and connect to the wireless network.

   Note: The PC must be powered on in order to see that the detector is connected to the network.

4. Complete one of the following actions:
   - If the computer is powered up and the Sound SMART DR™ application is open, restart the application.
   - If the computer is powered off, power it on, log in, and ensure the Sound SMART DR™ application is opened.

Charge the battery (single bay charger)

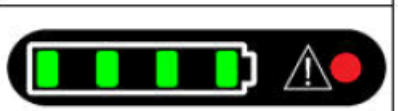
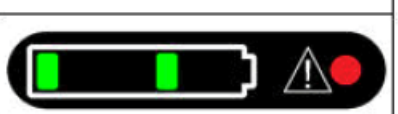
Follow this procedure to charge the Varex batteries with a Varex single-bay charger.



Procedure

1. Insert the battery into the battery compartment of the charger. The battery compartment is mechanically keyed for easy installation.
2. Monitor the LED status indicators to track the charging process. The battery is fully charged when all four green LEDs are continuously illuminated and the red LED is off. The battery retains its full charge whether you remove it or leave it in the charger. Charging usually requires between 2.5 and 3.5 hours.

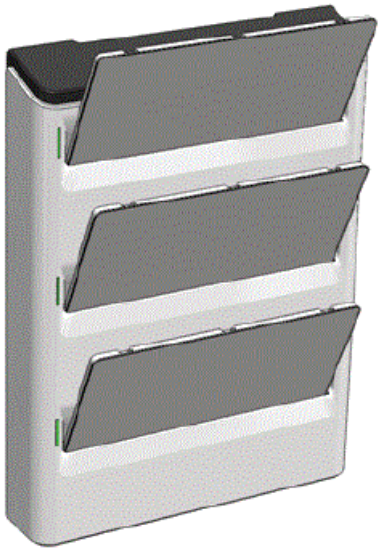
3. When lit, the red LED indicates a fault in the charging process. Do not use the battery if the red LED displays during the charging process. The figure below provides information about the status indicators. Contact technical support for help with status indicators.

Description	Green LEDs	Red LED	Example
Battery Charging Normally – up to 25%	1 – On – Blinking 2 – Off 3 – Off 4 – Off	Off	
Battery Charging Normally – 26% to 50%	1 – On – Continuously 2 – On – Blinking 3 – Off 4 – Off	Off	
Battery Charging Normally – 51% to 75%	1 – On – Continuously 2 – On – Continuously 3 – On – Blinking 4 – Off	Off	
Battery Charging Normally – 76% to 99%	1 – On – Continuously 2 – On – Continuously 3 – On – Continuously 4 – On – Blinking	Off	
Battery Charging Normally – Fully Charged	1 – On – Continuously 2 – On – Continuously 3 – On – Continuously 4 – On – Continuously	Off	
Fault – No Charge Current accepted or Battery Voltage too high	1 – On – Blinking 2 – Off 3 – Off 4 – Off	On	
Fault – Battery Over-discharged cannot wakeup in less than 210 seconds	1 – On – Blinking 2 – On – Blinking 3 – Off 4 – Off	On	
Fault – Battery exceeds allowable charge time	1 – On – Blinking 2 – On – Blinking 3 – On – Blinking 4 – Off	On	
Fault – Battery ID does not match V4336W or non-recoverable over-discharged battery	1 – On – Blinking 2 – On – Blinking 3 – On – Blinking 4 – On – Blinking	On	
Fault – Battery Temperature either too high or too low	1 – Off 2 – Off 3 – Off 4 – Off	On	
Fault – SMBus between the charger and battery is not operating properly	1 – On – Blinking 2 – Off 3 – On – Blinking 4 – Off	On	
Fault – Battery Permanent Fault	1 – Off 2 – On – Blinking 3 – Off 4 – On – Blinking	On	

Do not use the battery if a fault indication displays.

Charge the battery (3-bay charger)

Follow this procedure to charge the Varex batteries with a Varex 3-bay charger.



Procedure

1. Hold the battery on the opposite the contacts, with the contacts facing the charger.
2. Gently slide the battery into the battery compartment of the charger. When inserted correctly, the light next to the slot displays the charge status of the battery: orange indicates charging, green indicates charge complete, and red indicates a charging fault.

   Do not use the battery if a fault indication displays.

X-ray Generator

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

The generator is connected to the system through the Sound Technologies, Inc. I/O box. On systems using generator integration feature, the technique for each shot will be set automatically, based on pre-configured technique charts programmed into Sound SMART DR™ . Service technicians configure the Sound SMART DR™ application to use the integrated generator feature on the Management screen.

If your system is configured to use the integrated generator feature, Sound 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 tool, the Integrated Generator control, is accessible from the Acquire Review screen.

The generator must be configured using the generator software on the unit itself. See the documentation that came with 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. The Dell OptiPlex 7440 tablet requires the USB to Serial Adapter.

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 4336R, 4336Wv4, and 4343R panels is 1000ms.

Power-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 and in the *User Manual*. Failure to abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.

Procedure

1. Turn on the x-ray generator.
2. Turn on the PC.
3. Turn on the panel.

   The power button is on the side of the casing.

   The system is now installed and ready for configuration.

Logging In to the Sound User Account

The Sound user account for the x-ray system is pre-configured at the manufacturing site, and the credentials are provided in this manual for reference purposes. When you start or restart the PC, the system logs into the Sound account automatically.

About this task

If you need to log in to the Windows Administrator account, you must switch users after the PC logs into the Sound account. See the topic, Logging into the Windows Administrator Account, for instructions. See the topic, Logging into the Windows Administrator Account in the *Service Manual*, for instructions.

Procedure

Power-on or restart the PC.

The PC automatically logs in to the Sound account and starts the Sound SMART DR™ software.

Logging in to the Windows Administrator Account

The Windows Administrator account provides full access to the operating system and is useful for some service-related tasks.

Procedure

1. If the PC is not already on, power it up, and allow it to log into the Sound account and start the software.
2. Press **Ctrl+Esc** to bring up the Windows taskbar.
3. Right-click the Windows **Start** button, and select **Shut down or sign out** > **Sign out**.
4. Select the **Administrator** account from the list of accounts.

5. In the password field, enter `password`.
   The password is case-sensitive. The PC logs in as the Windows Administrator.

Installing Panel Software

Complete this task **only** if you are installing a new PC at a site with a pre-existing panel. Otherwise, continue to the next topic.

Prerequisites

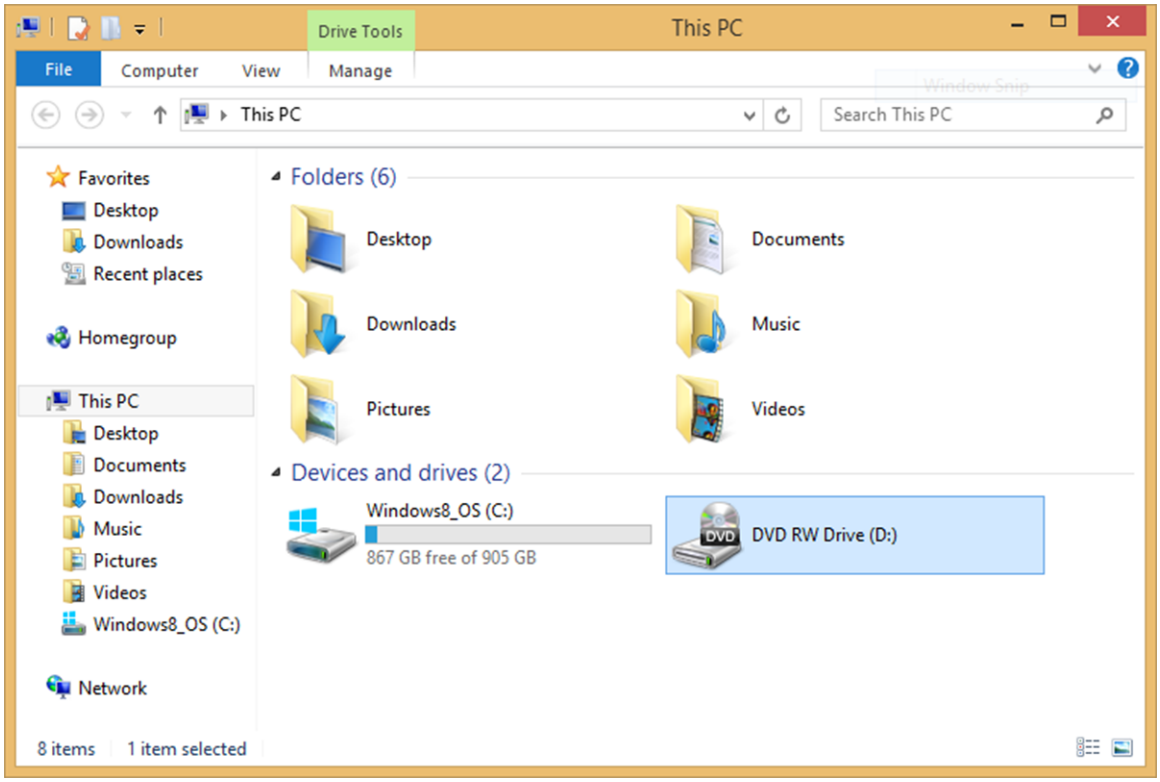
- Ensure that you have the PaxScan software disk that originally came with the panel.
- Ensure that the panel is connected to the system, and that the panel and the system are powered on.

About this task

Each PaxScan x-ray panel has unique software that must be installed in order for the panel to work with the system.

Procedure

1. Insert the panel installation disc for the panel into the DVD drive of the PC.
2. Right-click on the Windows **Start** button, and select **File Explorer** from the pop-up menu.
3. Select the DVD RW drive.



4. Follow the instructions in the installer to complete the installation process.

   The panel setup files will be installed into the `C:\imagers\ [PanelSerialNumber]` directory,where *[PanelSerialNumber]* is the serial number of the panel being installed.
5. Remove the panel software installation disk from the PC.
6. Right-click on the **Start** button, and select **Shut down or sign out** > **Restart**.

Logging Out of the Sound SMART DR™ Software

Sometimes, in order to do maintenance on the PC using the Windows operating system, it is necessary to log off of the Sound SMART DR™ software without shutting down the PC.

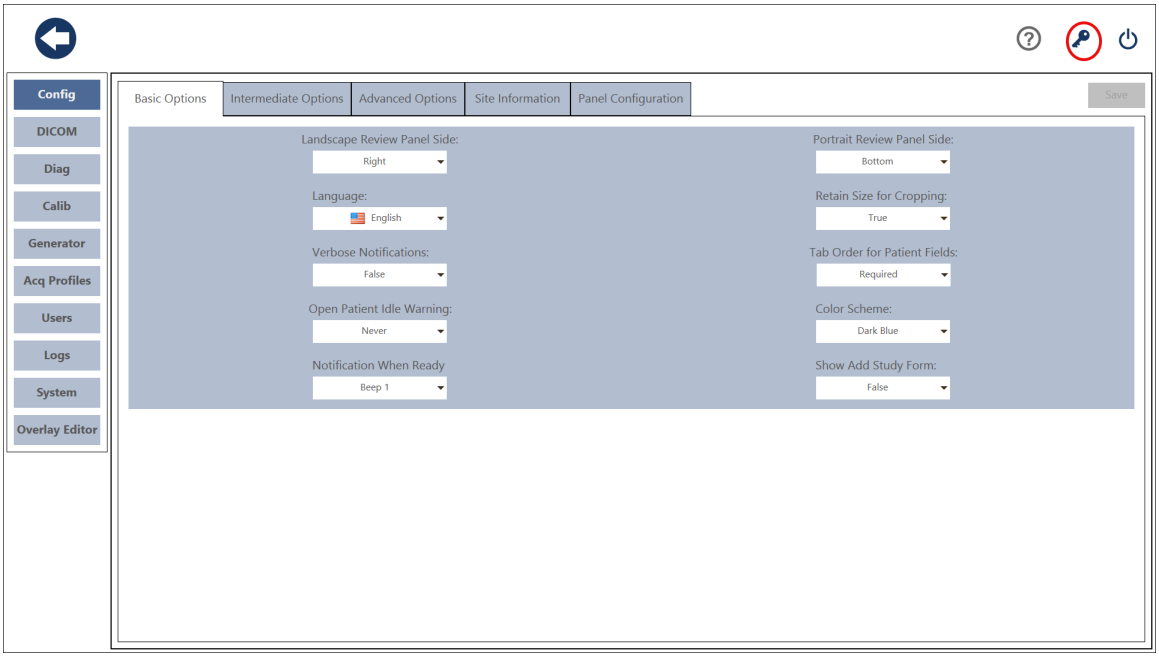
About this task

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

Procedure

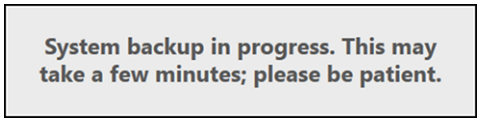
1. Select the **Advanced Options** tab, and select **False** in the **Log off admin on exit** drop-down list.
2. Select **Save** to save the change.
3. At the top of the **Management** screen, select the key icon.

Figure 50: Management Screen — logging Off



4. At the prompt, select the check mark to log off the system.

The following message is displayed before the software closes to display the Windows desktop.



Shutting Down the PC

If desired, the PC can be shut down automatically on logging off of the PC.

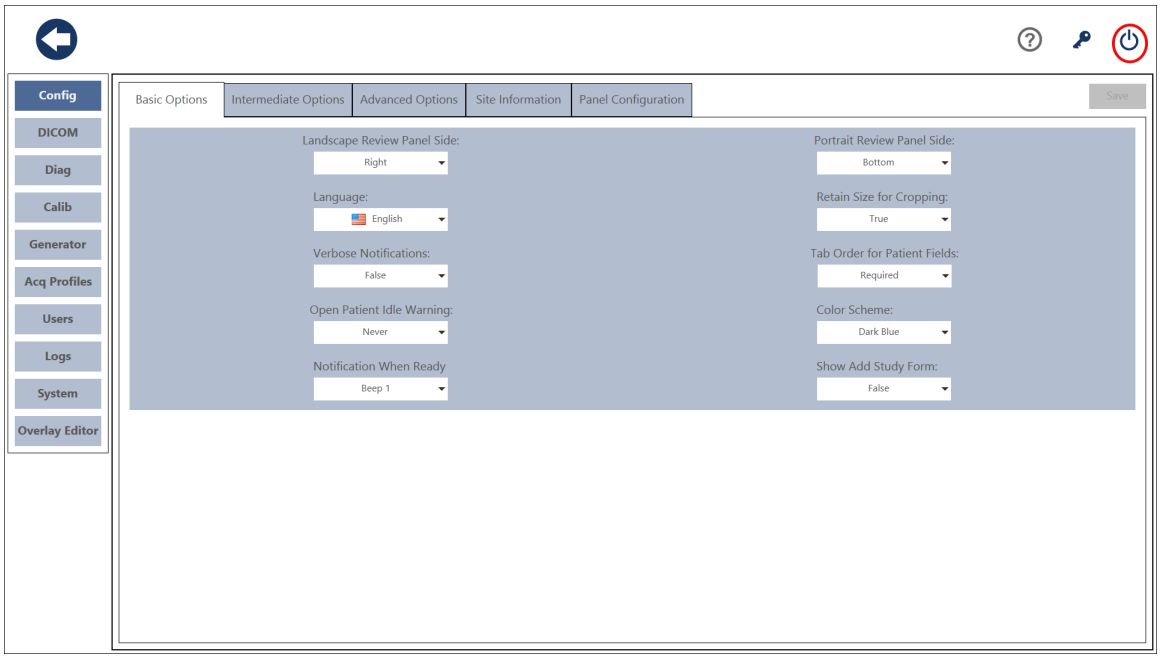
About this task

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

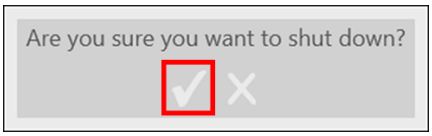
Procedure

1. Display the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. At the top of the **Management** screen, select the power icon.

Figure 51: Shutting Down the PC



3. At the prompt, select the check mark to shut down the system.



The following message is displayed before the software closes and the PC shuts down.

Installation Report Form

Important: Required. This installation report form, including acceptance testing, must be completed within 30 days of installing the system. Contact technical support for the correct mailing address for this form and any other questions you might have.

Enter NA if an item is not applicable.

Installation:	___New	___Reinstalled	___Used	Date: ___ / ___ / 20___
System serial number:				

Site information	Distributor information
Name	Name
Street	Street
City, State, Zip	City, State, Zip
Department administrator	Service engineer
Phone	Phone
Email	Email
Survey completed by (print)	
Signed	Date
Room configuration	
Bucky replacement	_____Chest stand _____Table
Positioner type	Make Model
High resolution monitor type	Make Model

Control station in:	_____Exam area _____Control area
Are all interface cables clearly labeled?	_____Yes _____No
Distance from tower PC to patient area	
Modem telephone number (if any)	

Detector setup	
Detector manufacturer and model	Wireless _____Yes _____No
Mfr and model of second panel (if any)	Wireless _____Yes _____No
X-ray generator	
Manufacturer	Model
Integrated with the x-ray system	Wireless _____Yes _____No

Chapter

5

Configuring the X-ray System

Contents

Configuring the X-ray System

The x-ray system is configured in the **Management** screen of the software application. This chapter describes how to configure each part of the system.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Configure Basic Options. See the topic, *Configuring Basic Options* on page 101, for instructions.
3. Configure Intermediate Options. See the topic, *Configuring Intermediate Options* on page 104, for instructions.
4. Configure Advanced Options. See the topic,*Configuring Advanced Options* on page 109, for instructions.
5. Configure the panel. See the topic, *Configuring Panels* on page 114, for instructions.
6. Configure DICOM. See the topic, *DICOM Storage Devices* on page 119, for information.
7. Configure acquisition profiles. See the topic, *Configuring Acquisition Profiles* on page 131, for instructions.

   Note: For most sites, the default acquisition profiles are sufficient, and no configuration is required.

8. Manage users. See the topic, *Managing Users* on page 145, for instructions.
9. Configure logs. See the topic, *Log Files* on page 202, for information about log file options.
10. Configure your system to support integration with the Summit HF generator. See *Configuring the Integrated X-ray Generator* on page 155.
11. Customize overlays. See the topic, *Customizing Overlays* on page 157, for instructions.
12. Select system backup options. See the topic, *Backing Up the Sound SMART DR Data and Settings* on page 175, for instructions.

Displaying the Management screen

The x-ray system application is configured in the **Management** screen. Vet Techs and Vets have some access to the **Management** screen, but Sound users have full access.

Procedure

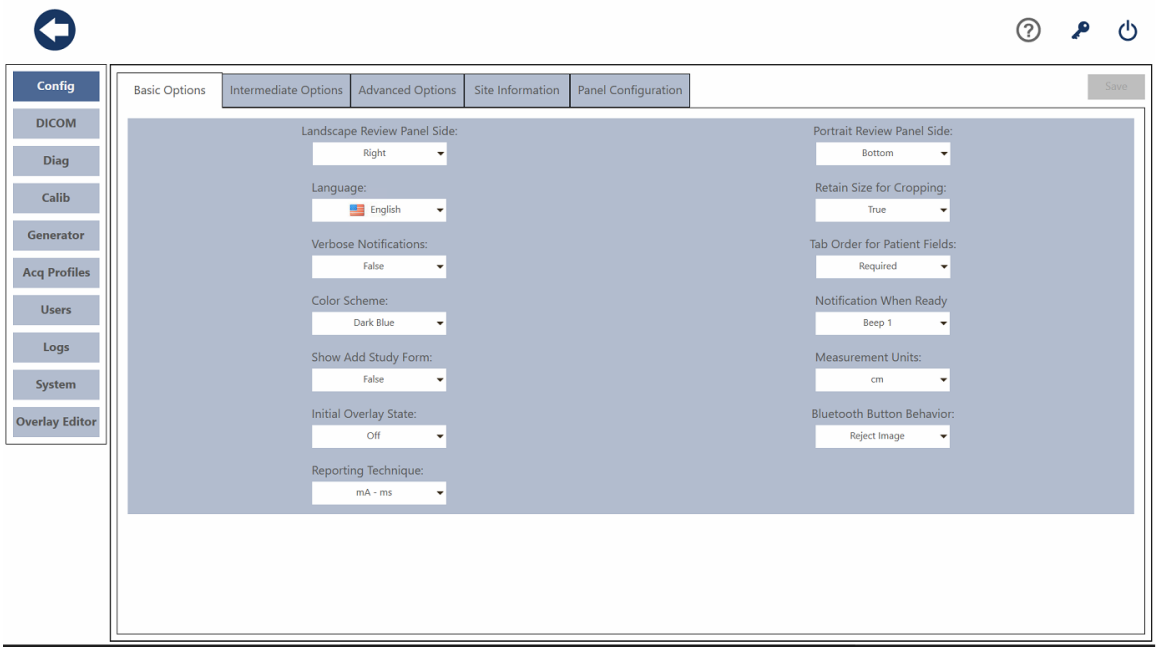
After the PC is powered up, it logs in to the Sound account and starts the software automatically. In the menu ribbon at the top of the **Clinical** screen, click the **Management** icon which is shaped like a gear: .

The following image shows where the icon is located at the top of the **Clinical** screen.

Figure 52: Location of Management icon

The Management screen opens, and you can complete your maintenance and configuration tasks. The user type that is logged into the system controls the tasks that you can perform. See the topic, *Management Screen Menu Options* on page 99 for information about the menu options.

Figure 53: Management screen



Management Screen Menu Options

This section describes the Management screen.

The Management screen menu provides access to screens needed to complete maintenance and configuration tasks. The user type that is logged into the system controls the tasks that you can perform.

Figure 54: Management screen

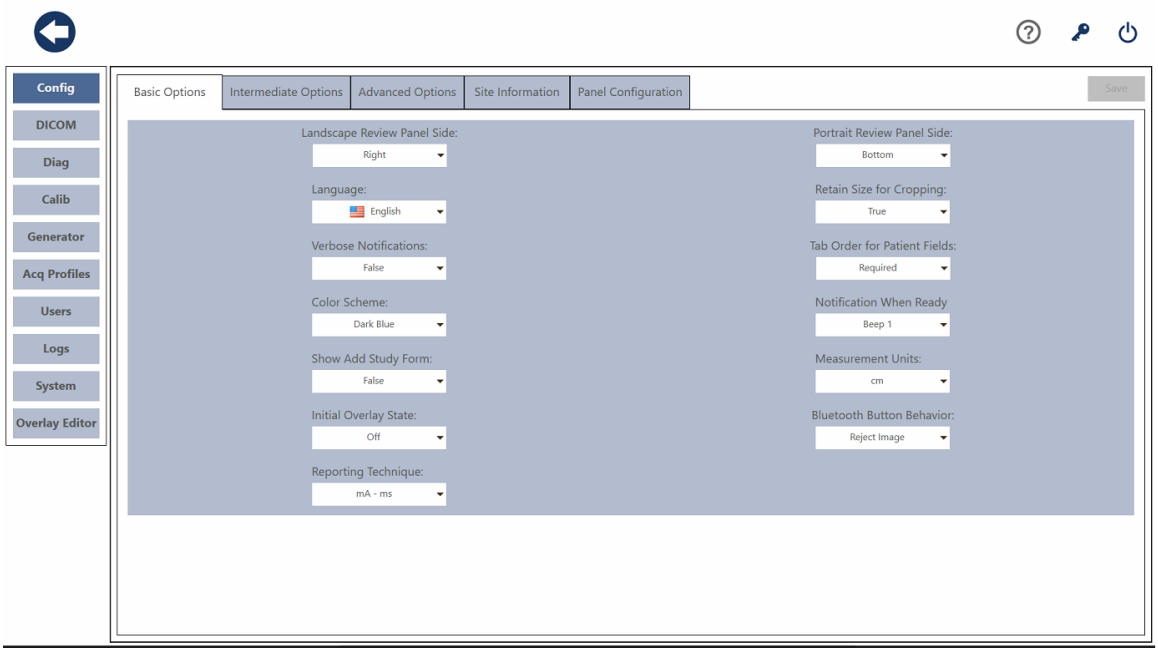


Table 41: Management Menu Options

Menu Tab	Description
Config	Use to configure basic, intermediate, and advanced system options. Also provides access to site information and panel configuration screens.
DICOM	Use to configure general DICOM options. Also provides screens for configuring DICOM storage, worklist and email servers as well as MPPS.
Diag	Provides access to the data collector and information about the detector connected to the system.
Calib	Provides access to the gain calibration and calibration history screens.
Generator	In systems with an integrated generator use to enable the capability.
Acq Profiles	Use to configure acquisition profile settings and acquisition protocols.
Users	Use to manage user accounts.
Logs	Provides access to various system logs.
System	Provides access to backup, restore, and update features. Also displays version information.
Overlay Editor	Use to configure overlays.

Configuring Basic Options

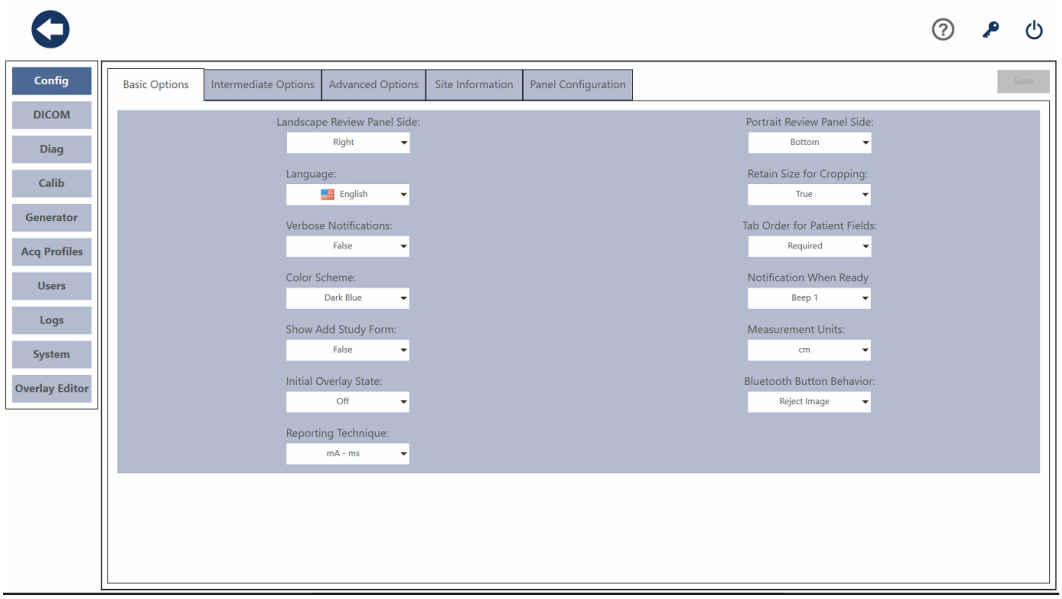
Configuring the System Options is the first step in configuring the x-ray system.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Configure the options as necessary for the site. See the topic, *Basic Configuration Parameters*, for information about each parameter.

Basic Options window

Basic Configuration Options window



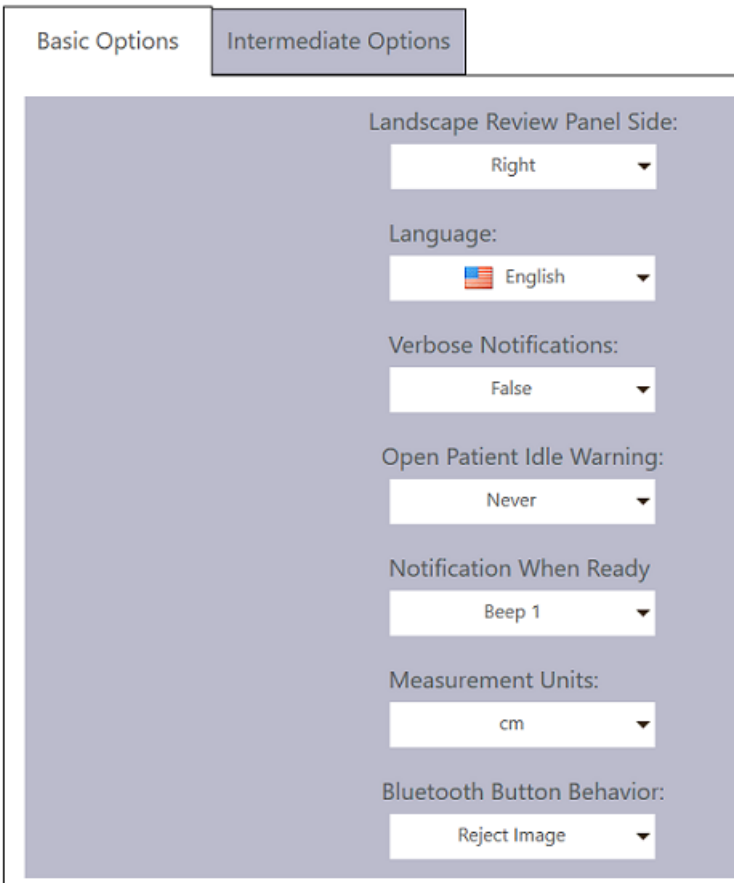


Table 42: Basic configuration options

Field	Details
Landscape Review Panel Side	Select Right or Left to determine the side of the screen that the Review panel is displayed on. Right is the default value.
Language	Select the language that the user interface will display. The default value is English. Other available languages include German, French, Italian, Portuguese, Spanish, Dutch, Chinese, and Russian.
Verbose Notifications	Select True to enable verbose system notifications. False is the default value.
Open Patient Idle Warning	When a patient has been open and idle for the selected amount of time (5, 10, or 20 minutes) a message warning the user about the battery is displayed. When this field is set to Never, no message is displayed regardless of how long a patient record is open and idle. Never is the default value.
Notification When Ready	Set this option to sound an audible tone when the panel is ready to acquire. Options are: None, Beep 1, Beep 2, Beep 3, Beep 4, and Beep 5.

Field	Details
Measurement Units	Set the units for measurements to millimeters (mm) or centimeters (cm).
Bluetooth Button Behavior	Options: Reject Image, Select Next Shot. Default value: Reject Image. When Reject Image is selected, the reject button behaves as it does in existing versions of the application on the acquisition screen. If Select Next Shot is selected, the button selects the next shot in the list. If the last shot is selected when the button is pressed, the first shot in the list becomes selected.

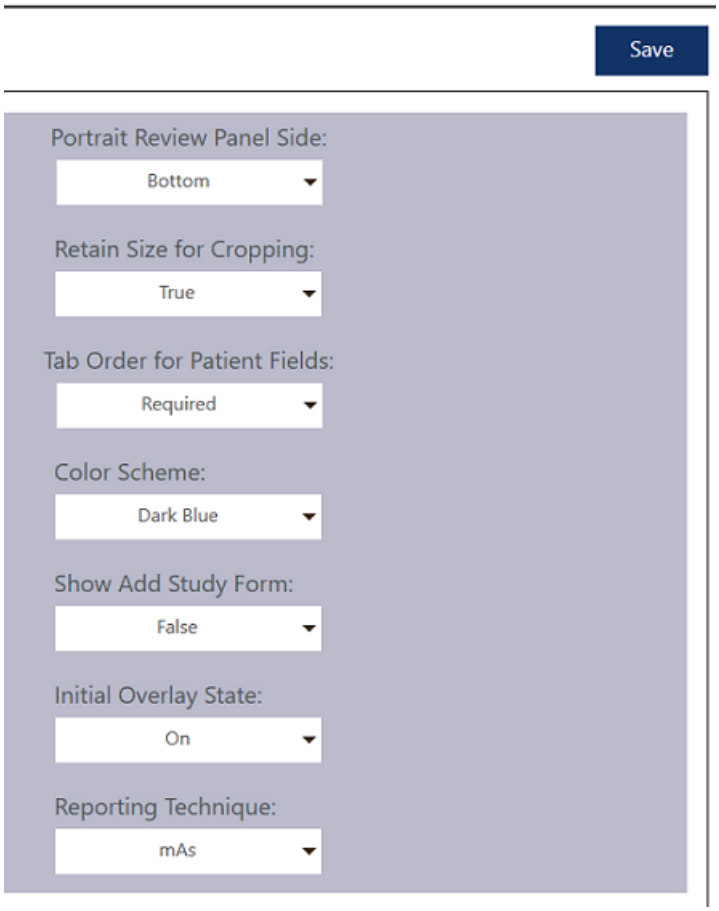


Table 43: Basic configuration options

Field	Details
Portrait Review Panel Side	Select Top or Bottom to determine which side of the monitor the Review panel is displayed on when the monitor is rotated for portrait display. Bottom is the default value.

Field	Details
Retain Size for Cropping	Select True to retain the display size of the anatomy in an image regardless of the ROI setting. Select False to allow the ROI setting to affect the size of the anatomy in the displayed image. True is the default value.
Tab Order for Patient Fields	When this option is set to Required, pressing the tab button will navigate through only the required fields in a screen. If it is set to All, pressing the tab button will navigate through all of the fields on a screen. Required is the default value.
Color Scheme	This option sets the color scheme for the software.
Show Add Study Form	Select True to display the Add Study form when you add a study for a patient. Select False to allow the system to skip this form and create another study containing the same settings as the previous study set for that patient.
Initial Overlay State	Determines whether the initial overlay state is On or Off. The On state indicates that the overlay will be displayed over images automatically in the Acqusition screen. The Off state indicates that the overlay is not displayed automatically.
Reporting Technique	This option determines whether technique is displayed as mAs or separated as mA and ms.

Configuring Intermediate Options

As part of the system configuration, you can configure intermediate options.

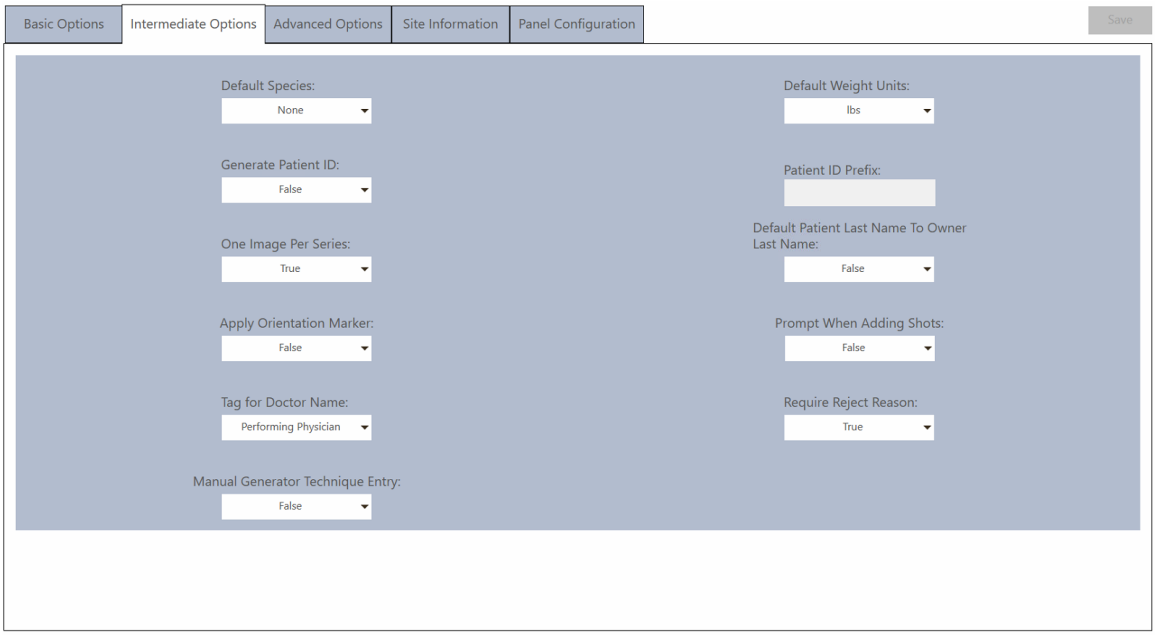
Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98 for instructions.
2. Configure the options as necessary for the site. See the topic, *Intermediate Configuration Parameters* on page 105 , for information about each parameter.

Intermediate Configuration Parameters

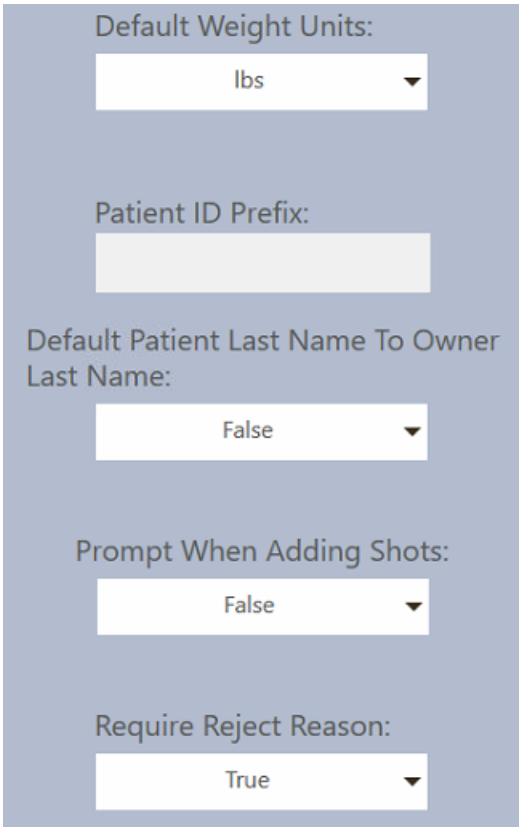
This section describes the parameters on the Intermediate Configuration screen.

Figure 55: Intermediate Options screen



Field	Details
Default Species	Select the default species for imaging. None is the default value.
Generate Patient ID	Selecting True in this field causes patient IDs to be automatically generated. The default value is False.
One Image Per Series	When this option is set to True, the system assigns each image a new series ID at acquisition.
Apply Orientation Marker	Set this value to True to automatically place an orientation marker in the upper left corner of the image. 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 default value is False.
Tag for Doctor Name	Set the value for the Doctor Name tag to Performing Physician or Referring Physician.

Field	Details
Manual Generator Technique Entry	A value of False means technicians will not be required to manually enter generator techniques after each acquisition. A value of True means that technicians are required to enter generator techniques manually.



Field	Details
Default Weight Units	Select the default unit for patient weights. The options are pounds (lbs) and kilograms (kg). Pounds are the default value.
Patient ID Prefix	When Generate Patient ID is set to True, you can specify an alpha-numeric patient ID prefix of up to 10 characters in this field.
Default Patient Last Name to Owner Last Name	Set this option to True to populate the Patient Last Name field with the value in the Owner Last Name field. If the Patient Last Name field contains a value, the system leaves this value in place. Set this option to False to leave the Patient Last Name field empty if the Owner Last Name field contains no value.

Field	Details
Prompt When Adding Shots	Set this value to True to present a warning to users who enter the shotlist screen of a study that already contains images. This message warns the user that images added to the study at this time will reflect the original study date. From here, users can continue the operation or cancel and return to the previous screen. Options: True or False. Default: False.
Require Reject Reason	Set this value to True to require technicians to enter a reason for rejecting an image. Set this value to False to allow technicians to reject an image without entering a reason.

Configuring Advanced Options

As part of the system configuration, you can configure advanced options such as the COM port and I/O card

About this task

Access the Advanced Options tab from the Management screen.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Select **Config**.
3. Select **Advanced Options**.
4. Configure the fields as desired, and click **Save**. See the topic, *Advanced Configuration Options Parameters* for information about these parameters.

Advanced Options window

Figure 56: Config screen — Advanced Options

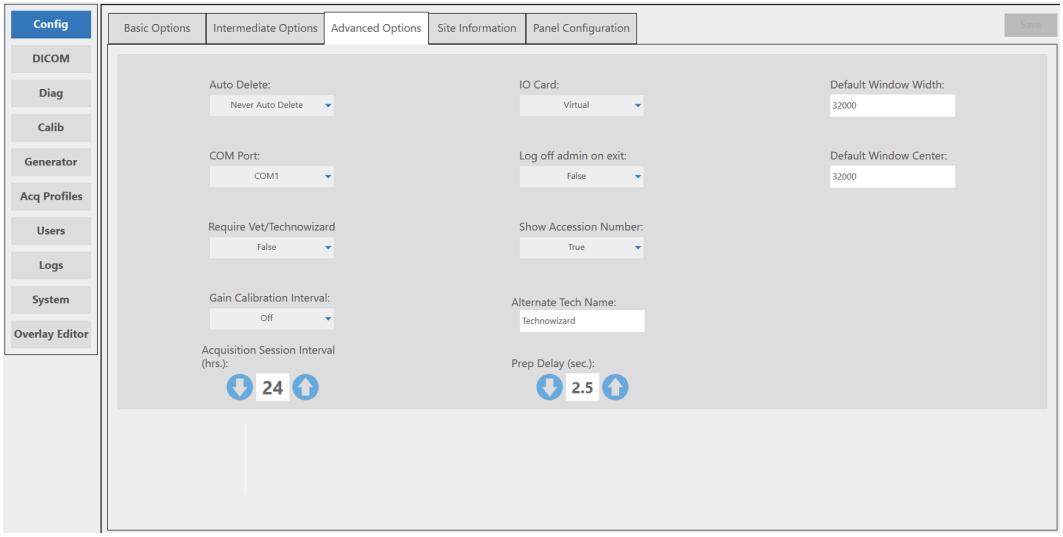


Figure 57: Advanced Configuration Options first column

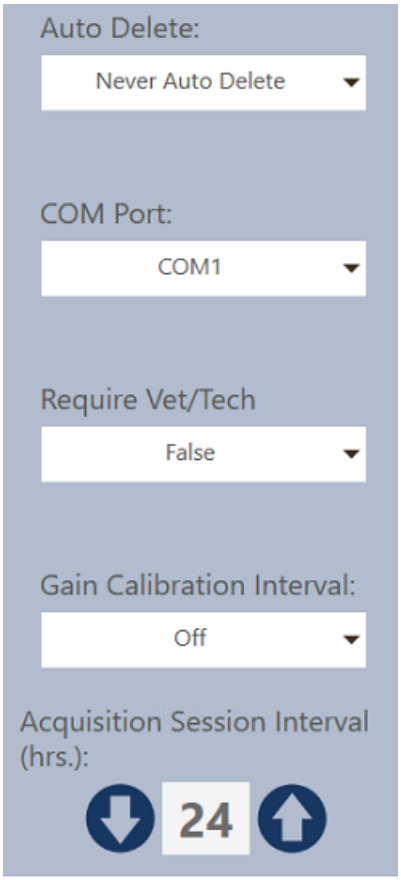


Table 44: Advanced Configuration Options first column

Field	Details
Auto Delete	Select the option that best fits the needs of the site. The options are Never Auto Delete, 50, 75, and 90. Never Auto Delete is the default value. Selecting any value other than Never Auto Delete causes patient records to be deleted when the percent of used hard disk space is greater than the value selected. The oldest patient records are deleted first and records are deleted until the percent of used disk space is less than the selected value. You can also specify that records older than the selected number of months should be automatically deleted. Selecting one of the date range options (3 months, 6 months, or 12 months) will cause the auto-delete function, which runs on logoff, to delete any patient record that is older than the number of months selected.
COM Port	Select the COM port that the system will use from the list of available ports. The default port is the lowest available port.
Require Vet/Tech Selection	Set this value to True to require the user to select a vet and/or tech before closing the study. Options: True or False. Default: False.
Gain Calibration Interval	Specify the gain calibration interval from one of these options: Off (calibration does not expire), Quarterly (calibration is valid for three months), Semi-annual (calibration is valid for six months), or Annual (calibration is valid for one year). The default value is Off.

Field	Details
Acquisition Session Interval (hrs.)	Specify the acquisition session interval in hours. When a shot is acquired into a study that already has a shot of the same anatomy, the new shot is placed into a new series if the interval between the first shot and the new shot exceeds the acquisition session interval.

Figure 58: Advanced Configuration Options second column

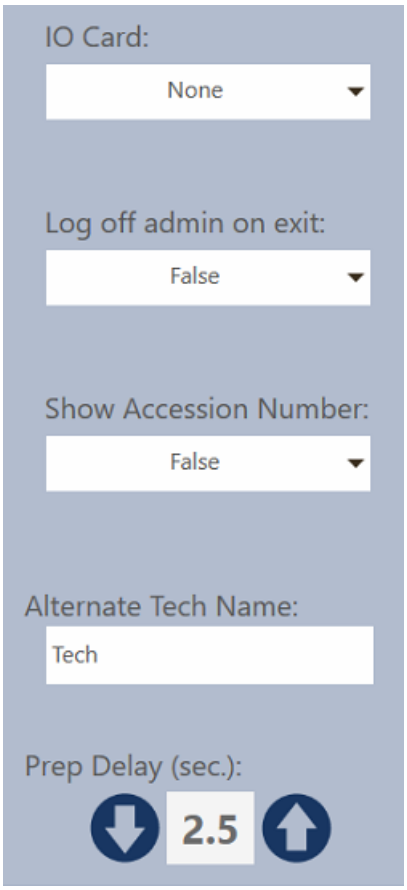


Table 45: Advanced Configuration Options second column

Field	Details
I/O Card	Select the I/O card that the system will use. The options are Virtual and Mark II. Mark II is the default.
Log off admin on exit	If True is selected, and the Sound user is logged in to the Window operating system, the Sound user is logged out automatically when the software client is closed. True is the default value. If False is selected, the Windows desktop is displayed when the software client is closed.

Field	Details
Show Accession Number	If set to True, the Accession Number field displays on Add Patient, Edit Patient, and Add Study screens. If set to false, this field does not appear on these screens.
Alternate Tech Name	Enter up to 12 characters to create an alternate technician name.
Gain Calibration Interval	Specify the gain calibration interval from one of these options: Off (calibration does not expire), Quarterly (calibration is valid for three months), Semi-annual (calibration is valid for six months), or Annual (calibration is valid for one year). The default value is Off.
Prep Delay (sec.)	The prep delay interval in seconds. The default setting is 2.5. The setting may be set to .5, 1, 1.5, 2, 2.5, 3, 3.5, or 4 seconds as needed by the site.

Figure 59: Advanced Configuration Options third column

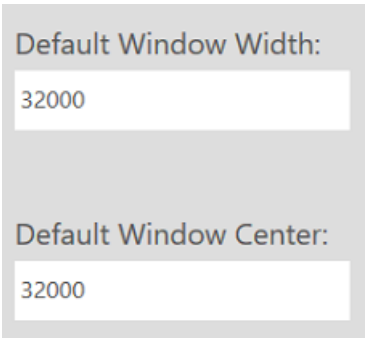


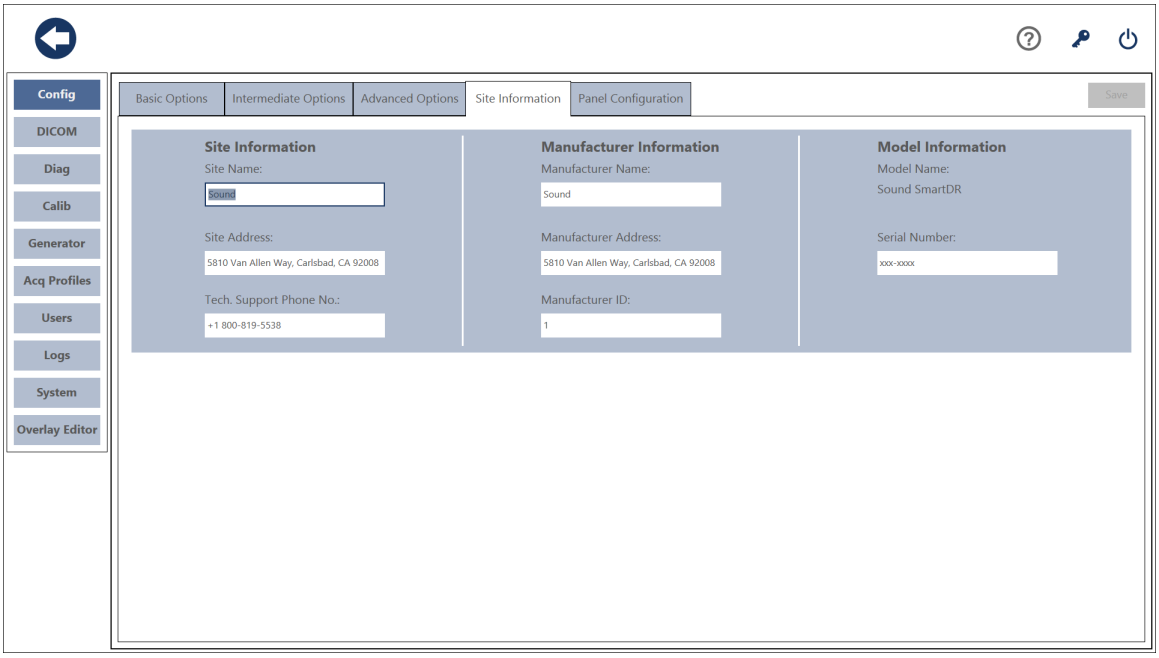
Table 46: Advanced Configuration Options second column

Field	Details
Default Window Width	Use this field to set the default window value for Musica.
Default Window Center	Use this field to set the default level value for Musica.

Site Information

The site information is preconfigured at the factory.

Figure 60: Site Information tab



Configuring Panels

This chapter describes how to configure the flat-panel detectors that are supported for use with this system.

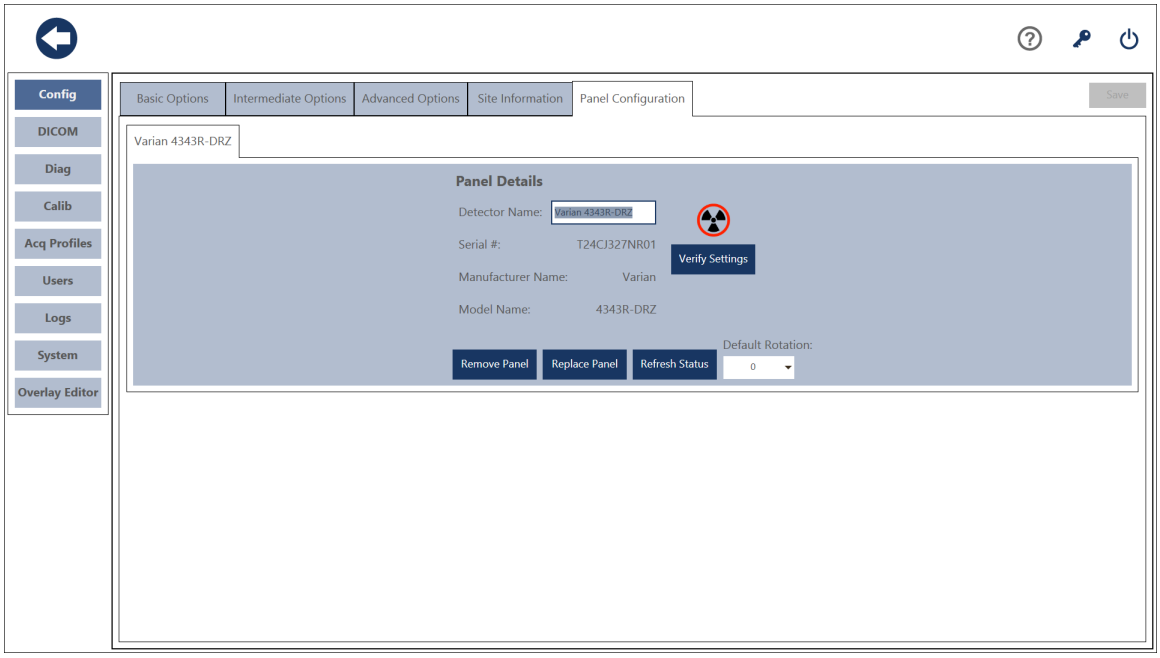
Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.

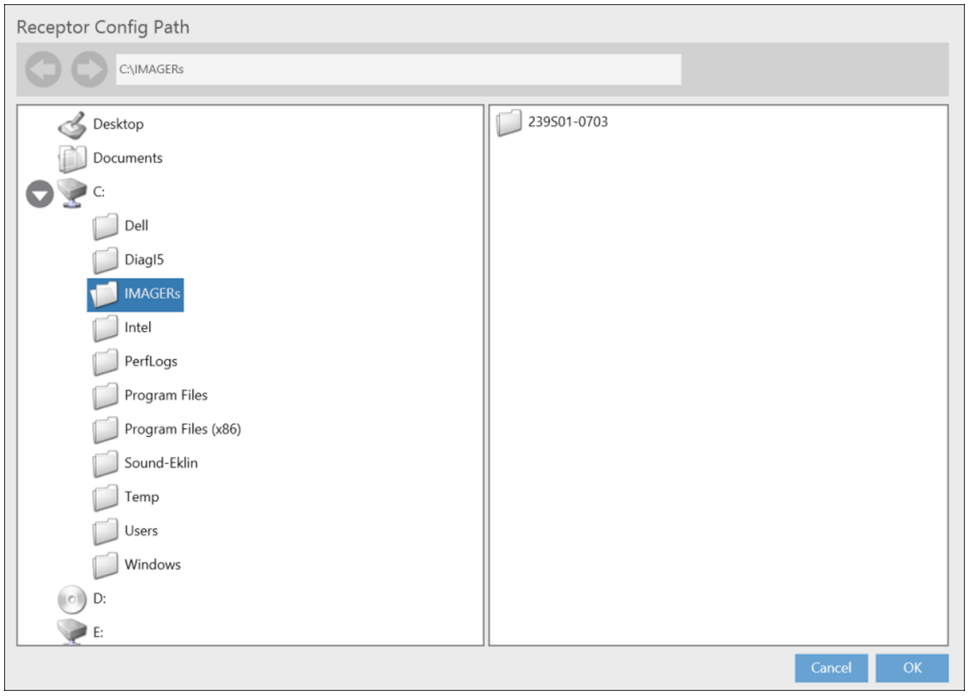
   The **Config** screen is displayed automatically.
2. Click the **Panel Configuration** tab.

3. In the Model Name field, select the detector that you want to install.

Figure 61: Config screen — Panel Configuration



4. In the **Receptor Config Path** window, select `Imagers`.

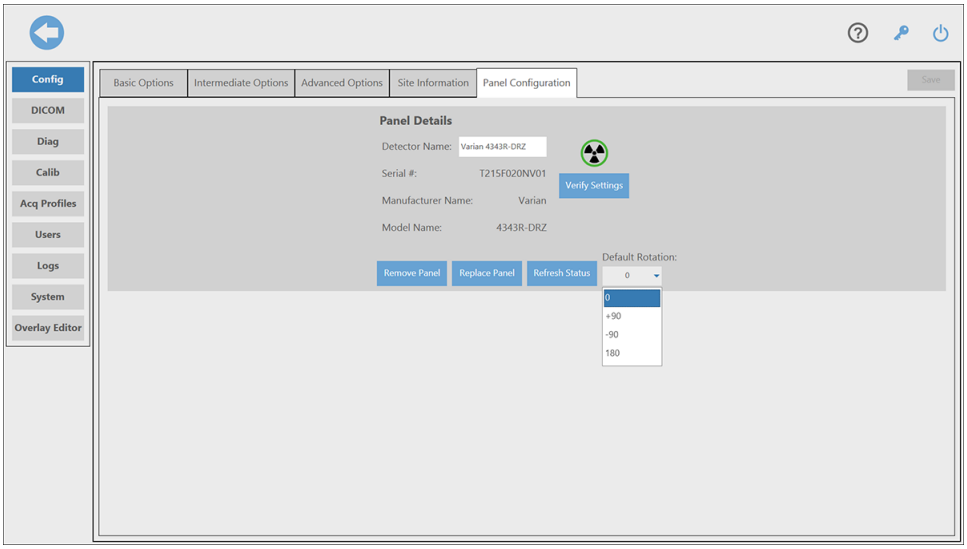


5. In the pane on the right, select the serial number of the panel that you want to add.

6. Click **OK**

   The panel is added to the system.

Figure 62: Config screen — Panel Configuration with panel



7. Optional: In the Detector Name field, type a name for the detector. Type a name that will make it easy to identify which panel is installed.
8. Optional: In the **Default Rotation** field, select the default rotation of the panel.
9. Optional: Test the connection by clicking **Verify Settings**.

   A message is displayed indicating whether the connection to the panel is working. In addition the circle around the icon above the **Verify Settings** button is green if the connection is working.
10. Click **Save** to save the panel configuration.

Removing panels

In some cases, it might be necessary to remove a panel.

About this task

Note: If the panel is configured to automatically connect to the PC using **Remember Detector**, the PC will no longer attempt to make the connection after the panel is removed.

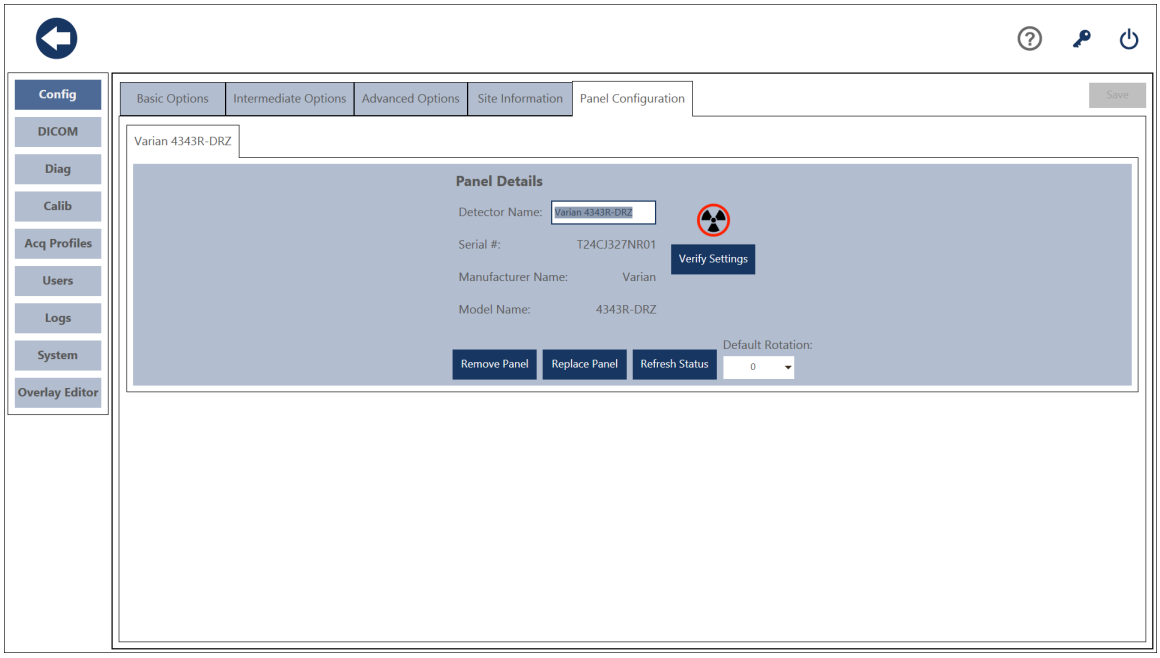
Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.

   The Configuration window is displayed automatically.
2. Click **Panel Configuration**.

   The panel that is currently configured with the system is displayed.

Figure 63: Config screen — Panel Configuration Remove Panel button



3. Click **Remove Panel**.

   The panel is removed. If you add the same panel again, you must restart the PC before you can connect to the panel properly.

Replacing detectors

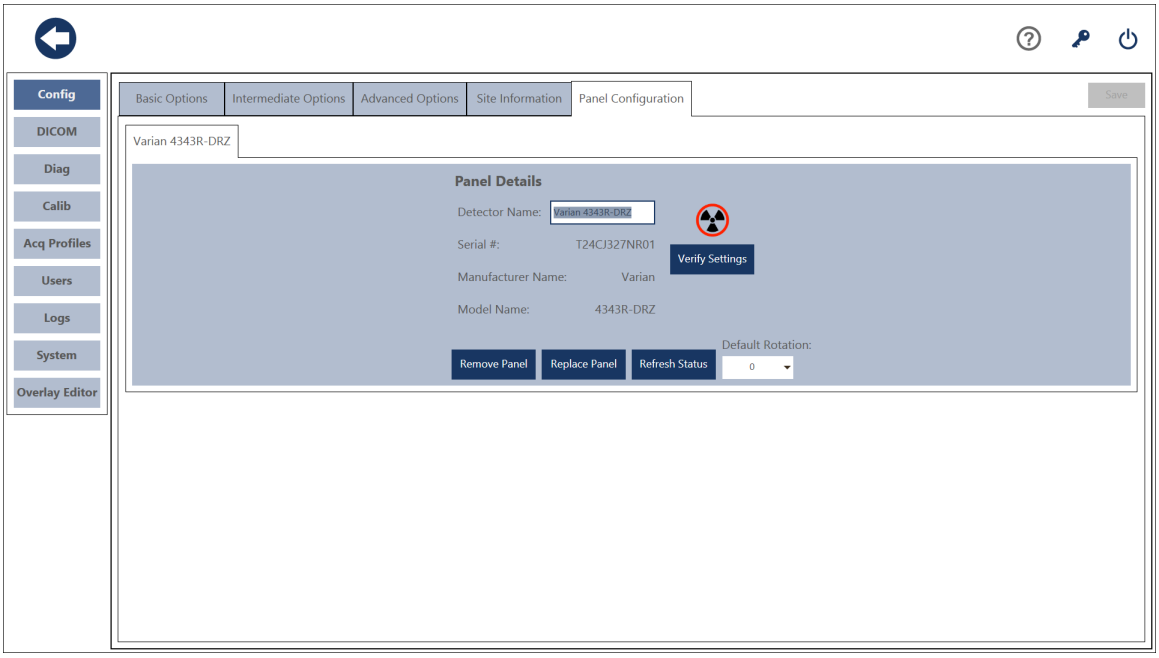
Detectors can be replaced in the **Management** screen with another panel of the same type. The previous panel does not need to be uninstalled and the PC does not need to be restarted to replace a panel.

Procedure

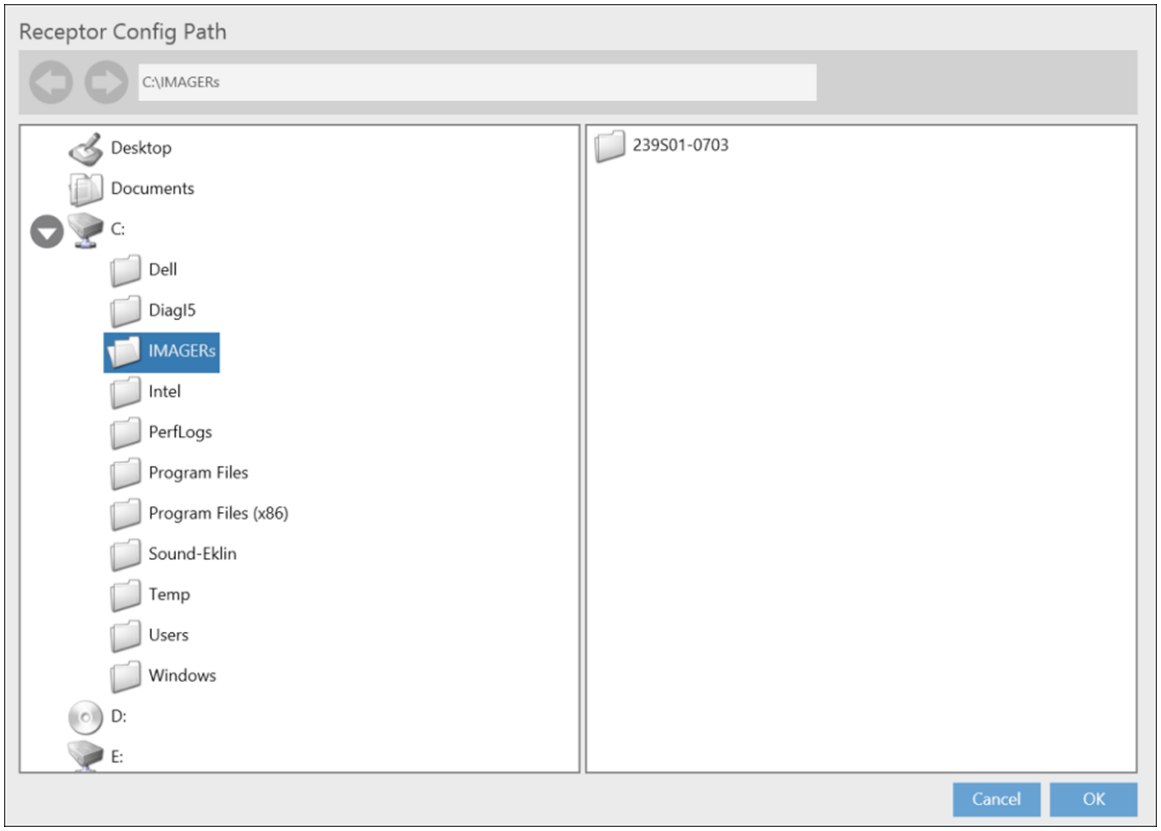
1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.

   The **Config** window is displayed by default.

2. Select the **Panel Configuration** tab.



3. Select **Replace Panel**.
   The **Receptor Config Path** window opens and displays the `c:\IMAGERs` directory.



4. Select the serial number of the panel that you want to replace, and select **OK**.

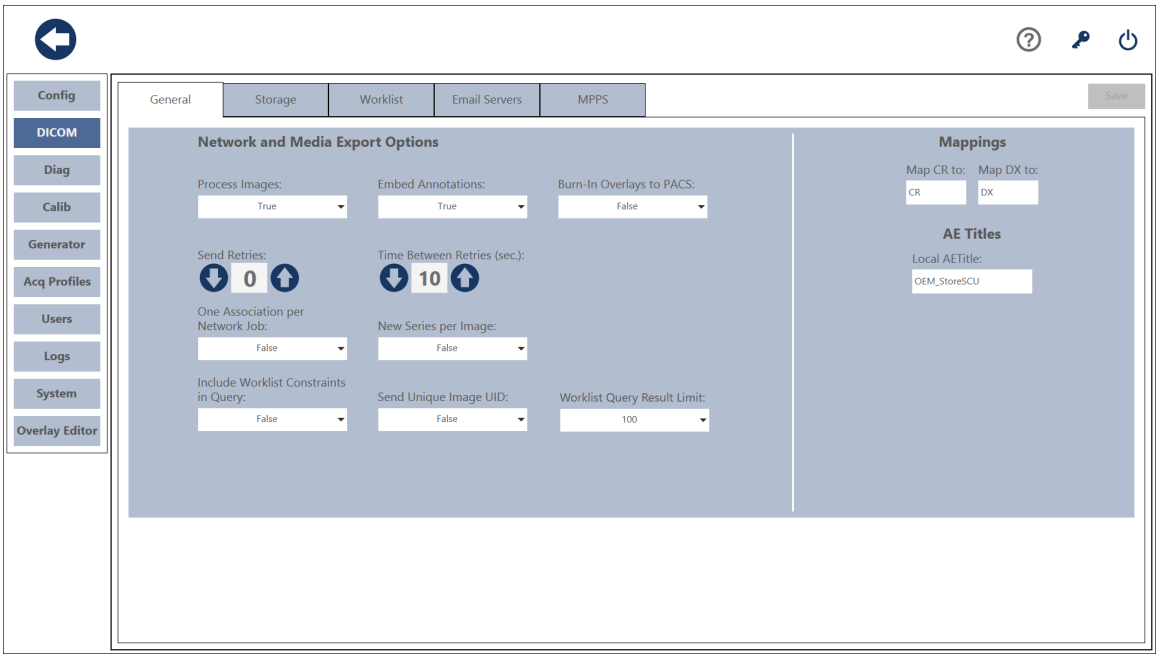
DICOM Storage Devices

Sound SMART DR™ can communicate with DICOM devices at the site or at remote locations.

Warning: It is the responsibility of the service technician or the site network administrator to ensure that the DICOM devices and the network are configured properly to work with Sound SMART DR™ . Incorrectly configured DICOM devices or network will result in failures in DICOM transferring the images acquired by Sound SMART DR™ .

Il est de la responsabilité du technicien de service ou du réseau de sitesadministrateur de veiller à ce que les dispositifs de DICOM et le réseau sont correctement configurés au travail Sound SMART DR™ . Mal configuré dispositifs DICOM ou réseau se traduira par des échecs dans DICOM transférer les images acquises par Sound SMART DR™ .

DICOM devices are configured in the **Management** screen, **DICOM** tab.



DICOM consists of the following components which must be configured for DICOM to work properly:

- General configuration
- Storage server configuration
- Worklist server configuration
- Email server configuration
- MPPS

Important: Consult with the site's IT department for IP addresses and AE titles for all DICOM storage servers.

Valid configuration characters

The following table lists the characters that may be used to configure DICOM attributes.

Table 47: Valid characters for DICOM configuration

0-9	A-Z	a-z	<space>	!	"
#	$	%	&	‘	(
)	*	+	,	-	.
/	:	;	<	>	=
?	@	[	]	\	^
_	{	}	|	~	‘

Configuring general DICOM settings

The x-ray system can communicate onsite and remotely with DICOM devices such as storage devices and worklists.

About this task

Warning: It is the responsibility of the Service Tech or the site network administrator to ensure that DICOM devices and the network are configured properly to work with the x-ray system. Improper configuration can result in failures in sending images acquired by the x-ray system.

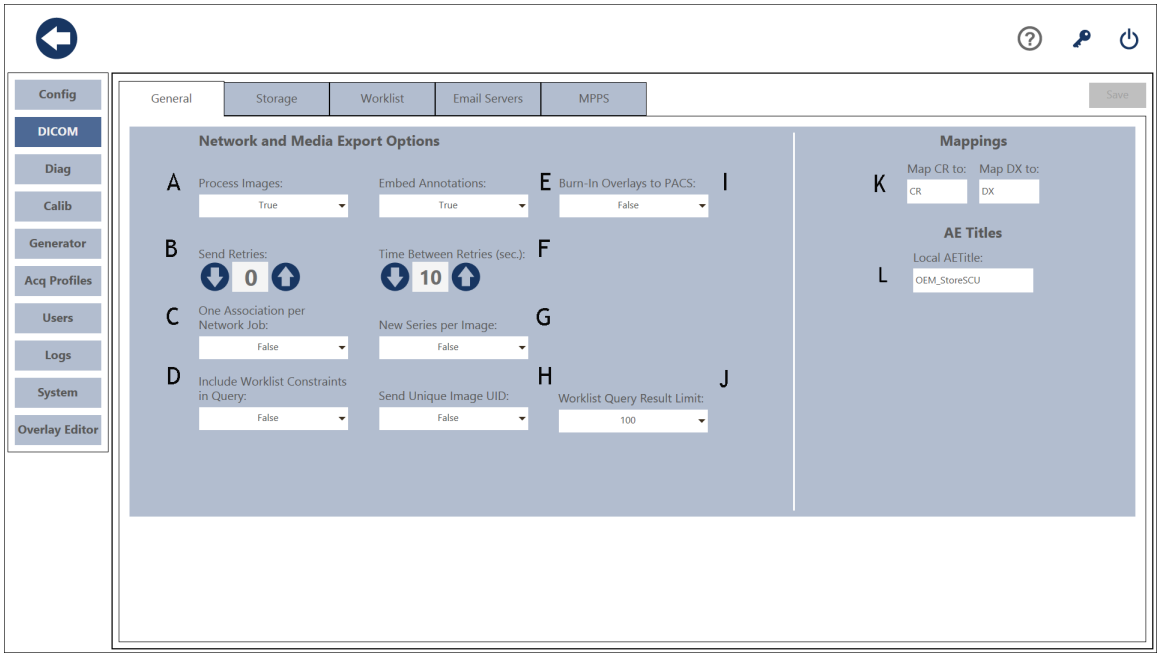
Il est de la responsabilité de la Tech de service ou à l'administrateur réseau de site pour s'assurer que les dispositifs DICOM et le réseau sont correctement configurés pour fonctionner avec le système x -ray. Une mauvaise configuration peut entraîner des défaillances dans l'envoi d'images acquises par le système x -ray.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **DICOM**.

   The **General** tab is displayed by default.
3. Configure the settings as necessary for the site. See the topic, *DICOM General Screen Parameters*, for more information about these parameters.

Figure 64: DICOM General tab



DICOM General configuration settings

DICOM General tab parameters

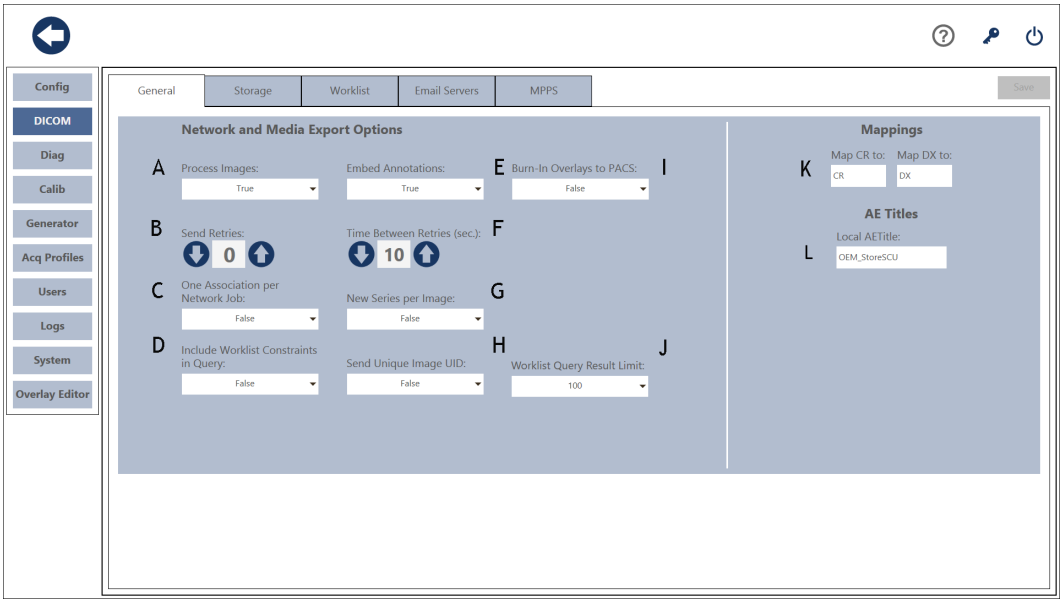


Table 48: DICOM General configuration settings

A	Set the **Process Images** option to True or False. True is the default. When set to True, the images are sent to the DICOM device with image processing and all user-applied image processing.
B	Set the number of **Send Retries** to a value from 0 to 10. The default setting is 0. This setting defines how many times a failed network DICOM job will be resent to the DICOM device.
C	Set the **One Association per Network Job** to True or False. False is the default. When set to True, the system creates only one network association to the PACs when sending a patient. When set to False, the system creates multiple associations to the PACs when sending a patient.
D	Set the **Include Worklist Constraints in Query** to True or False. The default value is False. Set this option to True to include the data range selected on the Worklist screen as part of the query; the RIS filters the data by date. Set this option to False to require the system to filter and display the worklist results based on the date range selected on the Worklist screen.
E	Set the **Embed Annotations** option to True or False. True is the default. This option can be set to True only if the **Process Images** option is also set to True. When **Embed Annotations** is set to True, all annotations are sent to the DICOM device as part of the image.
F	Set the **Time Between Retries (sec)** to a value from 0 to 200 seconds. The default is 10 seconds. This option defines the number of seconds between attempts to resend failed DICOM jobs to the DICOM device, with 0 meaning no wait period.

G	Set the **New Series per Image** option to True or False. False is the default. When set to True, the system sends each image to the DICOM device with a new series indicator.
H	Set the **Send Unique Image UID** option to True or False. False is the default. When this option is True, the system sends a new image UID each time the image undergoes the DICOM export process. When this option is False, the system sends the original image UID each time the image undergoes the DICOM export process.
I	Set the **Burn-in Overlays to PACS** option to True or False. The default is False. Set the parameter to True to embed overlays into the transferred image.
J	Set the **Worklist Query Result Limit** to one of these values: 100, 200, 500, 1000, 2500, or 5000. 100 is the default. Increasing the number of results also increases the time required to complete the query.
K	Configure the modality mappings. When the modality mapping is set, the image type sent has the modality tag (0008,0060) value changed to the value stored in the mapping setting for that image type. By default, the modality attributes are set to the same value as the corresponding local x-ray system database modality attributes.
L	Specify the **Local AE Title** for the system. The default value is OEM_StoreSCU.

Adding DICOM storage servers

This topic describes how to add DICOM storage servers.

About this task

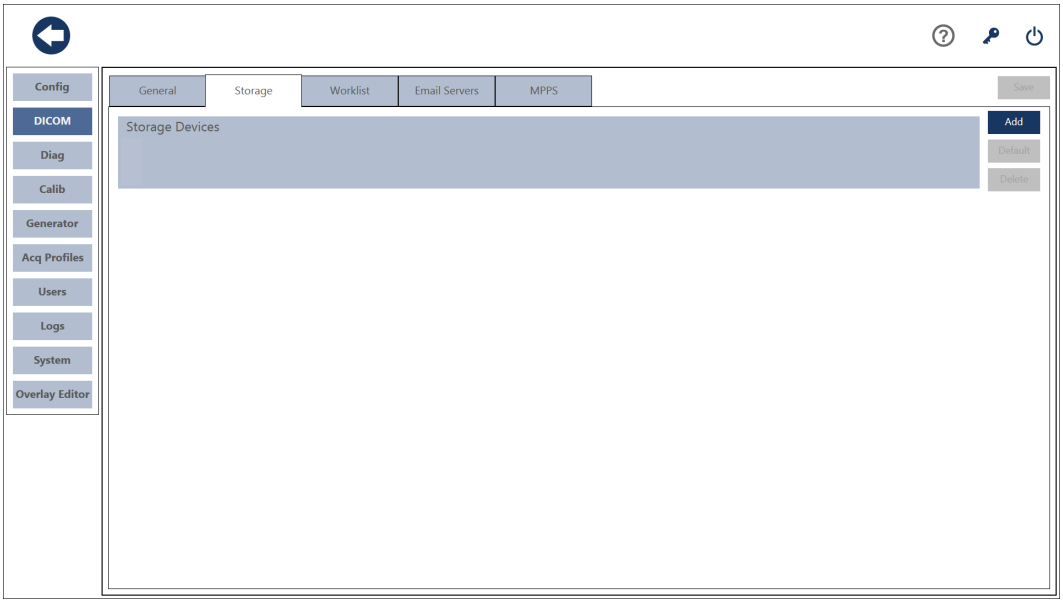
The system tracks DICOM batch sends by server.

Procedure

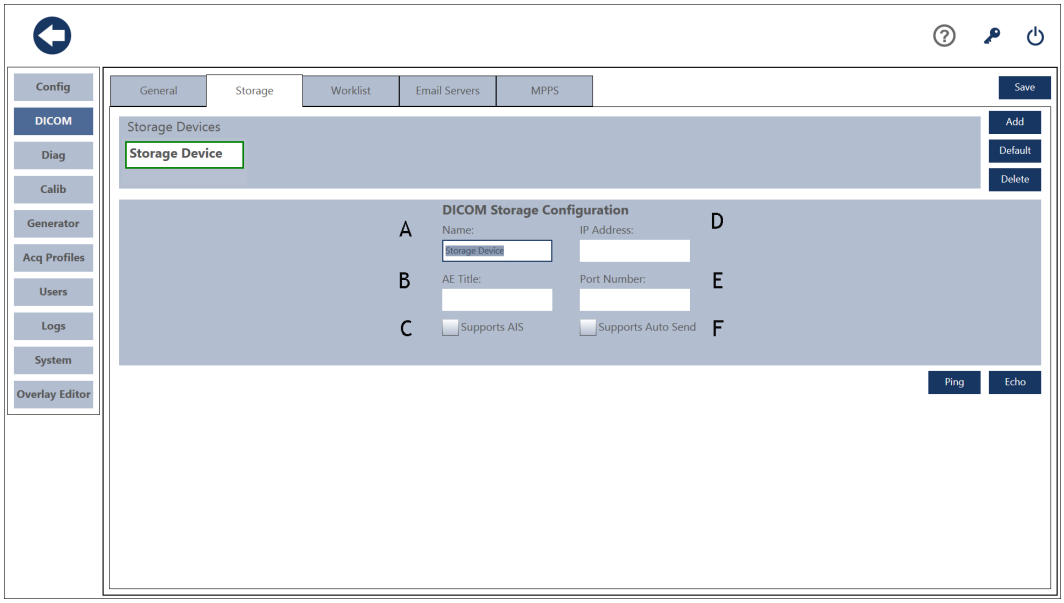
1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **DICOM** > **Storage** tab.

   The Storage tab is displayed. If no storage servers have been configured, the tab is blank as shown in the following image. Otherwise, the configured storage servers are displayed in the Storage Devices area of the **Storage** tab.

Figure 65: DICOM Storage tab



3. Click **Add**.
   The fields for configuring a new DICOM storage server for the system are displayed.



Item	Description
A	Type the name for the device. The field supports a name of up to 64 characters. The characters ^ and \ are not supported.
B	The AE Title of the DICOM device. This is the Application Entity title that is required for DICOM functionality. **Important:** The AE title is case-sensitive and must contain no more than 16 characters.
C	Select the check box if the server is an ANTECH Imaging Services (AIS) server. An AIS server allows authorized access to images and reports at any time from any Internet-enabled computer. The default setting is deselected.
D	Type the IP address of the DICOM server where images are sent. The IP address must conform to the standard format for IP addresses: *xxx.xxx.xxx.xxx*, where *xxx* is an integer from 0-255. Contact the site IT department or PACS administrator for the IP address of the storage server.
E	Specify the port number for the DICOM server connection. The default is blank. Contact the site IT department or PACS administrator for the IP address of the storage server.
F	Select this check box if you want to automatically send studies and images to the storage server. The default is deselected.

4. Complete the fields, and click **Save** to save the storage server.

5. Optional: You can verify the connectivity between the system and the new device by clicking **Ping** or **Echo**.

Ping	Verifies that there is network communication between the PC and the DICOM device.
Echo	Verifies that there is network communication and that the DICOM device can respond to communication from the PC.

6. Optional: If more than one storage server is configured, you can specify the default device by selecting the device and clicking **Default**.

Adding DICOM worklist servers

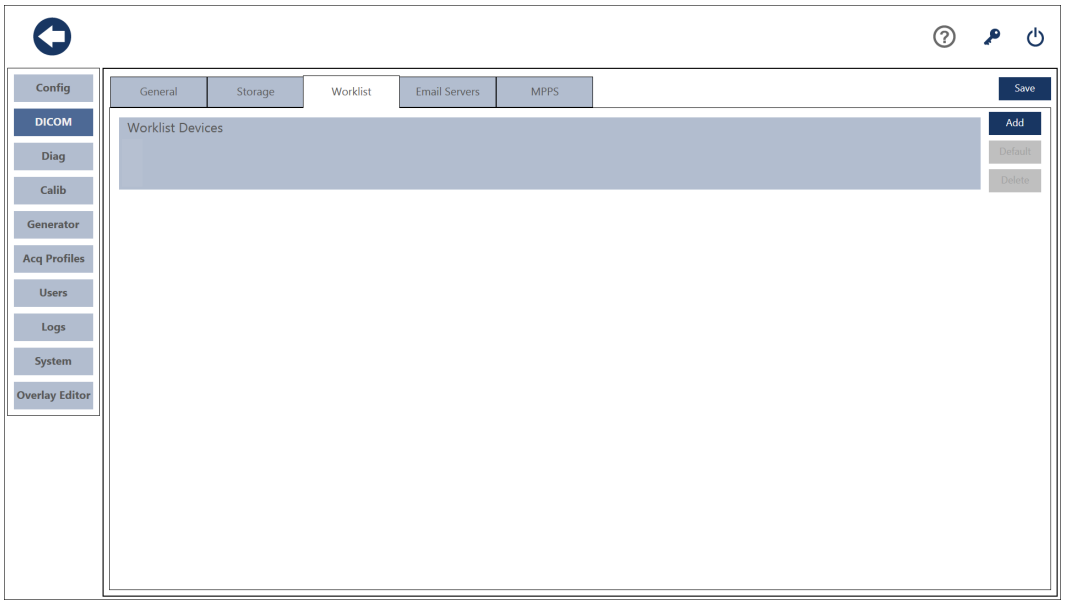
This topic describes how to add worklist servers on the system.

Procedure

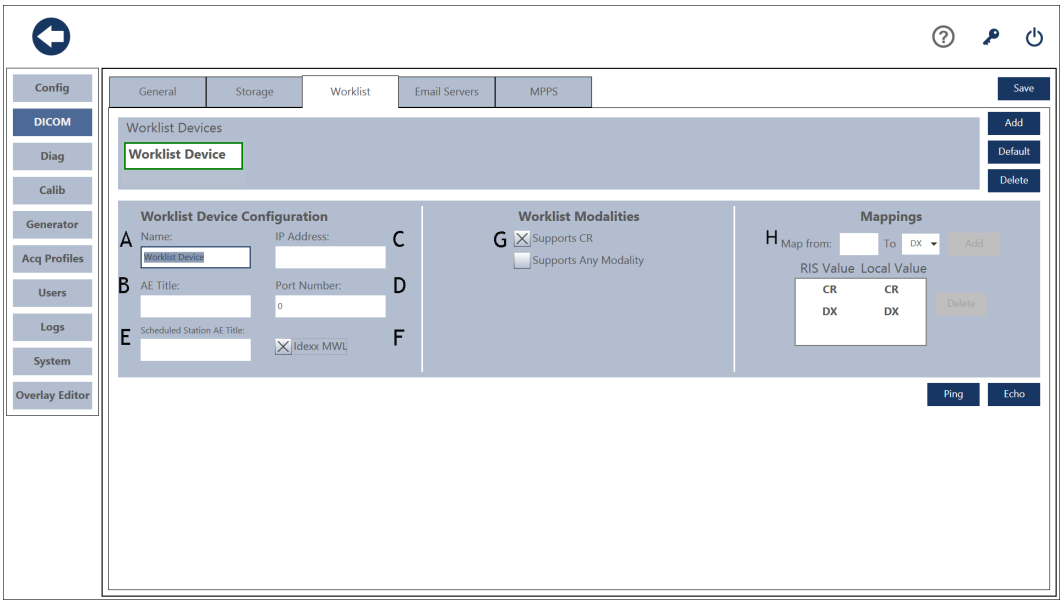
1. Open the **Management** screen. See the topic, *Displaying the Management screen*, for instructions.
2. Click **DICOM** > **Worklist** tab.

   The **Worklist** tab is displayed. If no other worklist servers have been created, the tab is blank as shown in the following image.

Figure 66: DICOM Worklist tab



3. Select **Add**.
   The fields for configuring a new worklist server are displayed.



4. Configure the fields as necessary for the site. See *DICOM Worklist server parameters* on page 128 for more information.
5. Optional: You can verify the connectivity between the system and the new device by clicking **Ping** or **Echo**.

Ping	Verifies that there is network communication between the PC and the DICOM device.
Echo	Verifies that there is network communication and that the DICOM device can respond to communication from the PC.

DICOM Worklist server parameters

DICOM Worklist server parameters

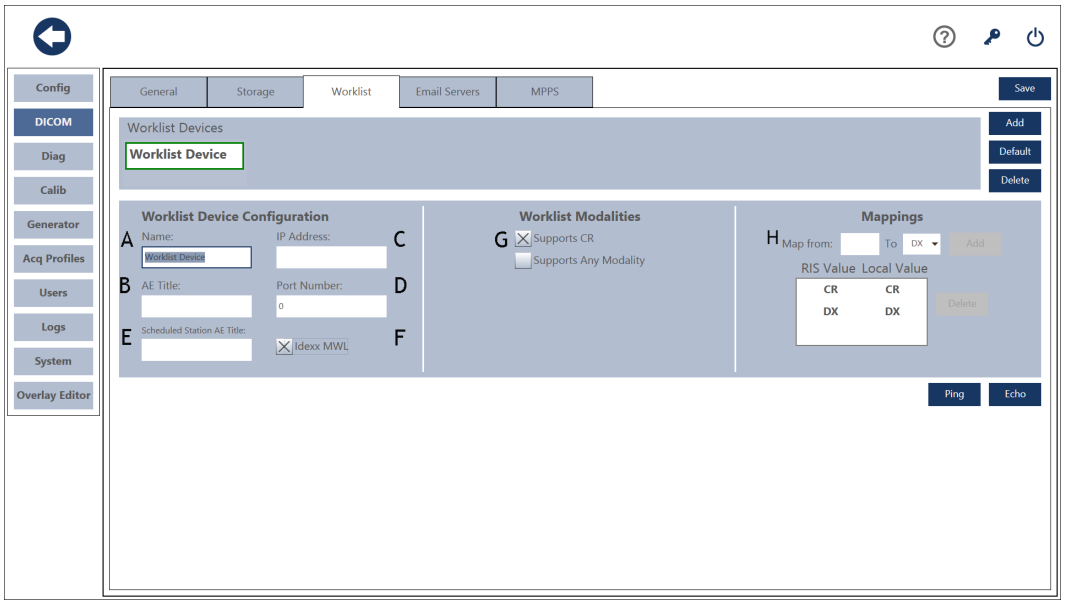


Table 49: DICOM Worklist server parameters

A	Type the name for the device. The field supports a name of up to 64 characters. The characters ^ and \ are not supported.
B	The AE Title of the DICOM device.
C	Type the IP address of the DICOM server where the images are sent. The IP address must conform to the standard format for IP addresses: *xxx.xxx.xxx.xxx*, where *xxx* is an integer from 0-255. Contact the site IT department or PACS administrator for the IP address of the storage server.
D	Specify the port number for the DICOM server connection. The default is blank. Contact the site IT department or PACS administrator for the IP address of the storage server.
E	Enter a value in this field to specify the Scheduled Station AE Title. The system uses this value to filter the results of queries to the MWL server.
F	Enable if the worklist server is an Idexx server.
G	Select the supported worklist modalities for the search. Only those patients with the modalities selected are returned by the search.
H	Configure or delete the modality mappings. Use the Mappings table to specify the modality attribute the PACS applies to images it receives from the x-ray system. For example, if DX images are acquired on the x-ray system, but the PACS is not configured to support DX, you can map the DX modality to a compatible PACS-supported modality such as CR. This mapping ensures that the DX images have the CR modality attribute applied to them when received by the PACS, and that they are displayed from the PACS. By default, the PACS modality attributes are set to the same value as the corresponding local x-ray system database modality attributes

Adding email servers

This topic describes how to add an email server to the system.

About this task

The system can send images to email addresses.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **DICOM** > **Email Servers** tab.

   The Email tab displays. If no email servers have been configured, the tab is blank. Otherwise, the configured email servers are displayed in the **Email Servers** tab.
3. Click **Add**.

   The fields for configuring a new email server for the system are displayed.

Control or Field	Description
Name	Enter email server used.
SMTP Server	Enter URL of the Simple Mail Transfer Protocol (SMTP) server.
Port Number	Enter the port number for the SMTP server.
Server Name	Enter the server name.
Max Email Size (MB)	Enter the maximum size in MB allowed for an email message.

4. Complete the fields.
5. Tap **Save**.

Adding MPPS devices

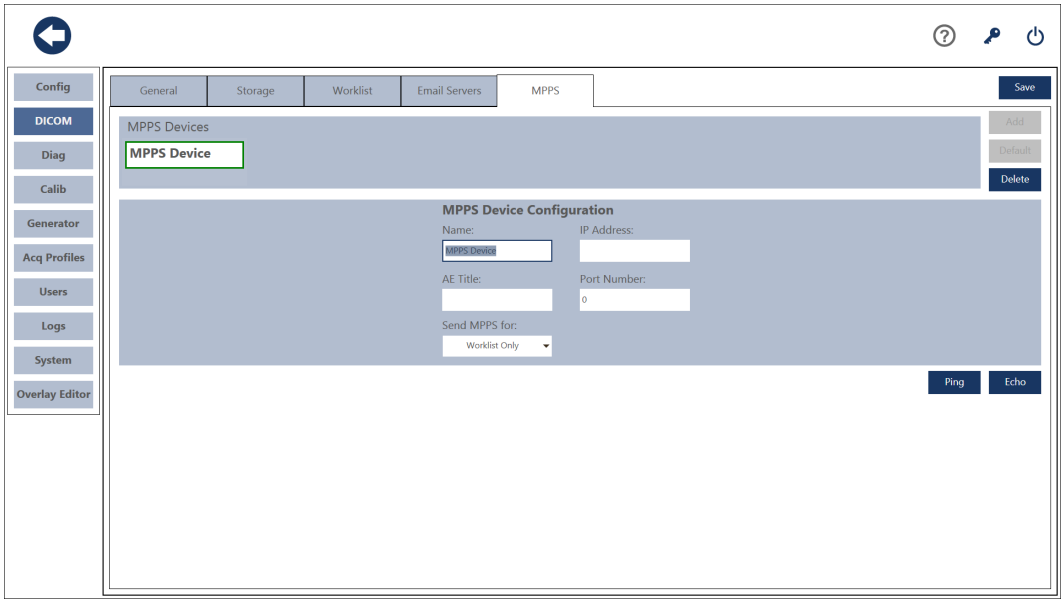
This topic describes how to add an MPPS device to the system.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **DICOM** > **MPPS** tab.

   The MPPS tab displays. If no MPPS server has been configured, the tab is blank. Otherwise, the configured MPPS server is displayed in the **MPPS** tab.

3. Click **Add**.
   The fields for configuring an MPPS server for the system display.



Control or Field	Description
Name	Enter MPPS device name.
IP Address	Enter the IP address of the MPPS device.
AE Title	Enter the AE title.
Port Number	Enter the port number for the MPPS device.
Send MPPS for	Select Everyone to send MPPS data for all patients. Select Worklist Only to send MPPS data only for patients imported from a worklist.

4. Complete the fields.
5. Tap **Save**.

Configuring Acquisition Profiles

Acquisition profiles are required to take images with the x-ray system. This section describes how to configure acquisition profiles for the installation site.

About this task

Acquisition profiles consist of two parts: profile settings and protocols.

Procedure

1. Configure profile settings. See the topic, *Configuring acquisition profile settings* on page 132, for instructions.
2. Create protocols. See the topic, *Creating protocols* on page 139, for instructions.

3. Edit protocols. See the topic, *Editing protocols* on page 143, for instructions.
4. Delete protocols. See the topic, *Deleting protocols* on page 143, for instruction.

Configuring acquisition profile settings

Generally, the default settings for acquisition profiles meet the needs of the majority of sites. Complete this task only if the default settings do not meet the needs of the site.

About this task

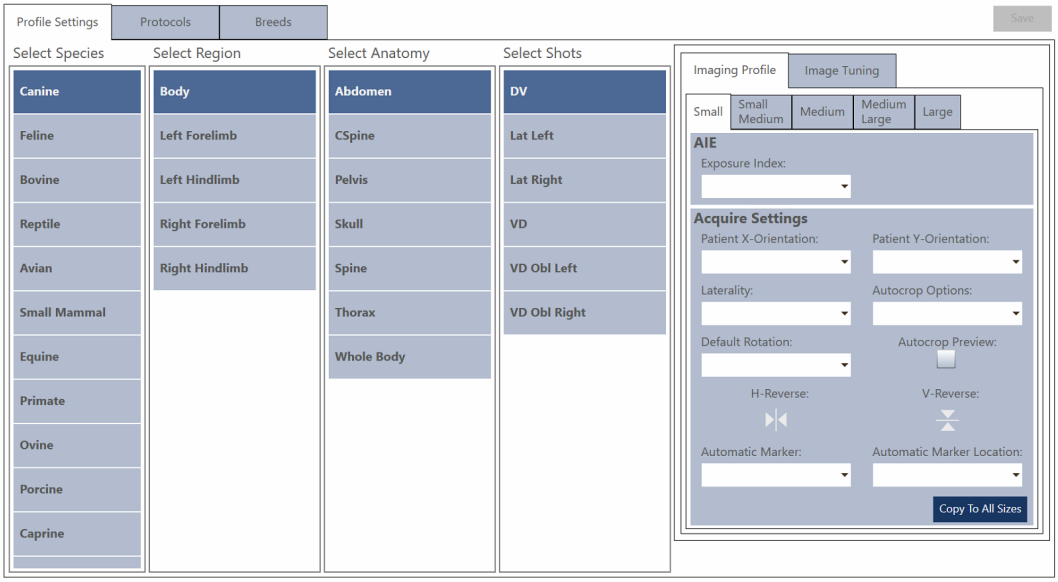
Sound and Vet users can modify the image profiles for acquisition profiles.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Acq Profiles**.

   The **Profile Settings** tab is displayed by default.

Figure 67: Acq Profiles — Profile Settings Tab



3. Select the species, region, anatomy, and shots for which you want to modify the image profile. You can add a nickname to any region, anatomy, or view by right-clicking or tapping and holding one of these tiles. After you add the nickname, it appears in parentheses next to the original name. You can remove the nickname by right-clicking or tapping and holding the tile and then clearing the text box.

4. If desired, select the **Autocrop Preview** check box on the Imaging Profile tab. When enabled, the x-ray system tries to detect the proper cropping region and allows you to make changes as needed.
   a) Following image capture, a box drawn in dotted lines indicates the proposed cropping region.
   b) To accept, click the **Crop** button in the image control toolbar. If you prefer a different region, click and drag on the image to create a new box.
   c) Release the mouse button. When you capture the next image or end the study, the system sends only the part of image in the displayed crop region to PACS.

Figure 68: Incorrect crop region detected

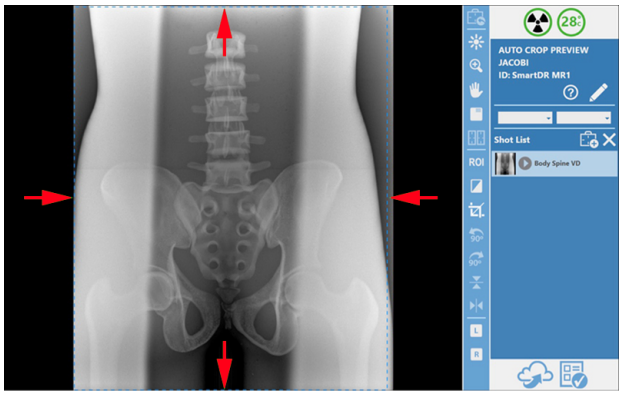


Figure 69: New crop region selected

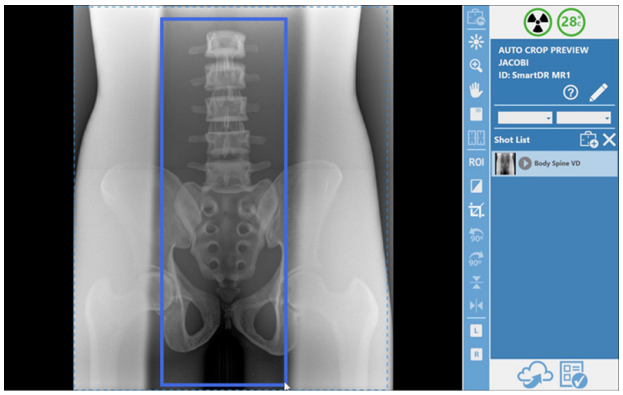
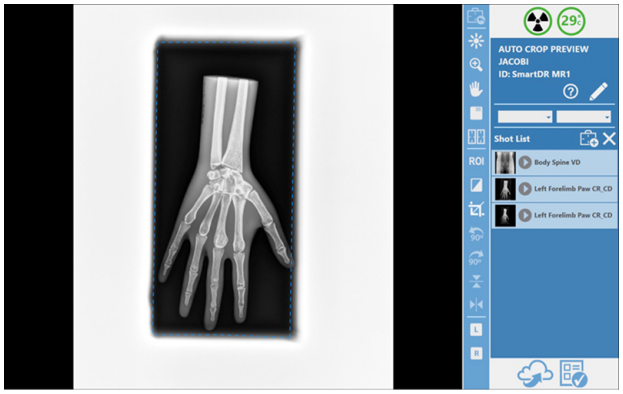
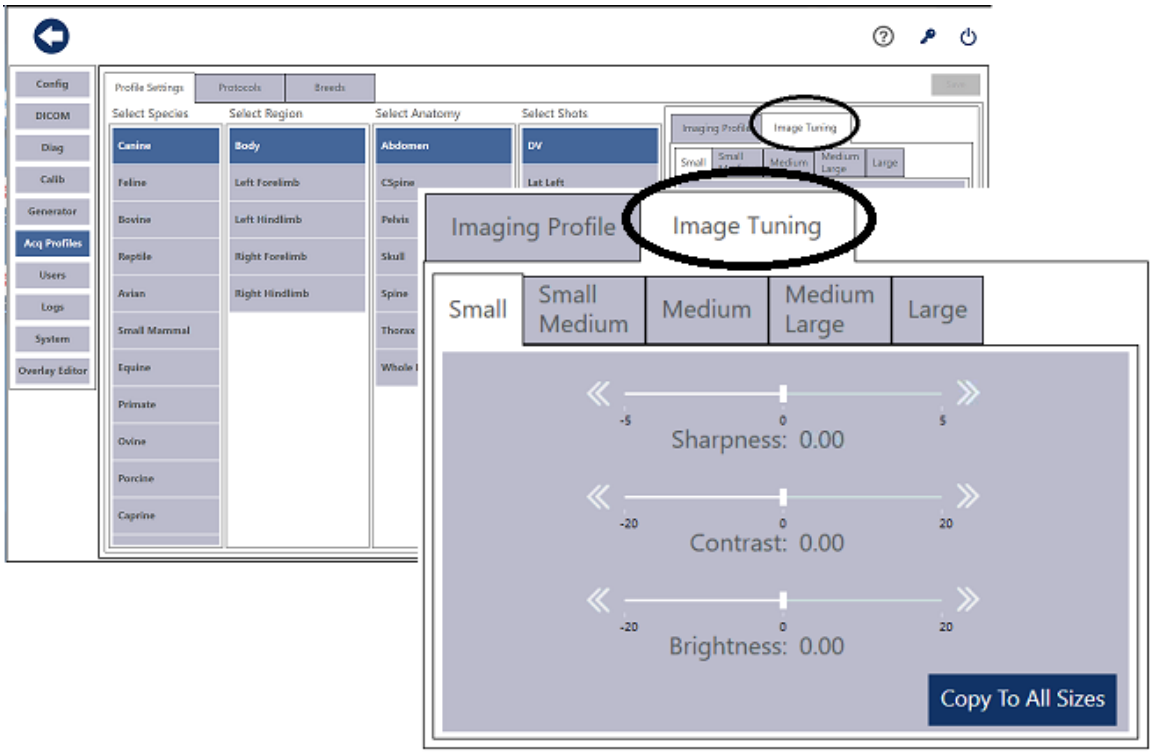


Figure 70: Properly detected cropping region



5. On the **Imaging Profile** tab, select the subtab labeled with the body size (small, small medium, medium, medium large, or large) for which you are modifying the profile settings and make the necessary modifications. Alternatively, you can modify the settings for any body size and click **Copy To All Sizes** to apply those settings to all body sizes.
6. On the **Imaging Profile** tab, set your preference for the automatic marker and automatic marker location. If enabled, this settings directs the system to place automatically an L or R marker in the selected location. If desired, tap **Copy To All Sizes** to apply those settings to all body sizes. See *Image Profile settings* on page 135 for settings descriptions.
7. Complete the following steps to configure image tuning.
   a) In Management Settings, select **Acq Profiles > Image Tuning**



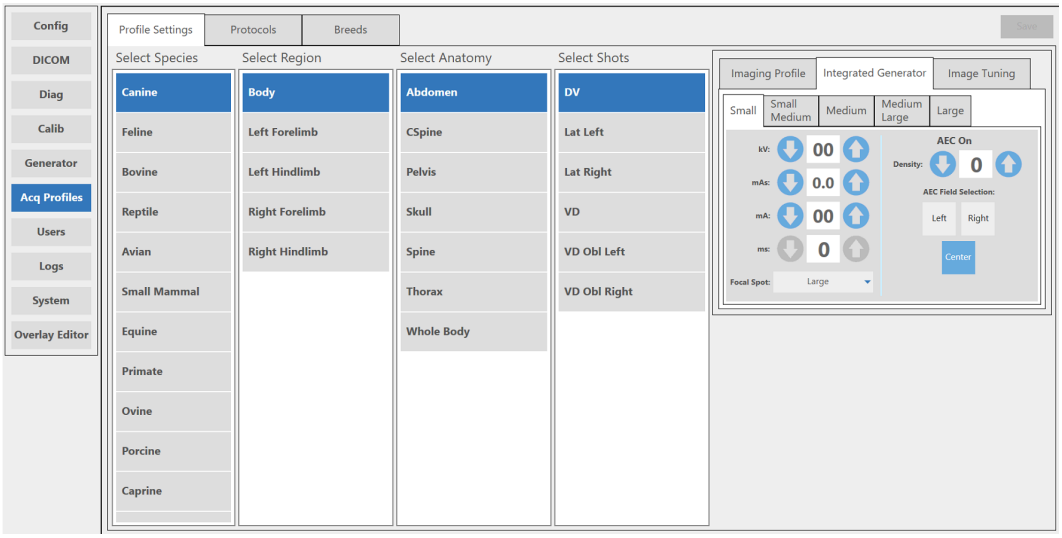
   b) Complete one of the following tasks:

Options	Instructions
Set the tuning options for individual patient sizes.	**a.** Select the patient size tab. **b.** Specify the settings for that patient size. Repeat as necessary. **c.** Click **Save**.
Set the tuning options for all patient sizes at once.	**a.** Select a patient size tab. **b.** Specify the image tuning settings you want to apply to all patient sizes. **c.** Click **Copy To All Patient Sizes**. **d.** Click **Save**.

8. If your system includes an integrated generator, you can modify the technique settings for a specific shot using the **Integrated Generator** tab.
   a) Tap **Integrated Generator** tab.
   b) If desired, use the up or down areas to adjust the technique variables: kV, mAs, mA, and ms.
   c) If your site uses Automatic Exposure Control (AEC), you can adjust the density and field selection parameters, if needed.

Note: Do not adjust Focal Spot or Density values or activate the AEC field selection controls unless directed by a support technician. Modifying these values render your calibration invalid, resulting in degraded image quality.

Figure 71: Acquisition Profile, Integrated Generator subtab



9. Click **Save**.

Image Profile settings

Table 50: Imaging Profile Settings

Setting	Description
Exposure Index	Allows you to select from one of the following files containing exposure index parameters: EIparams_Avian, EIparams_Body, EIparams_Default, or EIparams_HeadNeck.
Patient X-orientation	Allows you to select one of these options: anterior, posterior, left, right, head, or foot.
Patient Y-orientation	Allows you to select one of these options: anterior, posterior, left, right, head, or foot.

Setting	Description
Laterality	Allows you to select one of these options: left, right, both, unpaired
Autocrop Options	Allows you to select one of these options: off, default, chest, C-spine, T-spine, or small ROI.
Autocrop Preview	Enable or disable a preview of the acquired image as a full panel with the crop review feature enabled with automatically detected shutters displayed.
Default Rotation	Allows you to set the default rotation to one of these options: 0, +90, +180, and -90.
H-Reverse	Set this to off or on.
V-Reverse	Set this to off or on.
Automatic Marker	Allows you to set an automatic marker from one of these options: none, L, or R. Default is none.
Automatic Marker Location	Allows you to set the automatic marker location for one of these options: upper left, upper middle, upper right, middle left, middle right, lower left, lower middle, or lower right. Upper left is the default location.

Image Tuning tab

In the Image Tuning tab, you can view and modify the workbench settings (Sharpness, Brightness, Contrast) for any patient size for any position in the software.

The tab is displayed in the Management Settings > Acq Profiles screen.

Figure 72: Imaging Tuning settings

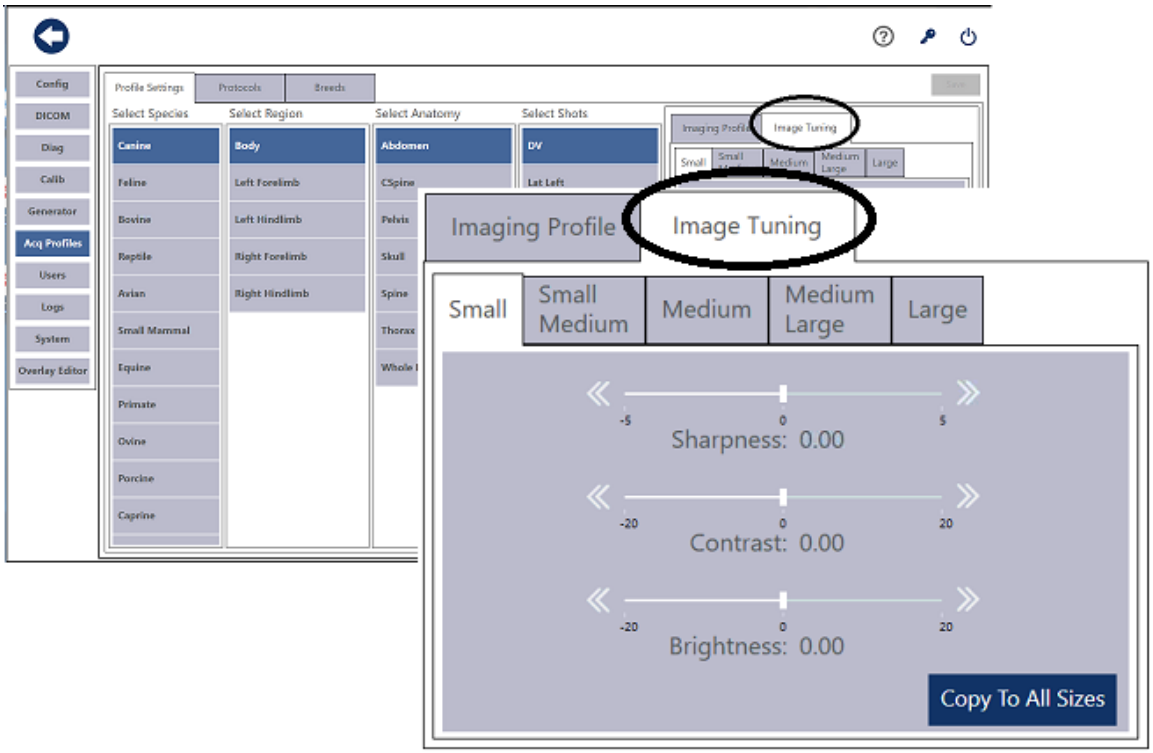


Table 51: Image Tuning Controls

Control	Details
Patient size tabs	Each tab contains the image tuning settings for that patient size. You also have the option of configuring the settings for one size and copying those settings to all of the sizes.
Sliders	Use the sliders to configure the image tuning settings for sharpness, contrast, and brightness.
Copy To All Sizes button	Select this button to copy the settings on the tab to all of the patient sizes.

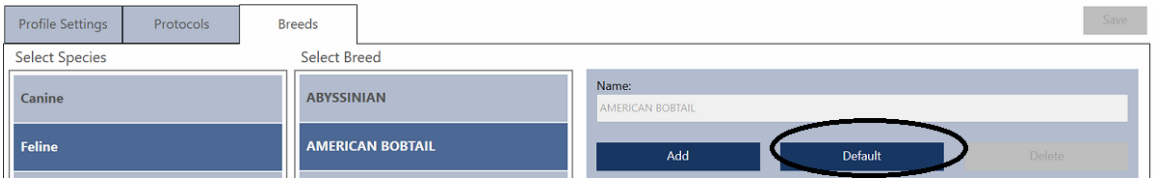
Configuring the default breed

If desired, you can specify a default breed for a species in the Acq Profiles configuration options.

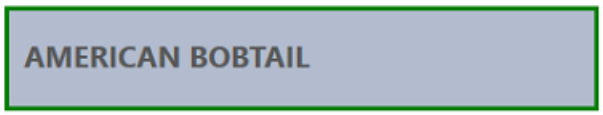
Procedure

1. Go to **Management** > **Acq Profiles** > **Breeds**.
2. Select the species and breed.

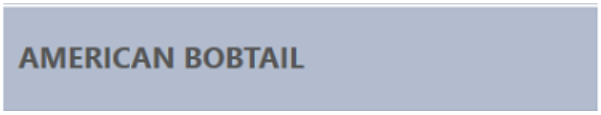
3. Select **Default**.



The breed now has a green border indicating that it is the default.



4. To remove the default designation, select the default breed and select **Default** again.
   The green border is removed.

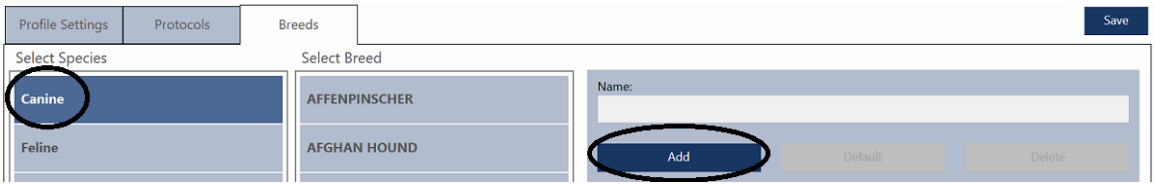


Adding new breeds

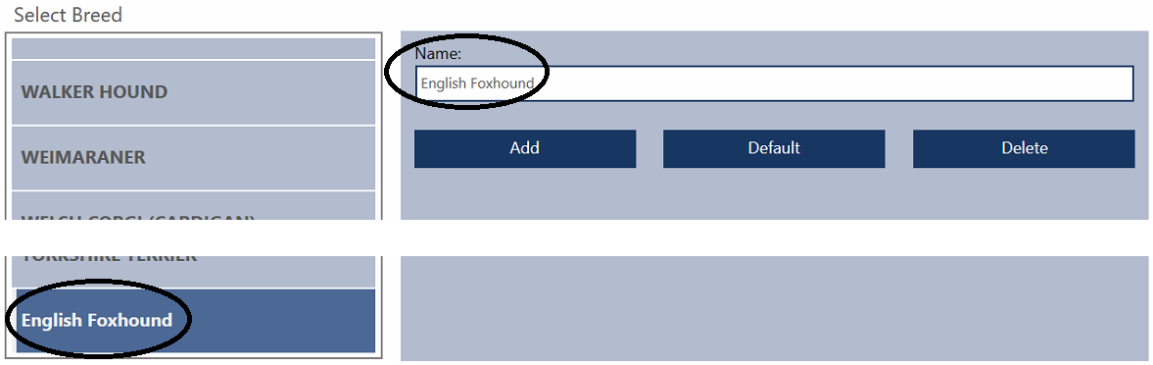
New breeds can be added to the acquisition profiles as needed.

Procedure

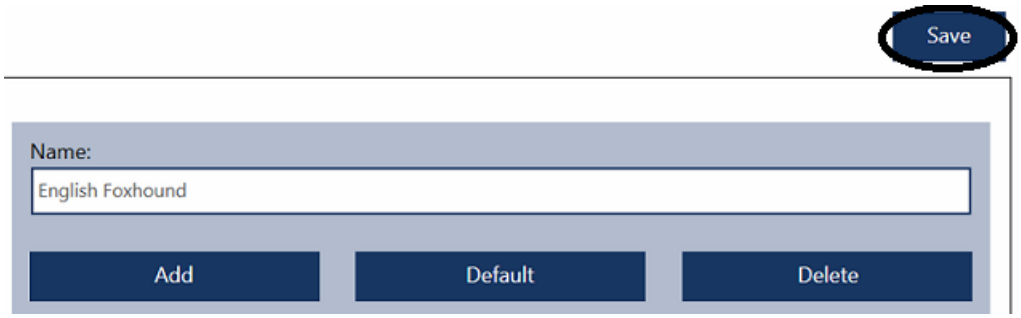
1. Go to **Management** > **Acq Profiles** > **Breeds**.
2. Select the species for the breed you want to add.



3. Click **Add**.
   The breed is added to the bottom of the Breed column.
4. In the Name field, type a name for the breed.



5. Click **Save**.



Creating protocols

Sound and Vet users can create protocols for acquisition profiles in the Management screen. All users can create protocols when they select shots in the clinical interface.

About this task

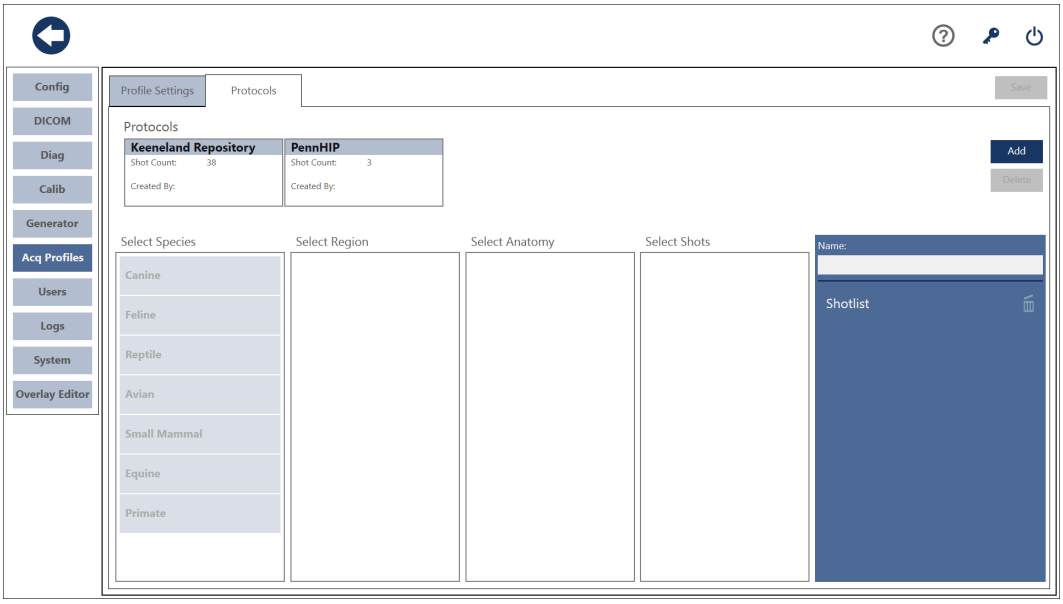
Creating protocols allows users to select the same shots in the future by selecting a Protocol tile instead of selecting all of the shots again.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.

2. Click **Acq Profiles** > **Protocols** tab.
   The **Protocols** tab is displayed, and the **Add** button is active.

Figure 73: Acq Profiles — Protocols tab

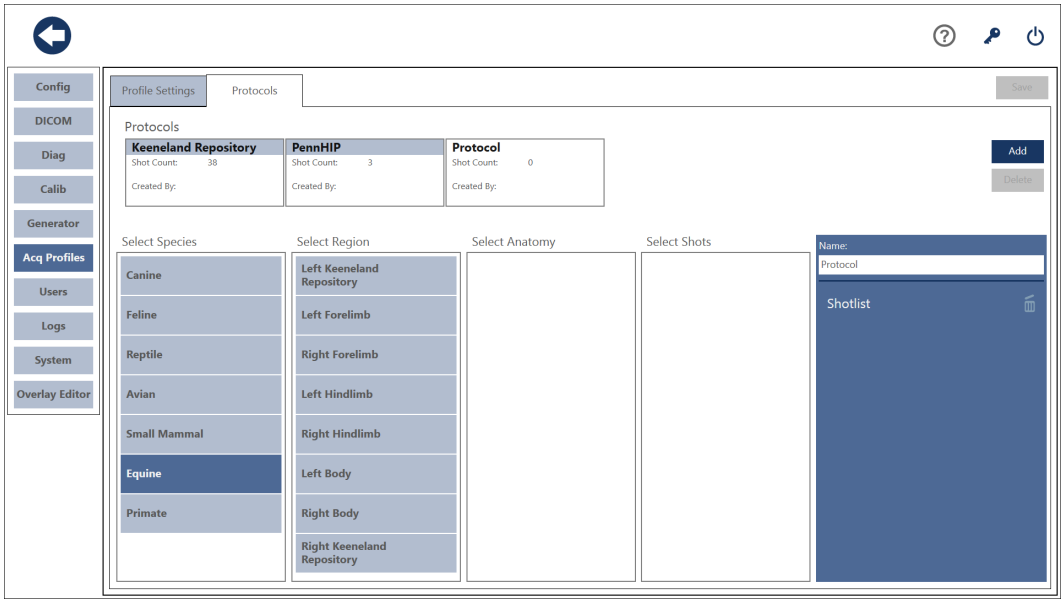


The Keeneland Repository and PennHIP protocols are configured by default. The Keeneland Repository protocol is used for taking images that can then be submitted to the Keeneland Repository and reviewed digitally by veterinarians at horse auctions. The PennHIP protocol is for use with canines.

3. Click **Add**.
   A new protocol is added to the Protocols list.

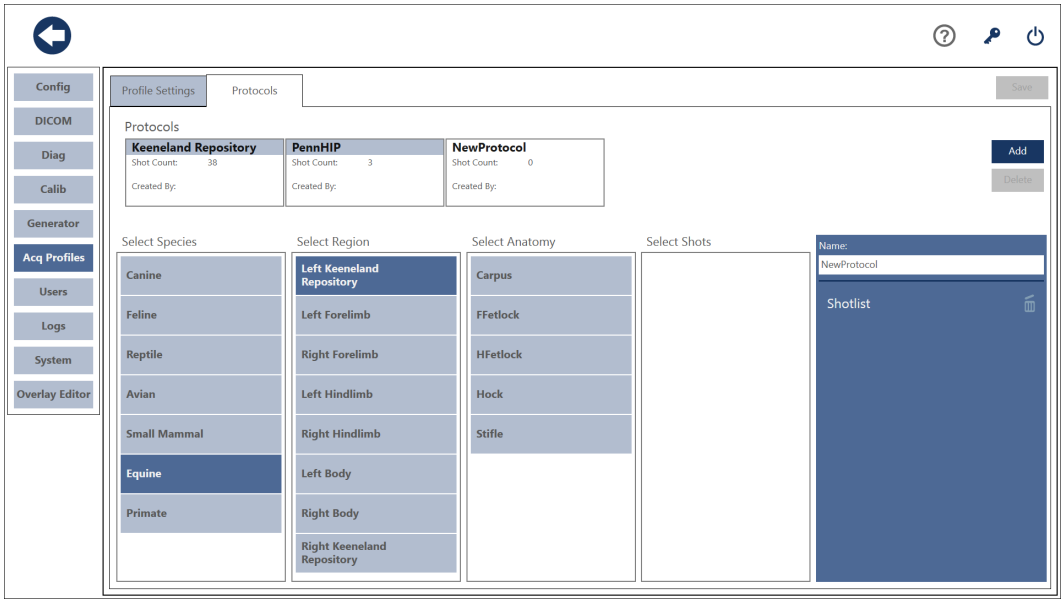
4. Select the species that you want to use for the protocol.
   The Select Region list is populated.

Figure 74: Acq Profiles screen — Protocols tab, species selected



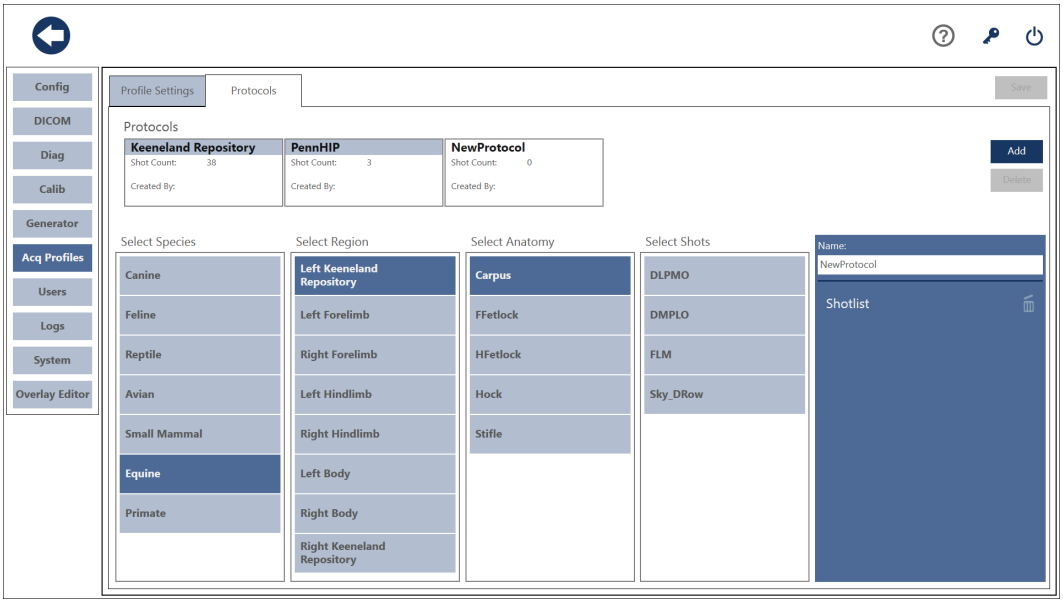
5. Select the region that you want to include in protocol.
   The Select Anatomy list is populated.

Figure 75: Acq Profiles — Protocols tab, region selected



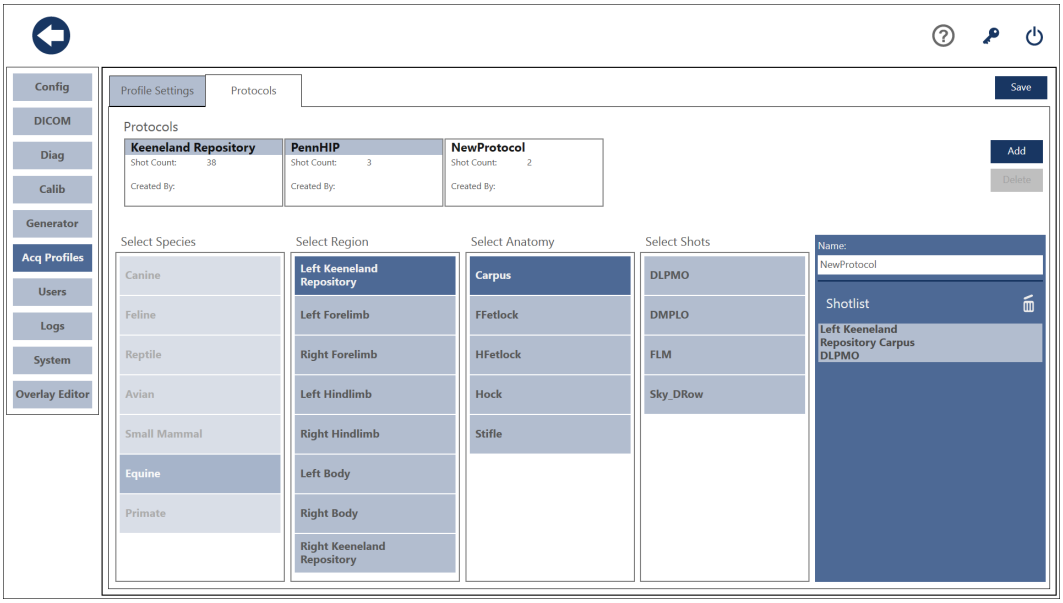
6. Select the part of anatomy that you want to include in the protocol.
   The Select Shots list is populated.

Figure 76: Acq Profiles — Protocols tab, anatomy selected



7. Select the shots that you want to include in the protocol.
   The shots are added to the Shot List when you click on them.

Figure 77: Acq Profiles — Protocols tab, shot selected



8. In the Shot List, type a name for the Protocol in the Name field. The Name field is just above the Shot List.
9. If you need to delete a shot from the list, select the shot and click the garbage can icon at the top of the Shot List.
10. Click **Save** to save the new protocol.

Editing protocols

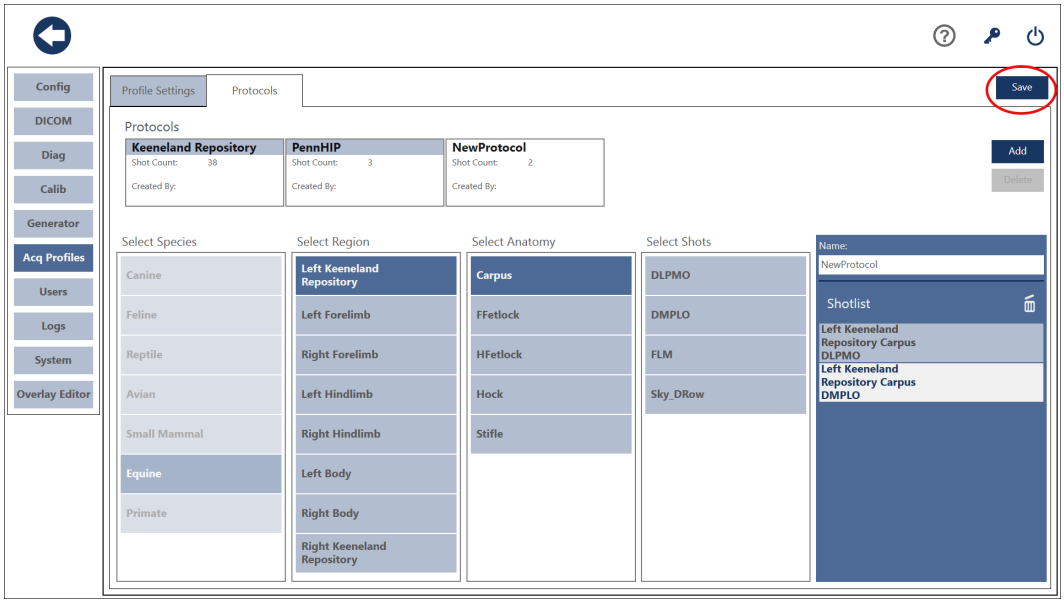
Sound and Vet users can edit existing protocols.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Acq Profiles** > **Protocols** tab.
3. Select the protocol that you want to edit.

   The protocol details are displayed. The name of the protocol can be edited, new shots can be added, and existing shots can be removed. The species may not be changed.

Figure 78: Acq Profiles — Protocols tab, edit protocol



4. After your changes are complete, click **Save**.

Deleting protocols

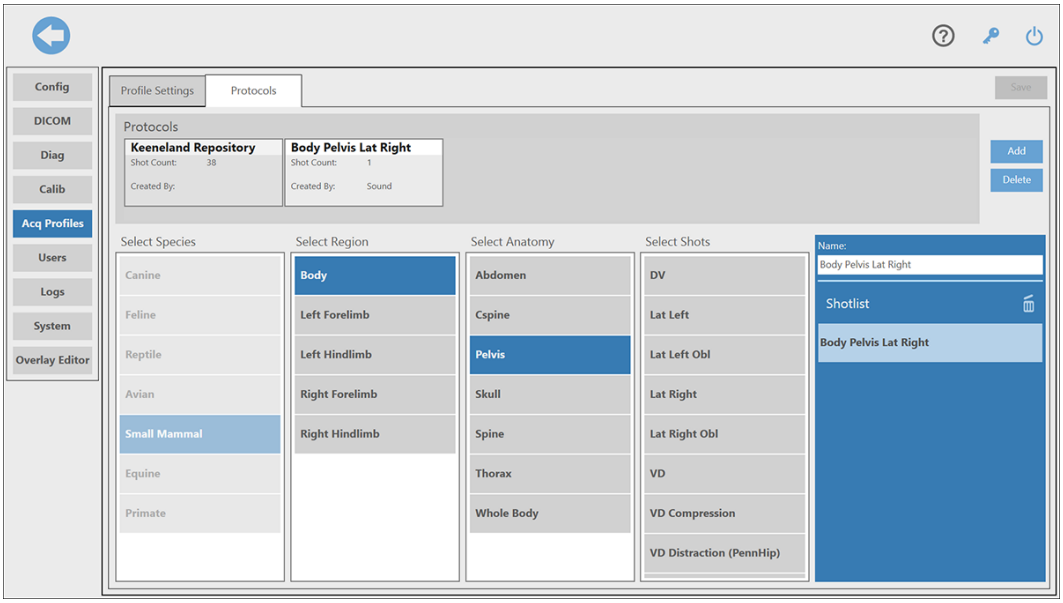
Sound and Vet users can delete image protocols.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Acq Profiles** > **Protocols** tab.

3. In the Protocols list, select the protocol that you want to delete.

Figure 79: Acq Profiles — Protocols tab, delete protocol



4. Click **Delete**.
   The protocol is deleted from the system.
5. After your changes are complete, click **Save**.

Managing Users

Sound users can create, delete, or edit a user in the **Management** screen. All users can edit their preferences in this screen.

Prerequisites

Before you complete any of the tasks in this section, review the topic, *Access levels and privileges*.

Procedure

See one of the following topics to complete the desired task:

- *Adding users* on page 147.
- *Editing users* on page 150.
- *Resetting passwords* on page 150.
- *Deleting users* on page 154.

Users, privileges, and credentials

The tasks that you can complete with the x-ray system are controlled by the type of user that you use to log in to the PC.

Sound user account privileges

The PC logs into this account automatically at power-up or after restarting. The Sound user account has the following privileges:

- is the default user.
- has full access to the **Management** and **Clinical** screens.
- cannot be added or deleted.
- has the default password: `password`.

Windows Administrator user account privileges and credentials

The Windows Administrator user account has full access to the Windows operating system. The default password is `RedCat07`.

Vet user account

The Vet user type:

- can have a designated default Tech user for each user of this type created.
- has limited access to the Management screen. See the following table for specific features and fields this user type can access.
- can be added and deleted. After the user is saved, only the First Name, Last Name, Email Address, and preferences can be changed. Users must be deleted and re-created to change the password and username for an existing user.
- can have a unique password of any length for each user.

The Vet user type has access to the following features and fields:

Table 52: Features and fields accessible to the Vet user type

Feature	Accessible fields
Config > **System Options**	Review Panel Side, Language, Retain Size for Cropping, Verbose Notifications, Default Species, Default Weight
Diagnostics > **Data Collector**	All
Acq Profiles	All
Users	All
System	All
Overlay Editor	All

Tech access

The Tech user type:

- can have a designated default Vet user for each user of this type created.
- has limited access to the Management screen. See the following table for specific features and fields this user type can access.
- can be added and deleted. After the user is saved, only the First Name, Last Name, Email Address, and preferences can be changed. Users must be deleted and re-created to change the password and username for an existing user.
- can have a unique password of any length for each user.

The Tech user type has access to the following features and fields:

Table 53: Features and fields accessible to the Tech user type

Feature	Accessible fields
Config > **System Options**	Review Panel Side, Language, Retain Size for Cropping, Verbose Notifications
Diagnostics > **Data Collector**	All
Users	All

Adding users

Users are created in the **Management** screen in the **Users** tab. The access someone has to **Management** screen features depends on the type of user created for them.

Prerequisites

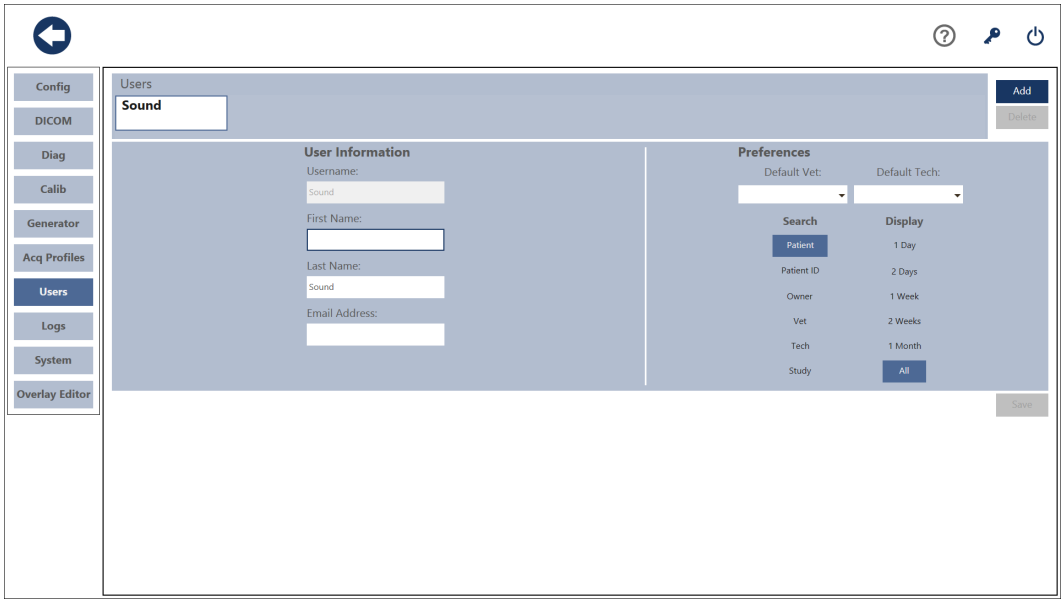
Review *Users, privileges, and credentials* on page 145 to gain a better understanding of the access levels assigned to each user type.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Users**.

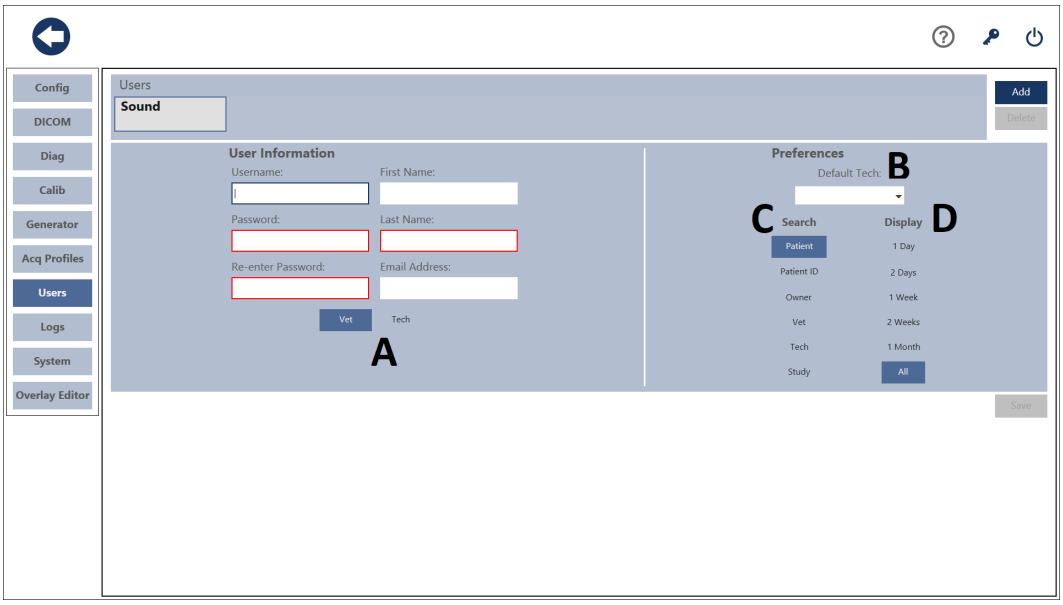
   The User window is displayed, showing the users that already exist in the system. The following figure shows only the Sound user because no other users have been created yet.

Figure 80: Users window



3. In the **Users** window, click **Add** in the upper-right corner of the screen.
   The fields for creating a user are displayed. The fields outlined in red are required.

Figure 81: Users window — add user



A	User-type selection buttons. You can select either **Vet** or **Tech**.
B	**Preferences** > **Default *X*** If the user type is Vet, this field allows you to select the default Tech for this user. If the user type is Tech, this field allows you to select the default Vet for this user.
C	The search criteria available for the user.
D	Display options for the user.

4. Under User Information, enter the information for the new user.
5. Under Preferences > Default *user_type*, select the default user. *user_type* is Vet or Tech depending on the type selected for the new user.

   If Vet is the type selected for the new user, you can select a default Tech to be associated with the new Vet user. If Tech is the type selected for the new user, you can select a default Vet to be associated with the new Tech user. The preferences are displayed at the top of the **Acquire/Review** screen.
6. Under Preferences > Search, select the search preferences for the user.

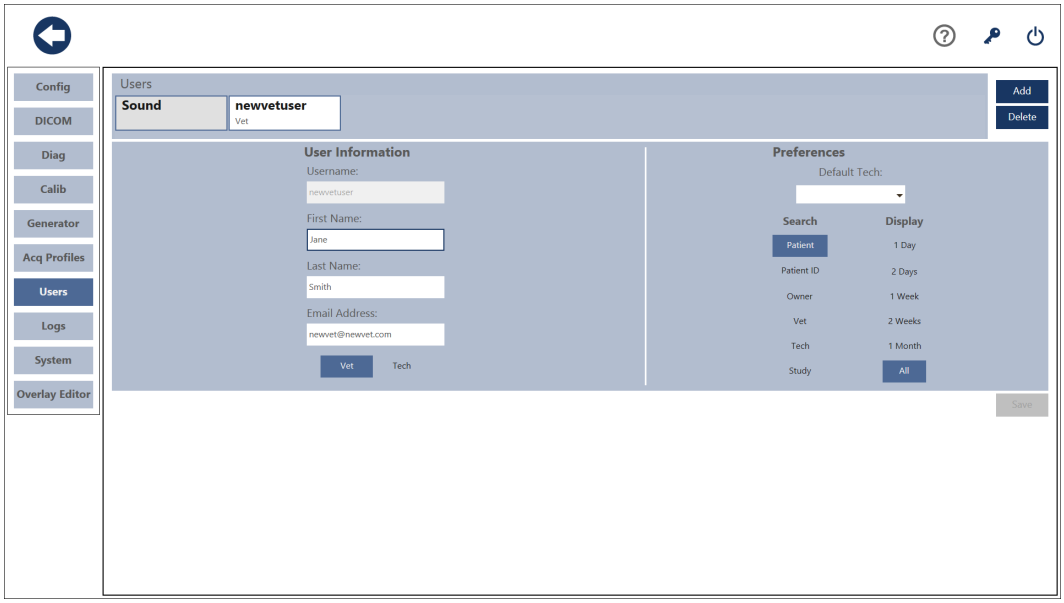
   You can select multiple search preferences.
7. Under Preferences > Display, select the display preferences for the user.

   Important: After the new user is saved, the username becomes read-only. To change the username or password for an existing user, use the Windows operating system. See the topic *Resetting passwords* on page 150 for instructions.

8. Select **Save**.

   The new user is added to the system and displayed in the Users area at the top of the screen.

Figure 82: Users window — saved user



Editing users

After a user has been created, you can edit any of the user information and preferences except the username and password.

About this task

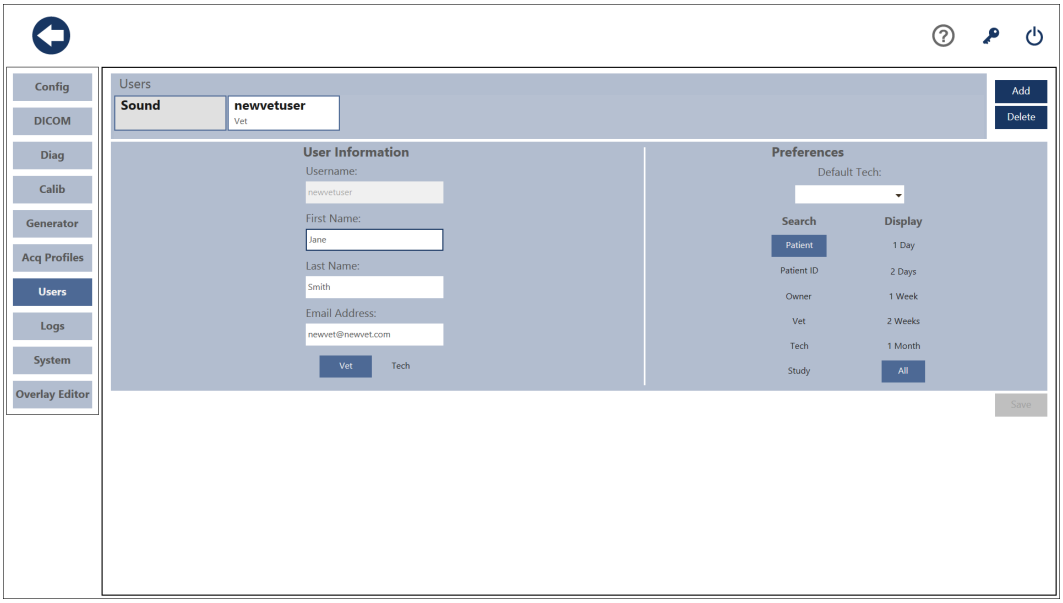
Usernames must be deleted and re-created to be changed.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Users**.

   The **Users** screen is displayed.

Figure 83: Users screen



3. Edit the fields as necessary.

   Attention: User names and passwords must be edited through the Windows operating system. See *Resetting passwords* on page 150 for instructions.
4. Click **Save**.

Resetting passwords

User passwords can be reset and changed through the Windows operating system.

Procedure

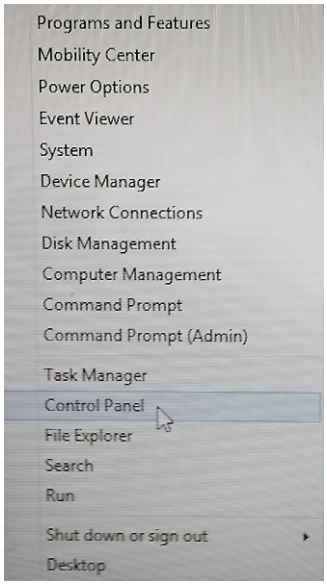
1. If you are at the Windows desktop, go to the next step. If the Sound SMART DR™ software is running, log out of the software.

   The Windows desktop is displayed.

2. Right-click the Windows **Start** button and select **Control Panel**.

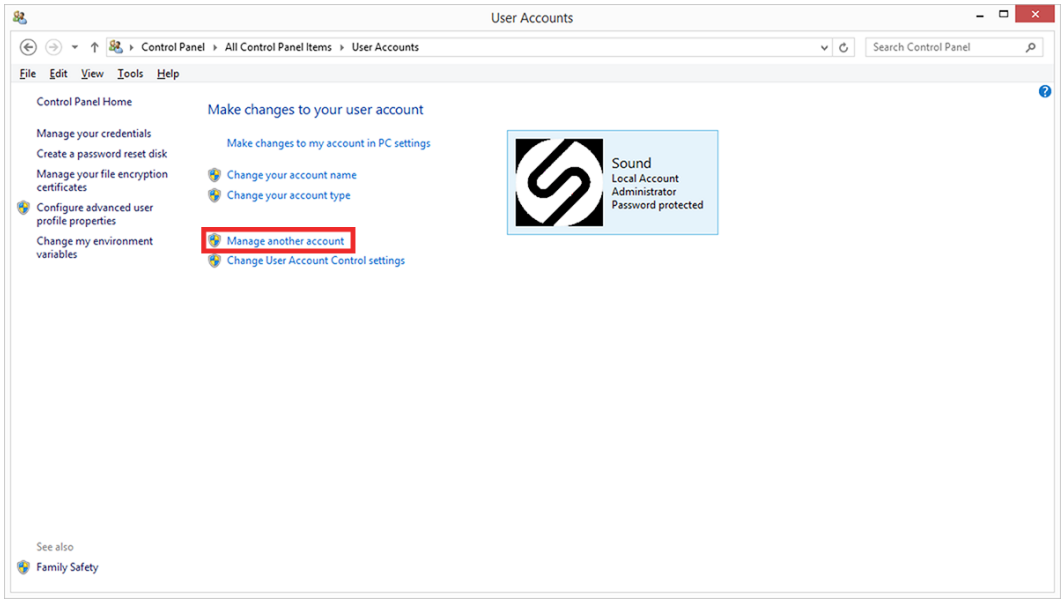
Figure 84: Windows Start button

Figure 85: Windows Start menu — Control Panel



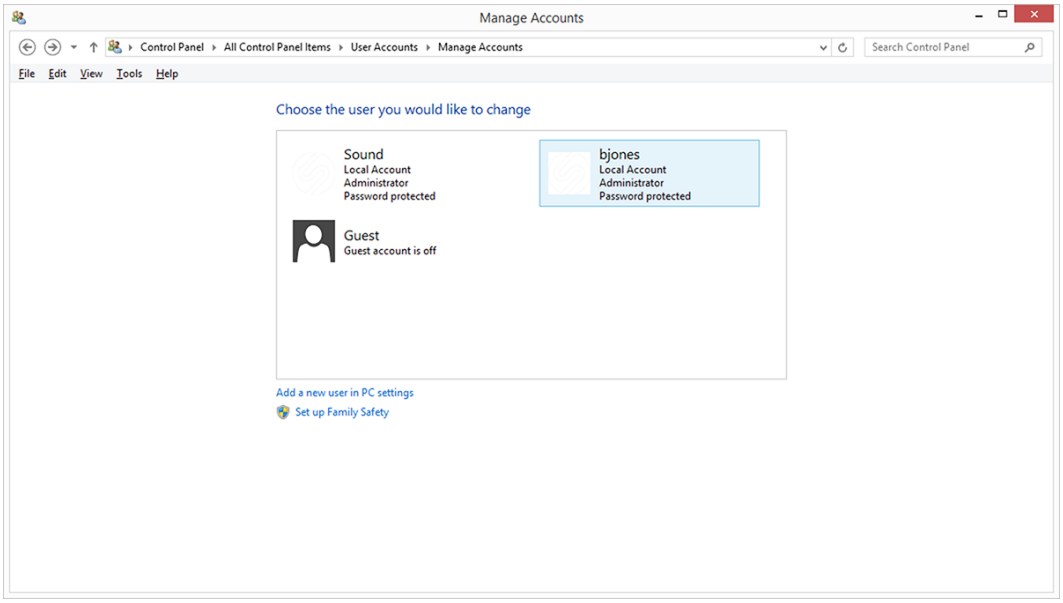
3. In the **User Accounts** window, select **Manage another account**.

Figure 86: Make changes to your account window



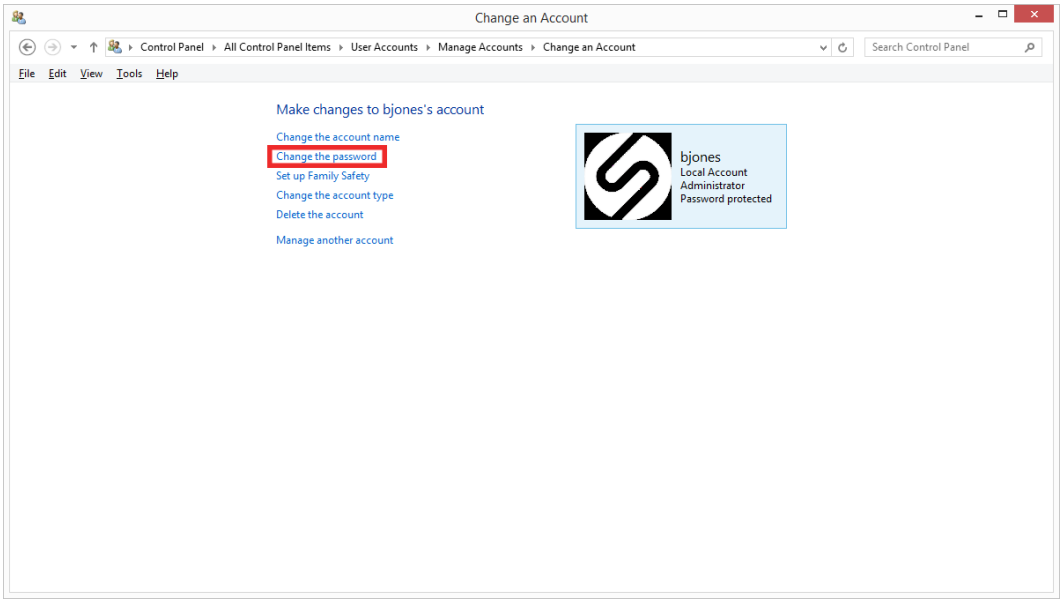
4. In the **Manage Accounts** window, select the user account that you want to change.

Figure 87: Choose the user you would like to change window



5. In the **Make changes to XXX account** window, select **Change the password**.

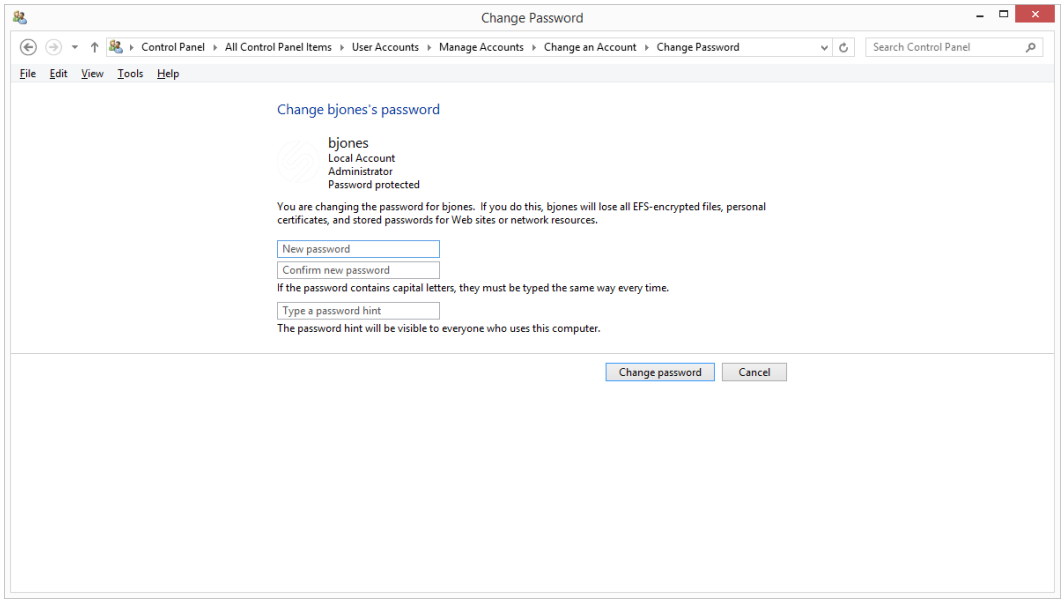
Figure 88: Make changes to user account



6. In the **Change Password** window, complete the fields.

   The password must meet the requirements for Windows passwords. The password hint field is optional.

Figure 89: Change Password window



7. Select the **Change password** button to save the changes.
8. Close the **Change an Account** window.

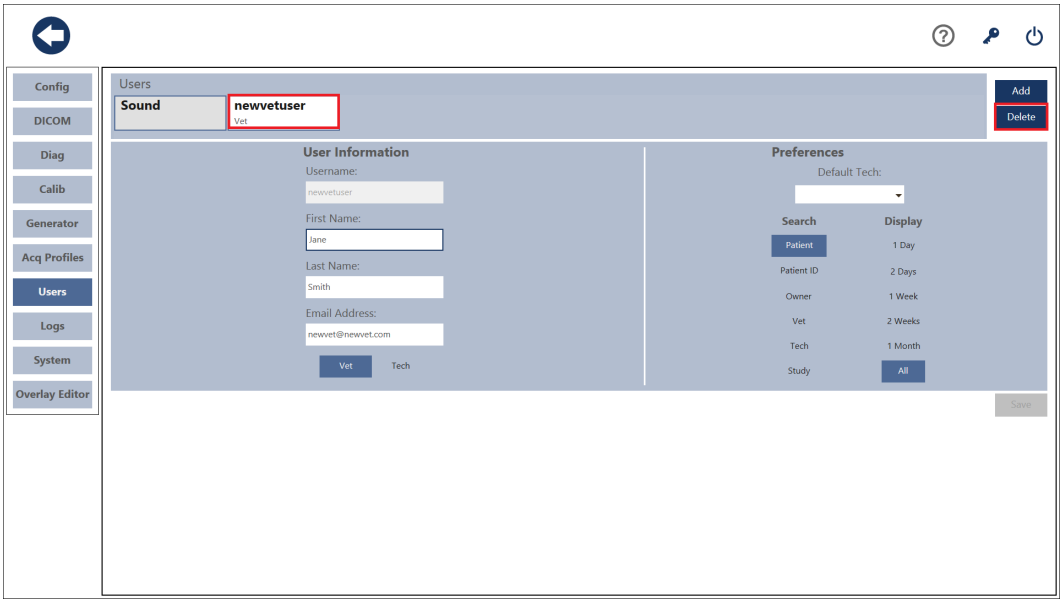
   The Windows menu ribbon is hidden again, and you remain in the Sound SMART DR™ software interface.

Deleting users

Users can be deleted in **Management** screen in the Users tab.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Users**.
3. In the Users area of the window, select the user that you want to delete.



4. Click **Delete**.

   A dialog with the message `Are you sure?` is displayed. Select the check mark to delete the user.

Configuring Logging

Application, generator, and DICOM logging can be configured to use Normal or Verbose modes.

Prerequisites

Before you begin this task, review the topic *Log Files* on page 202 to familiarize yourself with the types of log files and what they capture.

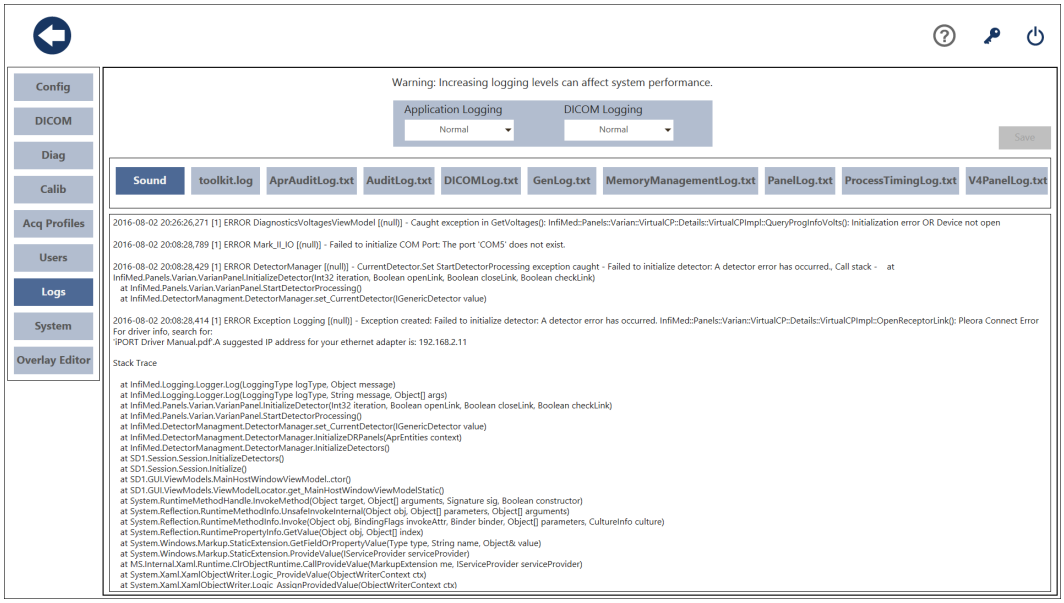
Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.

2. Select **Logs**.

   The logging window is displayed:

Figure 90: Logs screen



3. Select the type of logging desired for Application Logging or DICOM logging.

   Important: Set logging to Verbose mode only when instructed to do so by a technical support representative.

Configuring the Integrated X-ray Generator

Follow this procedure to configure the system for use with an integrated generator, specifically the Summit HF generator. If your system does not use an integrated generator, configure the generator the x-ray generator at the generator console. Refer to the documentation that accompanies the x-ray generator for instructions.

Procedure

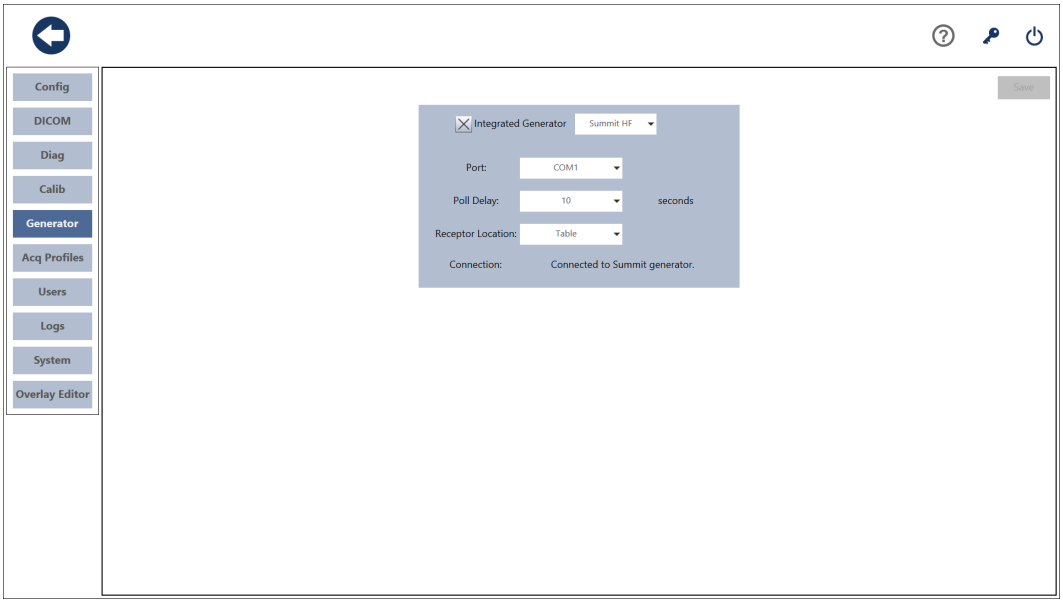
1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.

   Important: The x-ray generator exposure window must always be set to less than the panel integration window (1 second).
2. Select **Generator**.
3. Select the Integrated Generator check box and select the integrated generator from the drop-down list.

4. Tap **Save**.

   A message displays in the notification bar indicating that the system is connected to the generator. Additional fields also appear in the form.

   Figure 91: Integrated Generator Configuration



5. The **Port** field reflects the port the system will use to communicate with the generator. You can select another port if needed and available.
6. The **Poll Delay** field dictates how often the system communicates with the generator to monitor and change generator settings. Do **not** change the default value unless directed by a support technician.
7. From the drop-down, select the receptor location that reflects your system configuration. Select Table if your panel is beneath the exam table. Select Wall Stand if your panel is installed on a wall. Select Tabletop if your panel sits on top of the exam table.
8. Tap **Save**.

Customizing Overlays

Using the Overlay Editor, Vet and Sound users can customize image overlay to display the DICOM tags that they want to display.

About this task

The Overlay Editor consists of two main parts; the DICOM Tag List and the Layout Grid, both of which are displayed to the right.

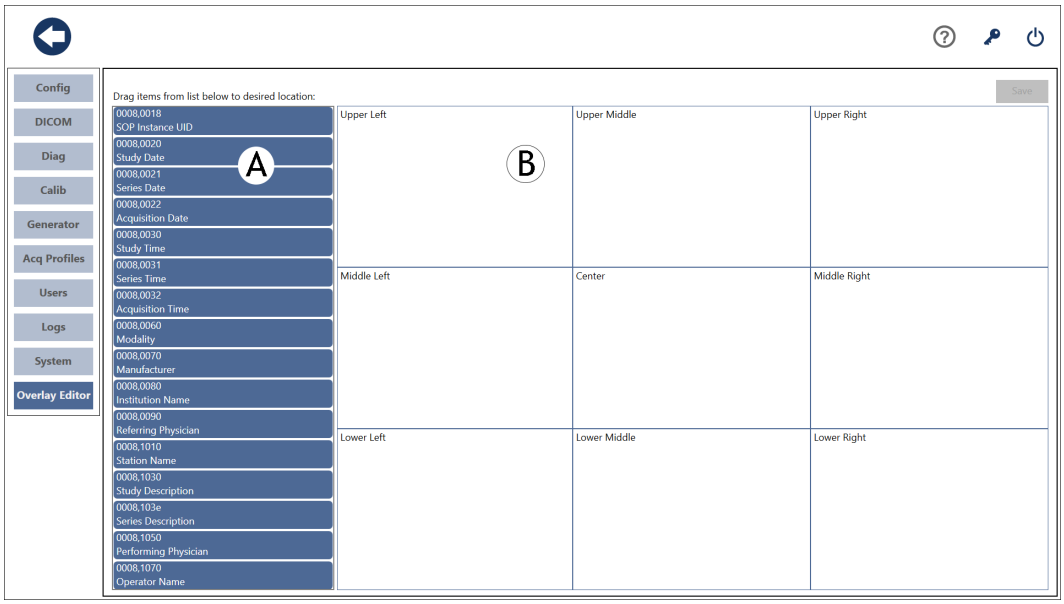
The Grid is made up of nine (9) boxes, each of which represent an area of the image display screen.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Select **Overlay Editor**.

   The overlay data elements and grid are displayed.

Figure 92: Overlay Editor



A Overlay data elements.

B Overlay grid.

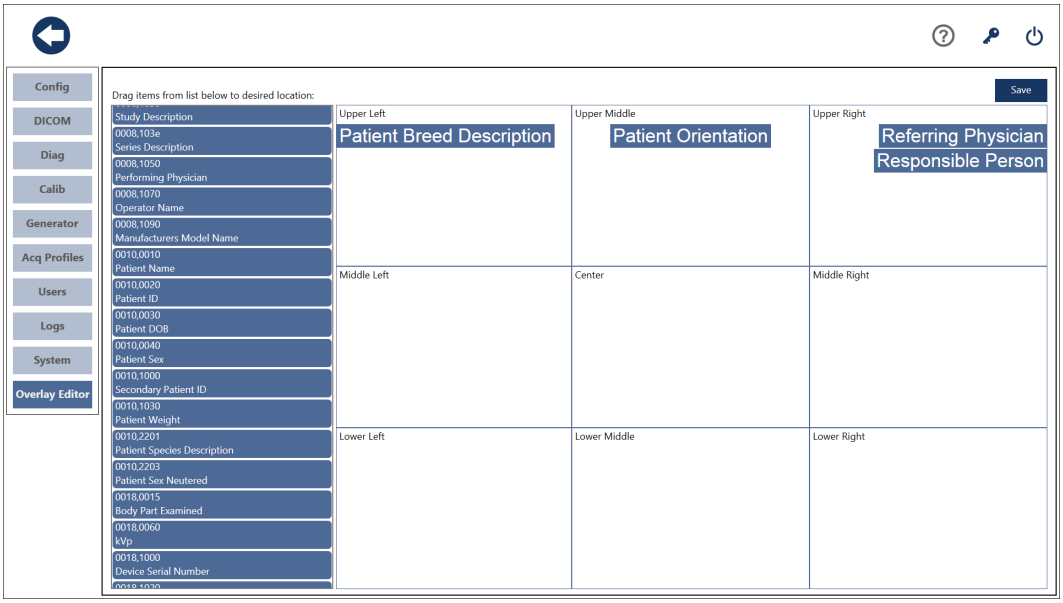
3. Select and drag the overlay data to the desired area of the grid.

   You can drag as much or as little data onto the grid as you choose. For example, the following image shows the Patient Breed Description, Patient Orientation, Referring Physician, and Responsible Person data points have been added to the grid.

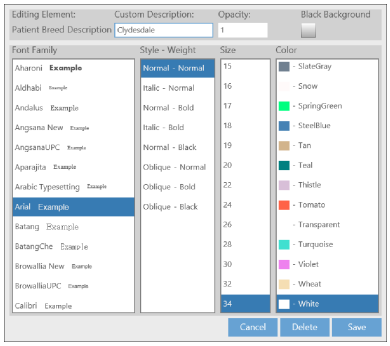
   When you import a patient from a worklist, the Study Description field will be populated as described below:

Worklist data provided:	Study description contains
Requested Procedure Description tag (0032. 1060) is provided.	Requested Procedure Description data
Study Description tag (0008,1030) is provided; Requested Procedure Description tag (0032. 1060) is not provided.	Study Description data
Requested Procedure Tag (0032, 1060) and Study Description Tag (0008, 1030) are not provided.	Protocol Name if a preconfigured protocol is selected or Exam of first shot if individual shots are selected.

Figure 93: Overlay with data



4. To customize the attributes of the overlay data items, select a data item, and edit the attributes as desired.



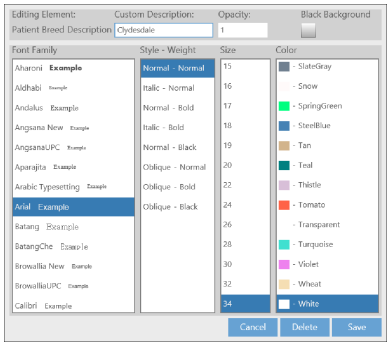
5. In the attribute window, click **Save**.
6. When you are done customizing the overlay and overlay data elements, click **Save** in the Overlay Editor.
   The value for the selected tags will be displayed in the Acquire/Review screen when the user selects the **Overlay** icon in that screen's tool bar:

Deleting overlay data elements

Overlay data elements can be deleted from overlays by Vet and Sound users.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Overlay Editor**.
3. Click the data element that you want to remove from the overlay grid.
   The data attribute window opens.



4. In the data attribute window, click **Delete**.
5. In the Overlay Editor, click **Save**.

Chapter

6

Backing Up the Dell 7440 Tablet PC Hard Drive to a USB Drive

Contents

Symantec™ Ghost is a software product that creates a copy of the contents of a PC hard drive, so that it can be transferred to another computer or used to restore the computer from which it was made.

Prerequisites

Ensure that a physical keyboard is available, and powered on. The physical keyboard is necessary to enter the system BIOS and boot options.

About this task

A USB drive (also called a thumb drive) is included with the x-ray system with part number 736-804-G1. This drive contains a Ghost image of the factory-configured PC hard disk, and the Ghost software used for making an image file and restoring a hard drive from a Ghost image file.

Procedure

1. If the PC is on, power it down.
2. If the system backup USB drive, part number 736-804-G1, is not already inserted into an available USB port on the PC, insert it now.

   This drive contains the Ghost boot software.

   Figure 94: Dell OptiPlex 7440 tablet PC, location of USB (thumb) drive (side panel)

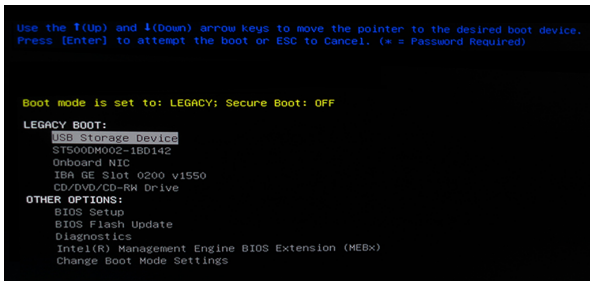
3. Power on the PC.

4. When the Dell splash screen is displayed, press the **F12** key repeatedly until the message, `Preparing one-time boot menu…`, appears in the top right of the display.

   The one-time boot menu displays.

5. Under Legacy Boot, select **USB Storage Device**, and press the **Enter** key.

Figure 95: Boot menu



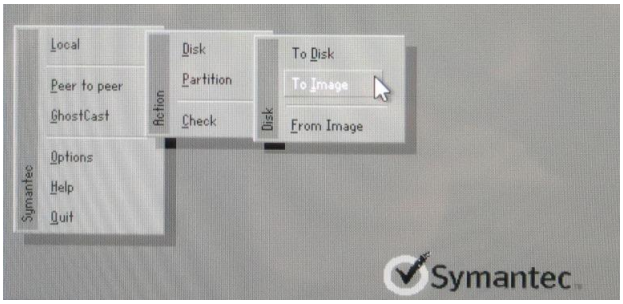
The PC restarts and boots from the USB drive. The Symantec Ghost software starts automatically.

Note: First, a DOS window displays. Then, after approximately 15 seconds, the Symantec Ghost software screen displays.

6. When the initial Ghost software screen displays, select **OK** to continue.

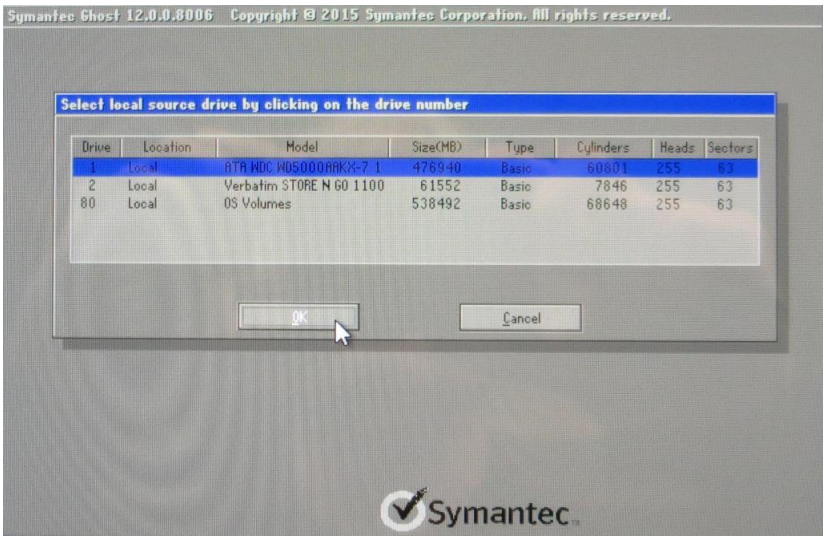
7. In the Ghost menu, select **Local** > **Disk** > **To Image**.

Figure 96: Symantec Ghost menu — To Image



The window **Select local source drive by clicking on the drive number** displays.

Figure 97: Symantec Ghost window — Select local source drive



8. In the table, select the drive number of the PC hard drive. In most cases, the hard drive is drive 1.

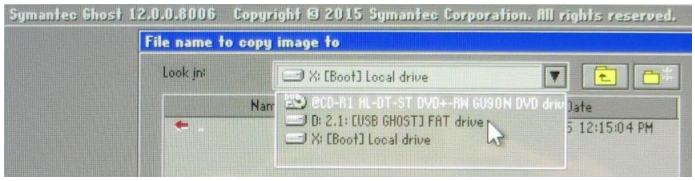
The rest of the content of the row may differ from the screen shot.

9. Click **OK**.

The **File name to copy image to** window displays.

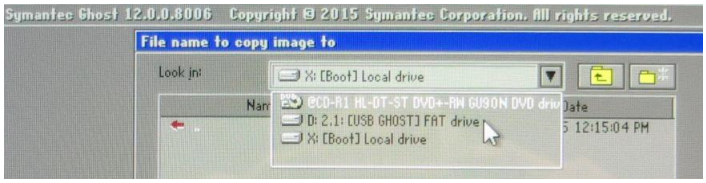
10. In the **Look in:** drop-down list, select **D: 2.1: [USB Ghost Drive] NTFS drive**.

Figure 98: Symantec Ghost window — Select USB Ghost Drive



The contents of the USB drive are displayed.

Figure 99: Symantec Ghost window — File name to copy image to



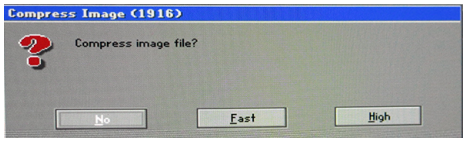
11. In the File name field, enter a name for the image file that conforms to the convention: SDR*n*-*XXXX*-*XXXX*

    Where:

    - Sites may want to maintain multiple image files for a particular PC over time. *n* indicates the order in which image files were created for the site. For example, if a site has three image files, each created at a different point in time, they would be numbered SDR1-*XXXX*-*XXXX*, SDR2-*XXXX*-*XXXX*, and SDR3-*XXXX*-*XXXX*, with SDR1 being the first image created and SDR3 being the last image created.
    - *XXXX*-*XXXX* is the serial number of the PC from which the image was made.

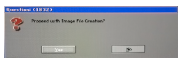
12. In the **Compress Image** dialog box, select **Fast**.

Figure 100: Compress image file message



Another dialog box displays.

13. In the dialog box, select **Yes** to continue creating the Ghost image file.



14. If the message, `Encountered an NTFS volume with a set CHKDSK bit`, displays, select **OK** to continue, and click **Continue** in the **NTFS Problem Detected** message that follows.

    A copy of the PC's hard disk will be created on the USB drive as a Ghost image file (`*.gho`) with the file name that you specified in step *11*. The **Image Creation Complete** dialog box displays.

15. Select **Continue** to complete the process.
16. Select **Quit** to exit the Ghost software.

    A DOS command window displays.

17. Type `Exit` at the DOS prompt, and press **Enter**.
    The PC restarts.
18. After the PC restarts, log in as the Admin user, and start the Sound SMART DR™ software.

Starting the SmartDR System Configuration Tool

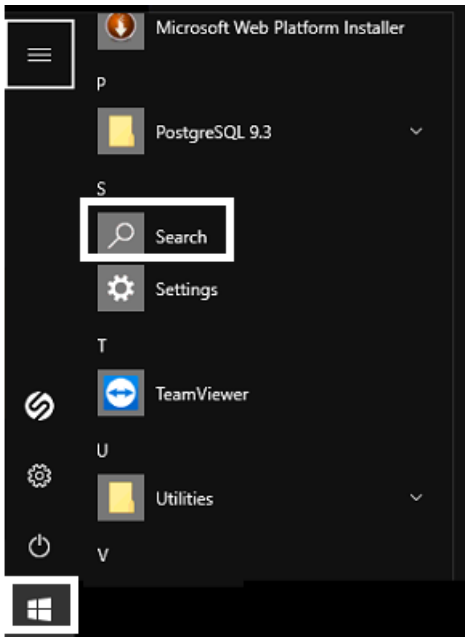
Sound SMART DR™ includes a program called the SmartDR System Configuration Tool that can be used for system maintenance tasks such as exporting and importing configurations and restoring the master database.

About this task

Complete this task to start the SmartDR System Configuration Tool.

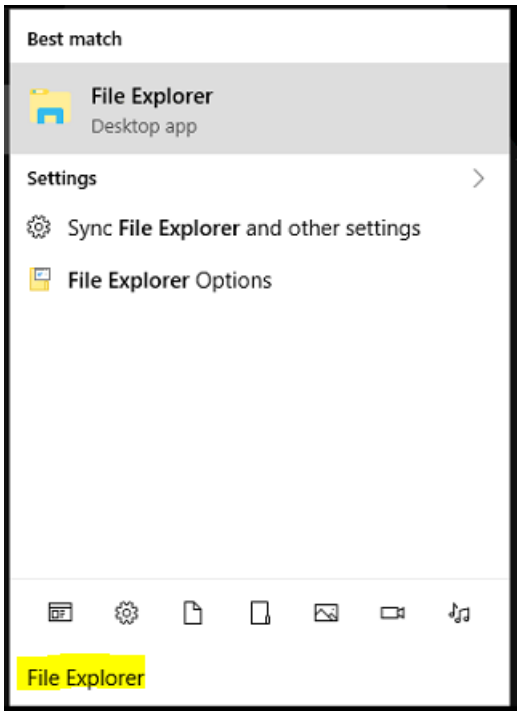
Procedure

1. Exit the Sound SMART DR™ application.
   The Windows desktop is displayed.
2. Select the Windows **Start** icon, and scroll down to **Search**.

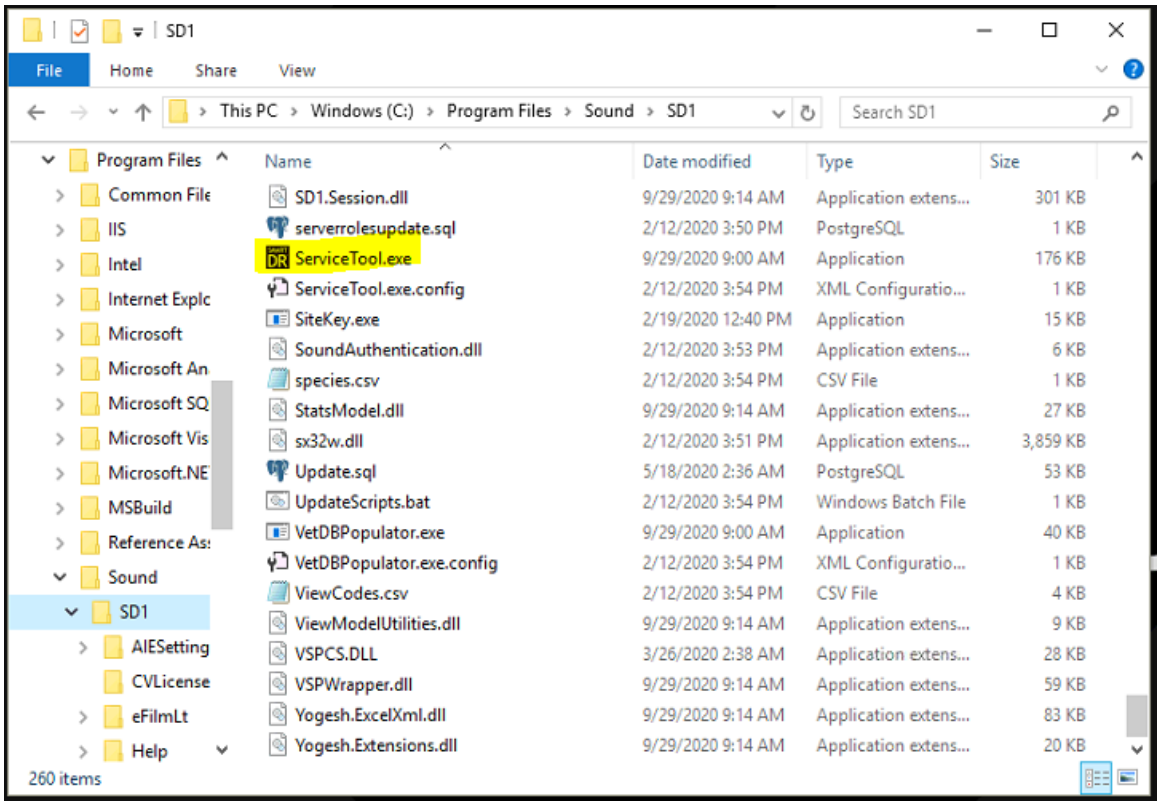


The Search field is displayed.

3. Type `File Explorer` in the Search field.



4. Open the File Explorer, and navigate to: `C:\Program Files\Sound\SD1`.
5. Scroll down to `ServiceTool.exe`, and double-click to start the application.



The SoundDR System Configuration Tool opens.

What to do next

Complete the necessary tasks.

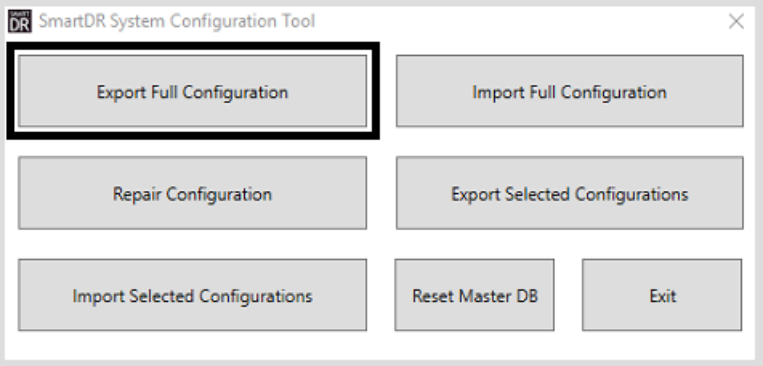
Export the full system configuration

You can use the SmartDR System Configuration Tool to export the complete system configuration for use in the event that the configuration needs to be restored at some point.

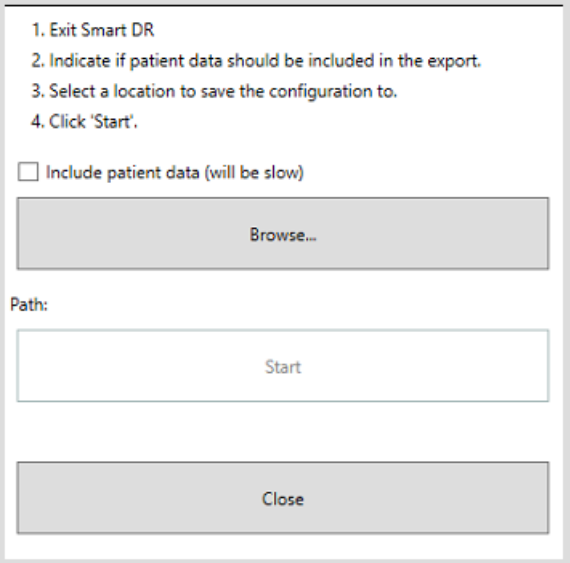
Procedure

1. Start the SmartDR System Configuration Tool.

   See *Starting the SmartDR System Configuration Tool* on page 166 for instructions.
2. Select **Export Full Configuration**.



3. Follow the instructions in the **Export Full Configuration** window.



4. Select **Close** to close the export window.

Import the full system configuration

You can import a full system configuration that has been previously exported.

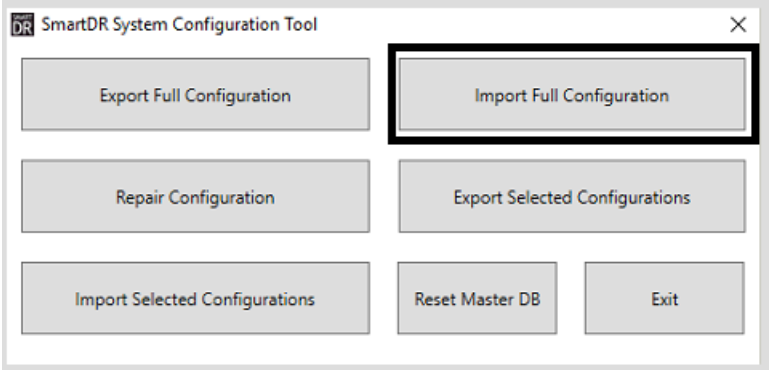
Prerequisites

A full system configuration must have been exported before this task can be started.

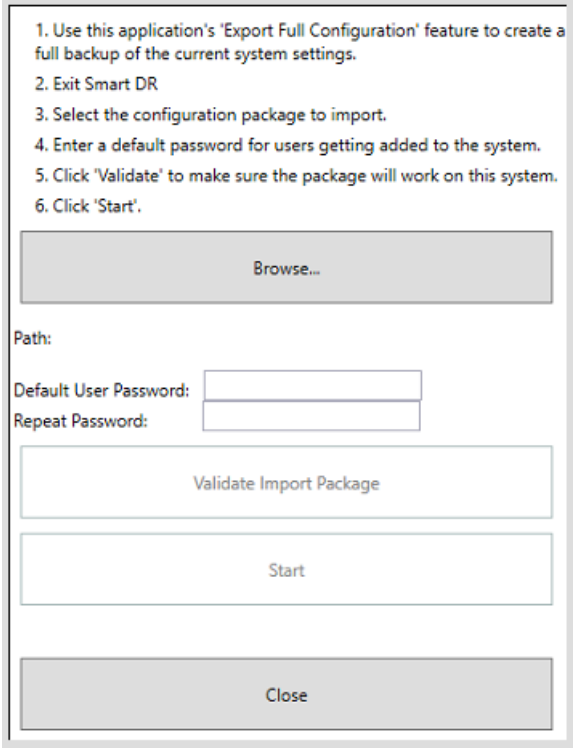
Procedure

1. Start the SmartDR System Configuration Tool.

   See *Starting the SmartDR System Configuration Tool* on page 166 for instructions.
2. Select **Import Full Configuration**.



3. Follow the instructions in the import window.



4. Select **Close** when the import is complete.

Export Selected Configurations

You can export selected configurations so that they are available for import later if needed.

Prerequisites

You must export selected configurations before you can start this task.

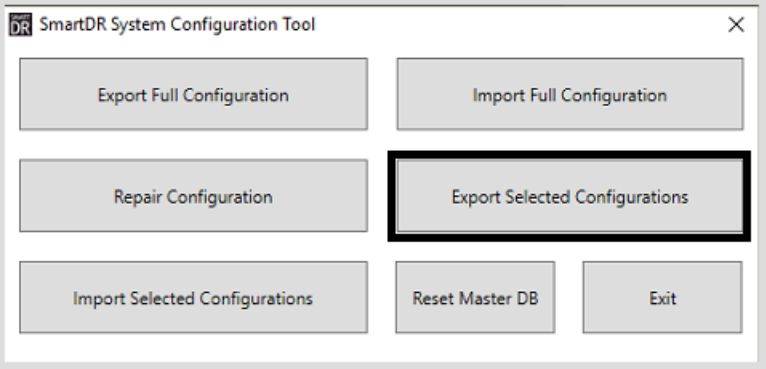
About this task

When you export selected configurations, an export of the complete configuration is performed. Then, from that, you can select the configurations that you want to import when performing an import of selected configurations.

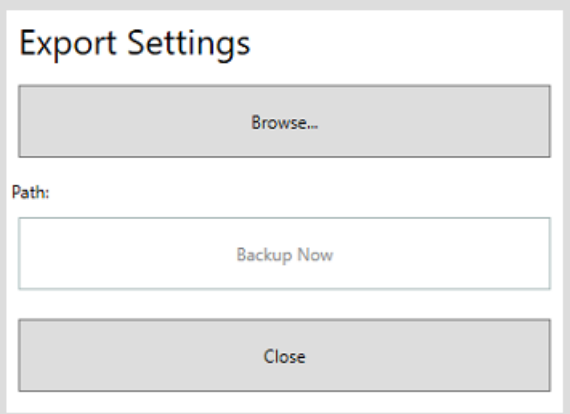
Procedure

1. Start the SmartDR System Configuration Tool.

   See *Starting the SmartDR System Configuration Tool* on page 166 for instructions.
2. Select **Export Selected Configurations**.

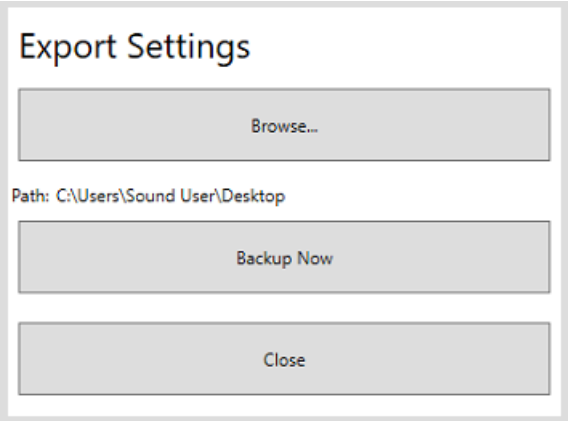


   The **Export Settings** window opens.
3. Select **Browse...** and navigate to the location where you want to save the exported configurations. You can use **Make New Folder** in the **Browse** window to create a folder at the desired location if needed.



   After you have selected the save to location, the path is displayed and the **Backup Now** button is active.

4. After you have selected the path, select **Backup Now**.



5. After the backup is complete, select **Close**.

Import Selected Configurations

If a configuration has been exported as part of the Export Selected Configurations process, you can import the configuration if needed.

Prerequisites

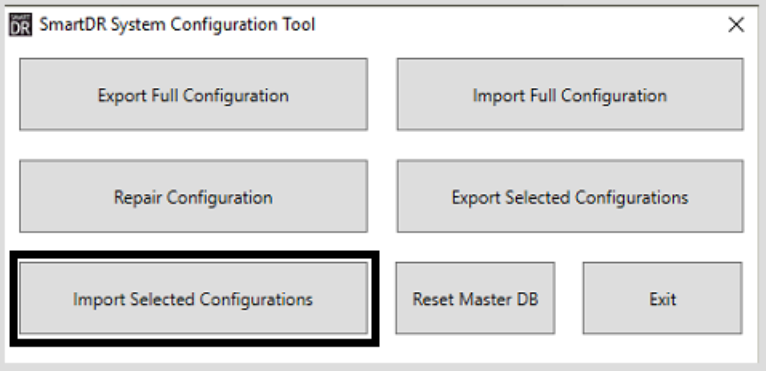
A configuration must have been exported using Export Selected Configurations before it can be imported.

Procedure

1. Start the SmartDR System Configuration Tool.

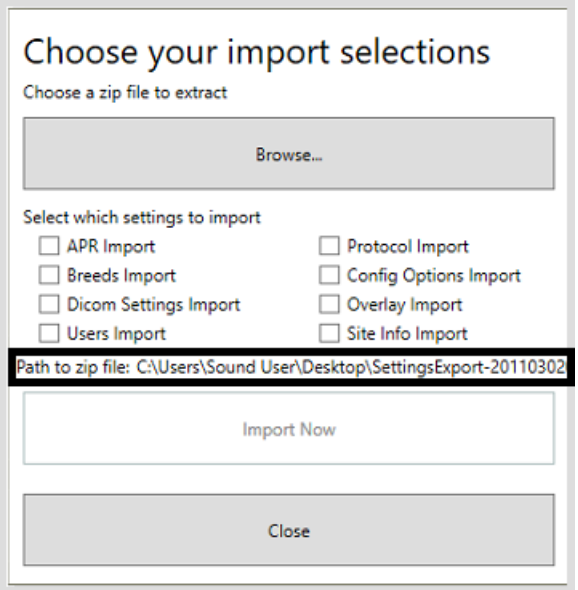
   See *Starting the SmartDR System Configuration Tool* on page 166 for instructions.

2. Select **Import Selected Configurations.**



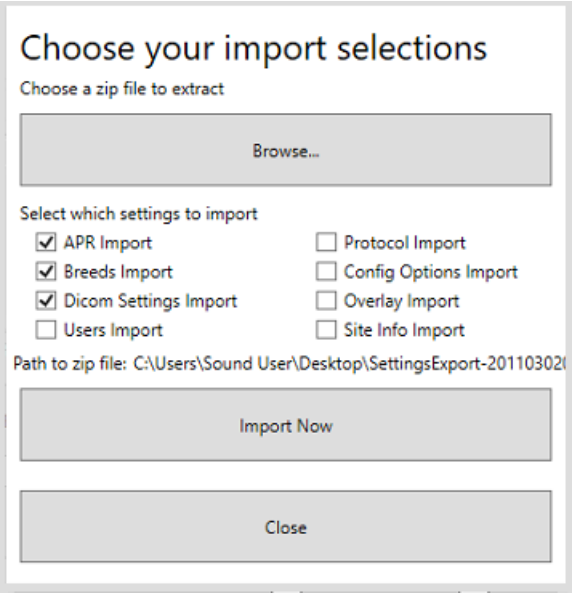
The **Choose your import selections** window opens.

3. Select **Browse...**, and navigate to the directory where the configurations were saved during the Export Select Configurations procedure.



The path and selected file are displayed in the Path field.

4. Select the configurations to import.

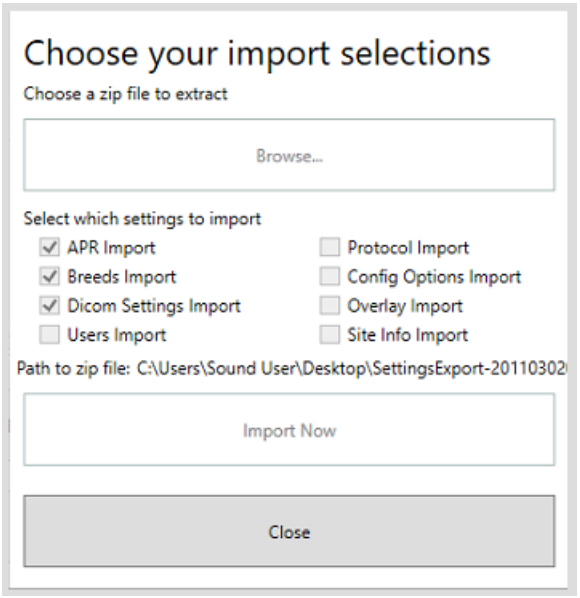


The **Import Now** button becomes active.

5. Select **Import Now**.

   The import may take several seconds. When the import is complete, the **Close** button becomes active.

6. After the import is completed, select **Close**.



Repair Configuration

In some cases, you may want to repair an existing configuration instead of replacing it.

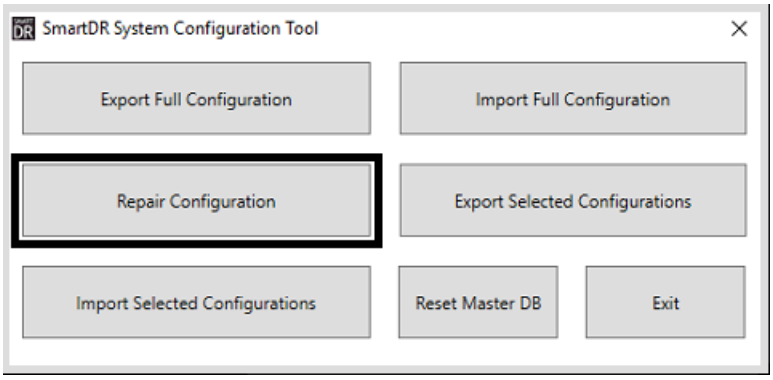
Prerequisites

A configuration must have been exported from Sound SMART DR™ before you can start this task.

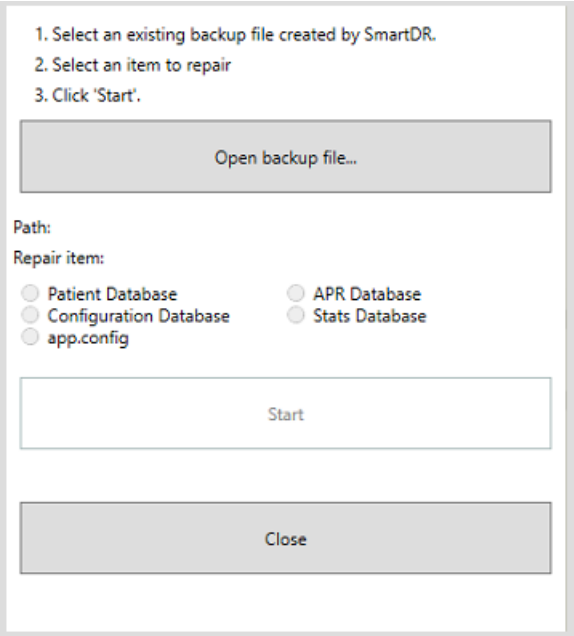
Procedure

1. Start the SmartDR System Configuration Tool.

   See *Starting the SmartDR System Configuration Tool* on page 166 for instructions.
2. Select **Repair Configuration.**



3. Follow the instructions in the repair dialog.



4. After the repair is complete, select **Close**.

Reset the main database

If the main database becomes corrupt or fails in some way, it can be reset using the SmartDR System Configuration Tool.

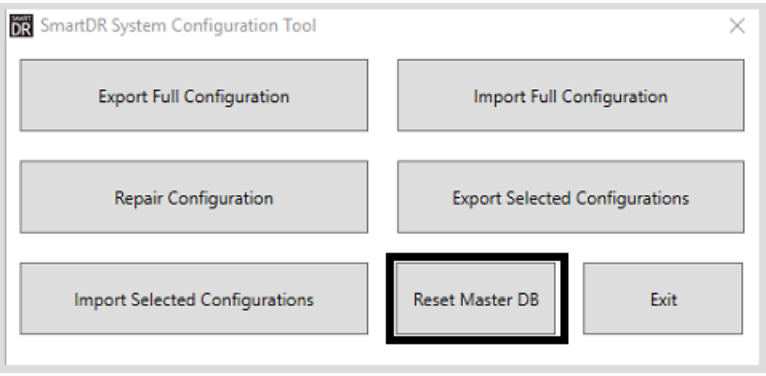
About this task

The SmartDR System Configuration Tool is accessible from the Windows file system.

Procedure

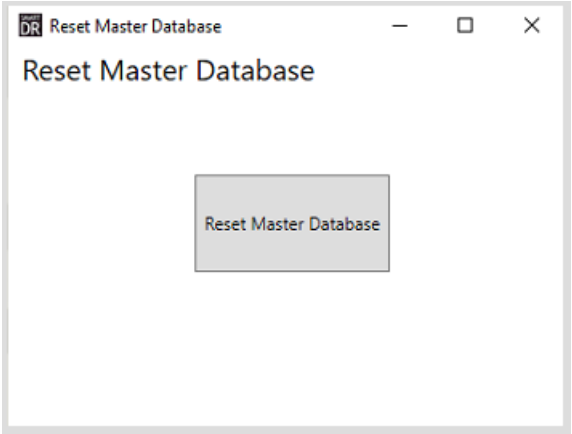
1. Start the SmartDR System Configuration Tool.

   See *Starting the SmartDR System Configuration Tool* on page 166 for instructions.
2. Select **Reset Master DB**.



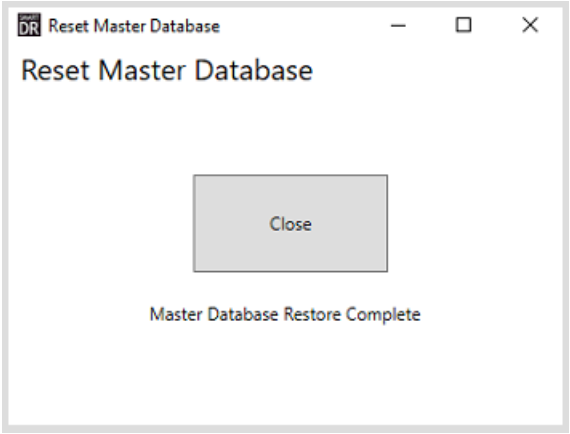
   The **Reset Master Database** window is displayed.

3. Select **Reset Master Database**.



The database is reset.

4. After the database is reset, select **Close** to close the **Reset Master Database** window.



Backing Up the Sound SMART DR™ Data and Settings

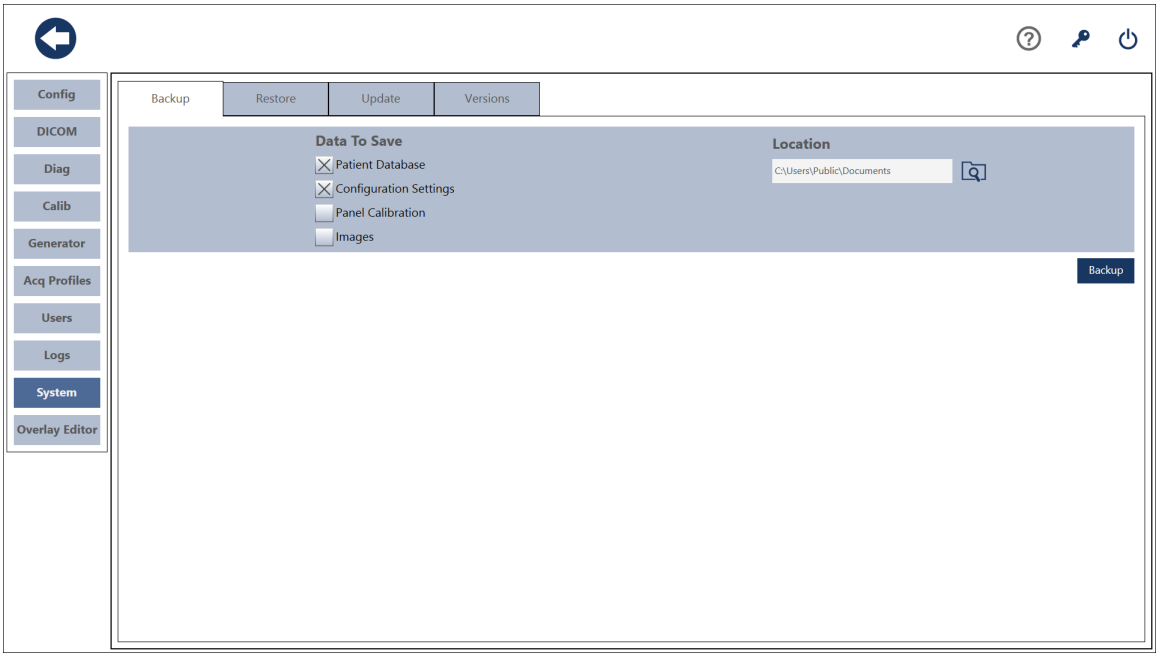
The patient database, configuration settings, panel calibration, and images can be backed up by a Sound or Vet user.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.

2. Click **System**.
   The **Backup** tab is displayed.

Figure 101: Backup tab



Option	Description
Patient Database	Selecting this option creates the backup file `ImVetDataStore.bak`.
Configuration Settings	Selecting this option creates the backup files `ImVetConfiguration.bak` and `VetAprSettings.bak`.
Panel Calibration	Selecting this option backs up the `Imagers` directory.
Images	Selecting this option backs up the `image_db` folder.
Location	The directory location of the zip file created by the backup process.

3. Under Data To Save, select the data that you want to back up.
   The default selections are **Patient Database** and **Configuration Settings**.
4. In the Location field, select the default path or specify a new path to the directory where the backup files will be stored. The default path is `C:\Users\`*`current_user`*`\Documents`, where *current_user* is the user that is currently logged in.
5. Click **Backup**.
   The backup process creates a zip file called SD1Backup_*YYMMDDHHMMSS*, where *YYMMDDHHMMSS* is the two-digit year, month, day, hour, minute, and second of the backup.

Backing Up the Desktop PC Hard Drive to a USB Drive

Symantec™ Ghost is a software product that creates a copy of the contents of a PC hard drive, so that it can be transferred to another computer or used to restore the computer from which it was made.

Prerequisites

Ensure that a physical keyboard is available, and powered on. The physical keyboard is necessary to enter the system BIOS and boot options.

About this task

A USB drive (also called a thumb drive) is included with the x-ray system with part number 736-704-G1. This drive contains a Ghost image of the factory-configured PC hard disk, and the Ghost software used for making an image file and restoring a hard drive from a Ghost image file.

Procedure

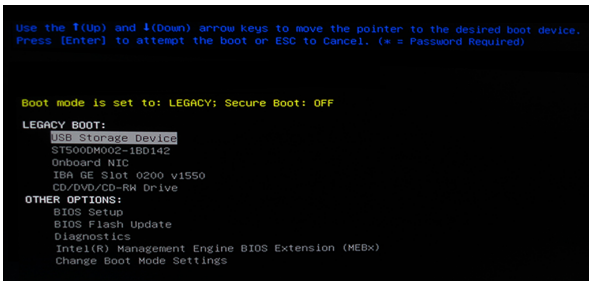
1. If the PC is on, power it down.
2. If the system backup USB drive is not already inserted into a USB port on the PC, insert it now.

   This drive contains the Ghost boot software.
3. Power on the PC.
4. When the Dell splash screen is displayed, press the **F12** key repeatedly until the message, `Preparing one-time boot menu`…, appears in the top right of the display.

   The one-time boot menu displays.

5. Under Legacy Boot, select **USB Storage Device**, and press the **Enter** key.

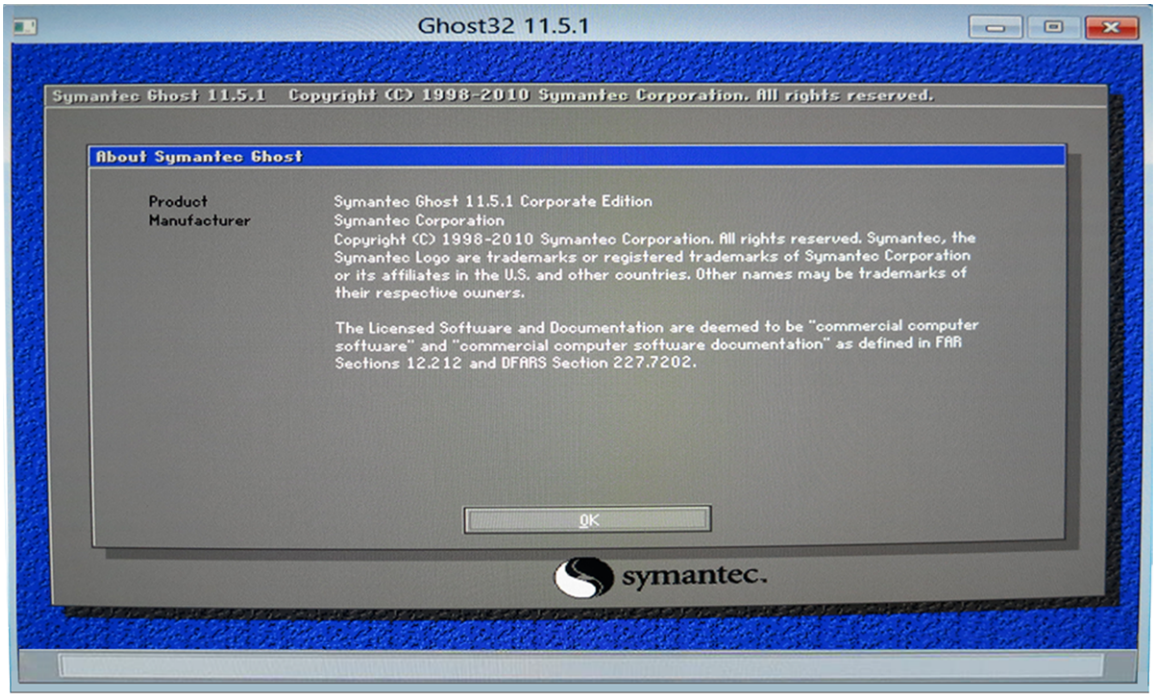
Figure 102: Desktop PC Boot menu



The PC restarts and boots from the USB drive. The Symantec Ghost software starts automatically.

Note: First, a DOS window displays. Then, after approximately 15 seconds, the Symantec Ghost software screen displays.

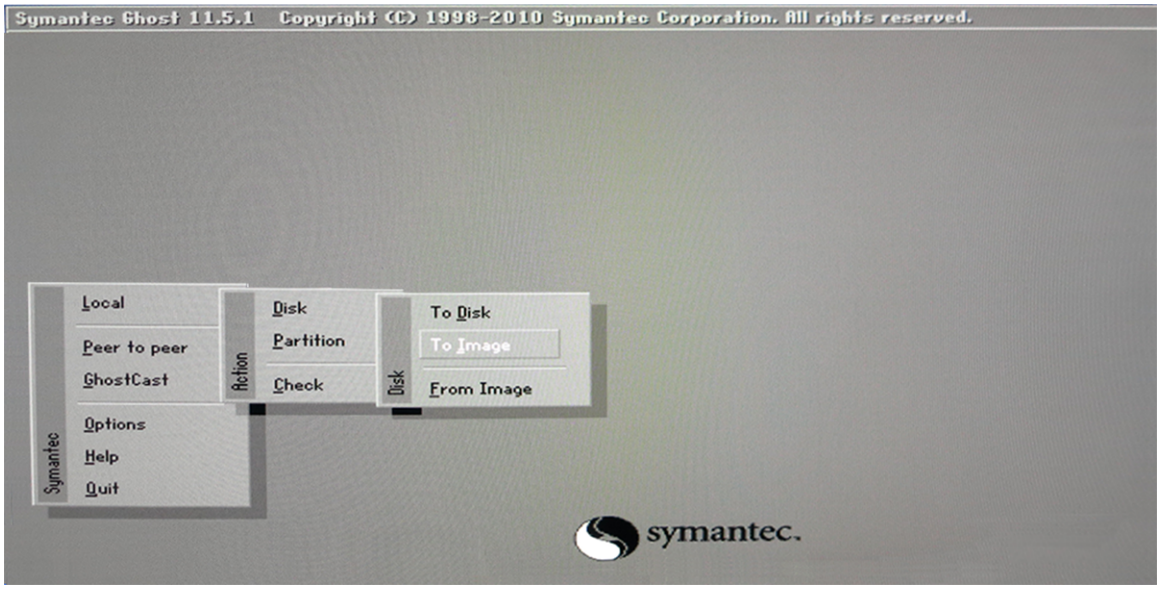
Figure 103: About Symantec Ghost screen



6. When the initial Ghost software screen displays, select **OK** to continue.

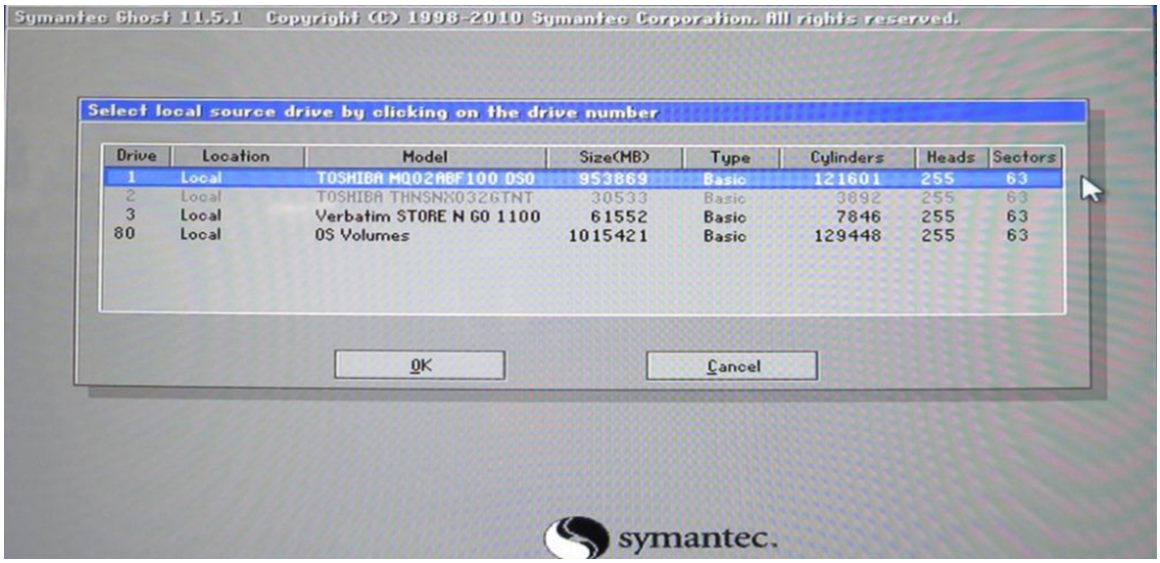
7. In the Ghost menu, select **Local** > **Disk** > **To Image**.

Figure 104: Symantec Ghost menu — To Image



The window **Select local source drive by clicking on the drive number** displays.

Figure 105: Symantec Ghost window — Select local source drive



8. In the table, select the drive number of the PC hard drive. In most cases, the hard drive is drive 1.

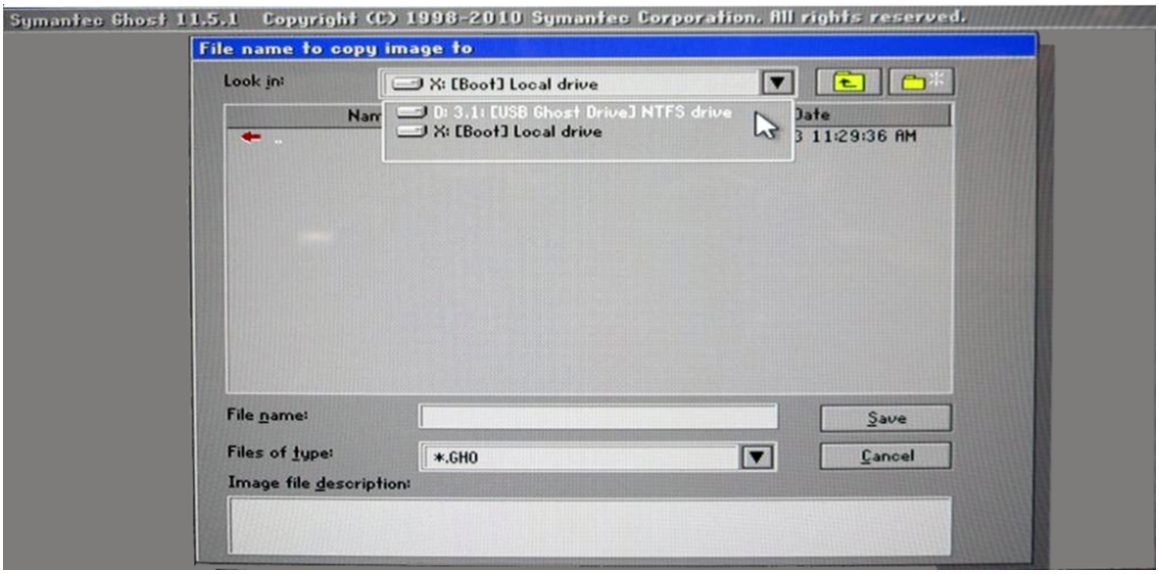
   The rest of the content of the row may differ from the screen shot.

9. Click **OK**.

   The **File name to copy image to** window displays.

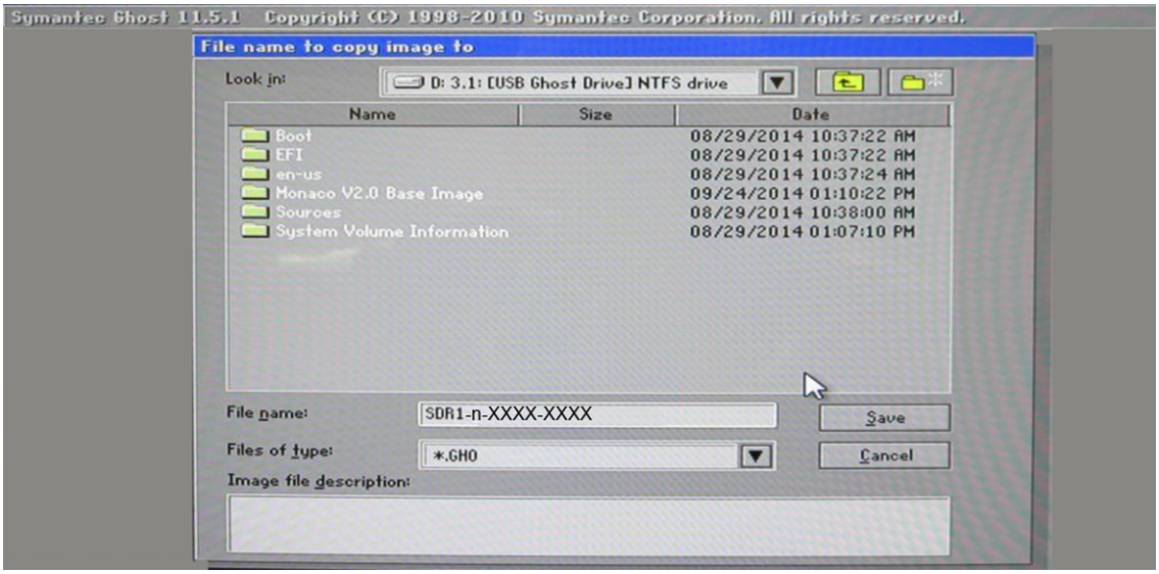
10. In the **Look in:** drop-down list, select **D: 2.1: [USB Ghost Drive] NTFS drive**.

Figure 106: Symantec Ghost window — Select USB Ghost Drive



The contents of the USB drive are displayed.

Figure 107: Symantec Ghost window — File name to copy image to



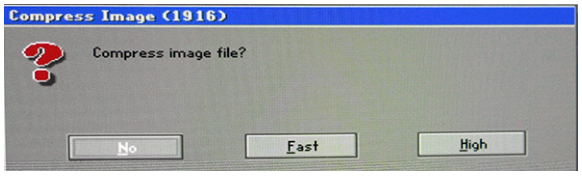
11. In the File name field, enter a name for the image file that conforms to the convention: SDR*n-XXXX-XXXX*

    Where:

    - Sites may want to maintain multiple image files for a particular PC over time. *n* indicates the order in which image files were created for the site. For example, if a site has three image files, each created at a different point in time, they would be numbered SDR1-*XXXX-XXXX*, SDR2-*XXXX-XXXX*, and SDR3-*XXXX-XXXX*, with SDR1 being the first image created and SDR3 being the last image created.
    - *XXXX-XXXX* is the serial number of the PC from which the image was made.

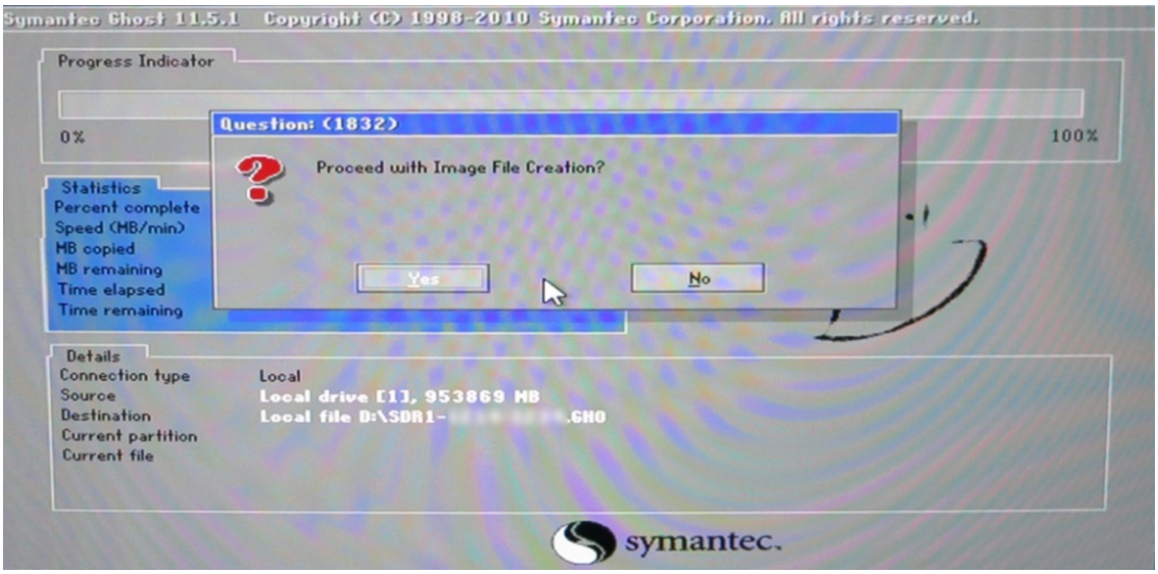
12. In the **Compress Image** dialog box, select **Fast**.

Figure 108: Compress image file message



Another dialog box displays.

13. In the dialog box, select **Yes** to continue creating the Ghost image file.



14. If the message, `Encountered an NTFS volume with a set CHKDSK bit`, displays, select **OK** to continue, and click **Continue** in the **NTFS Problem Detected** message that follows.

    A copy of the PC's hard disk will be created on the USB drive as a Ghost image file (`*.gho`) with the file name that you specified in step *11*. The **Image Creation Complete** dialog box displays.

15. Select **Continue** to complete the process.
16. Select **Quit** to exit the Ghost software.

    A DOS command window displays.

17. Type `Exit` at the DOS prompt, and press **Enter**.
    The PC restarts.
18. After the PC restarts, log in as the Admin user, and start the Sound SMART DR™ software.

Backing Up the Dell 7440 Tablet PC Hard Drive to a USB Drive

Symantec™ Ghost is a software product that creates a copy of the contents of a PC hard drive, so that it can be transferred to another computer or used to restore the computer from which it was made.

Prerequisites

Ensure that a physical keyboard is available, and powered on. The physical keyboard is necessary to enter the system BIOS and boot options.

About this task

A USB drive (also called a thumb drive) is included with the x-ray system with part number 736-804-G1. This drive contains a Ghost image of the factory-configured PC hard disk, and the Ghost software used for making an image file and restoring a hard drive from a Ghost image file.

Procedure

1. If the PC is on, power it down.

2. If the system backup USB drive, part number 736-804-G1, is not already inserted into an available USB port on the PC, insert it now.

   This drive contains the Ghost boot software.

   Figure 109: Dell OptiPlex 7440 tablet PC, location of USB (thumb) drive (side panel)

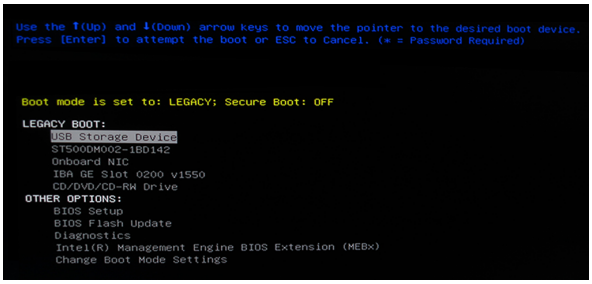
   

3. Power on the PC.
4. When the Dell splash screen is displayed, press the **F12** key repeatedly until the message, `Preparing one-time boot menu…`, appears in the top right of the display.

   The one-time boot menu displays.

5. Under Legacy Boot, select **USB Storage Device**, and press the **Enter** key.

Figure 110: Boot menu

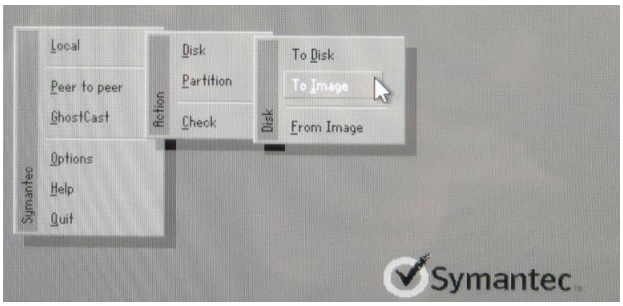


The PC restarts and boots from the USB drive. The Symantec Ghost software starts automatically.

Note: First, a DOS window displays. Then, after approximately 15 seconds, the Symantec Ghost software screen displays.

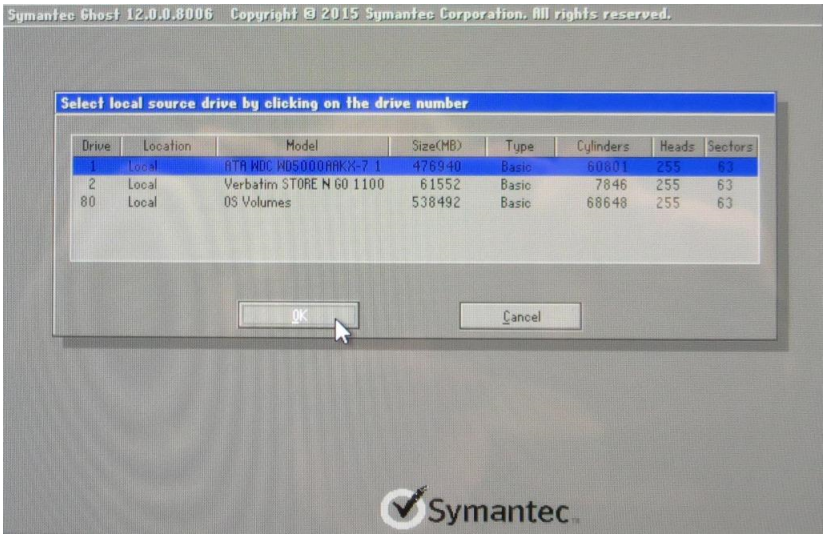
6. When the initial Ghost software screen displays, select **OK** to continue.
7. In the Ghost menu, select **Local** > **Disk** > **To Image**.

Figure 111: Symantec Ghost menu — To Image



The window **Select local source drive by clicking on the drive number** displays.

Figure 112: Symantec Ghost window — Select local source drive



8. In the table, select the drive number of the PC hard drive. In most cases, the hard drive is drive 1.

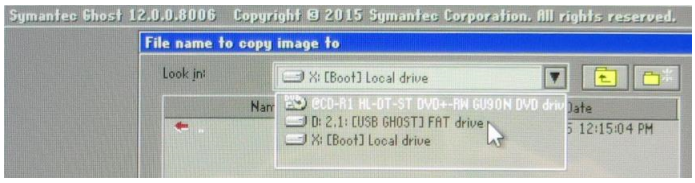
   The rest of the content of the row may differ from the screen shot.

9. Click **OK**.

   The **File name to copy image to** window displays.

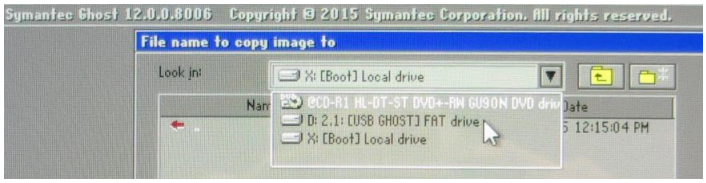
10. In the **Look in:** drop-down list, select **D: 2.1: [USB Ghost Drive] NTFS drive**.

Figure 113: Symantec Ghost window — Select USB Ghost Drive



The contents of the USB drive are displayed.

Figure 114: Symantec Ghost window — File name to copy image to



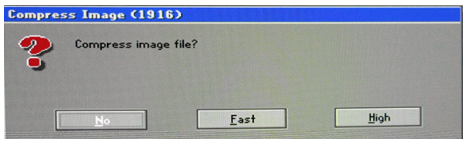
11. In the File name field, enter a name for the image file that conforms to the convention: SDR*n*-*XXXX*-*XXXX*

    Where:

    - Sites may want to maintain multiple image files for a particular PC over time. *n* indicates the order in which image files were created for the site. For example, if a site has three image files, each created at a different point in time, they would be numbered SDR1-*XXXX*-*XXXX*, SDR2-*XXXX*-*XXXX*, and SDR3-*XXXX*-*XXXX*, with SDR1 being the first image created and SDR3 being the last image created.
    - *XXXX*-*XXXX* is the serial number of the PC from which the image was made.

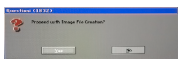
12. In the **Compress Image** dialog box, select **Fast**.

Figure 115: Compress image file message



Another dialog box displays.

13. In the dialog box, select **Yes** to continue creating the Ghost image file.



14. If the message, `Encountered an NTFS volume with a set CHKDSK bit`, displays, select **OK** to continue, and click **Continue** in the **NTFS Problem Detected** message that follows.

    A copy of the PC's hard disk will be created on the USB drive as a Ghost image file (`*.gho`) with the file name that you specified in step *11*. The **Image Creation Complete** dialog box displays.
15. Select **Continue** to complete the process.
16. Select **Quit** to exit the Ghost software.

    A DOS command window displays.
17. Type `Exit` at the DOS prompt, and press **Enter**.

    The PC restarts.
18. After the PC restarts, log in as the Admin user, and start the Sound SMART DR™ software.

Restoring the Sound SMART DR™ Data and Settings

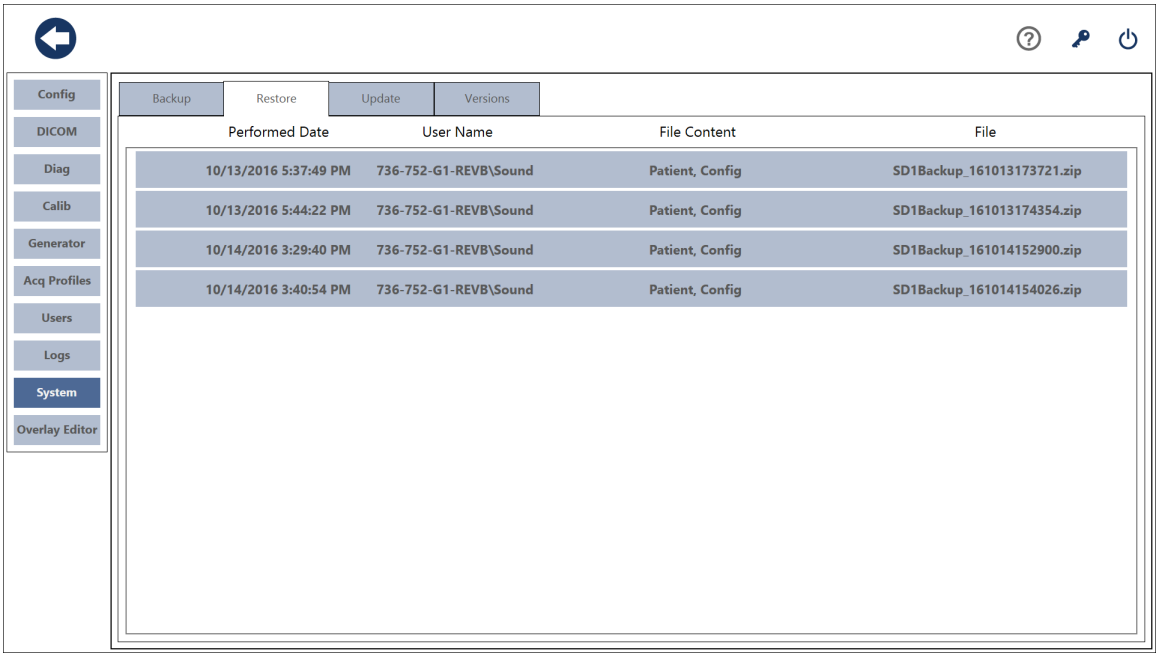
Sound and Vet users can restore a system that has been backed up.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **System** > **Restore**.

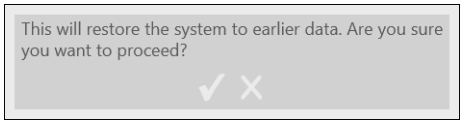
   The list of backups is displayed.

Figure 116: Restore tab



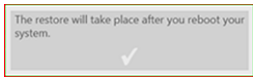
3. Click the icon that is displayed next to the selected restore point.

The following message is displayed:



When the backup data is restored, a message is displayed.

Figure 117: Restore tab -- message



4. Click the check mark in the message.
5. Restart the system when you are ready for the restoration to take effect.

Restoring the PC Hard Drive

A Verbatim USB drive (also called a thumb drive) containing the Symantec Ghost software and an image of the original factory-configured PC hard drive.

About this task

Attention: It is possible that an image of the x-ray system PC was created after it was configured for the site. If desired, the PC can be restored from this image file instead of the factory-configured file.

Caution: This procedure completely overwrites the entire contents of the PC hard drive. After the data is overwritten, it cannot be recovered unless it is backed up, either in the image on the USB drive or elsewhere. Perform this procedure only on a new drive or an existing drive with critical data corruption, such as a severe viral infection.

Cette procédure remplace complètement la totalité du contenu du disque dur de PC. Après les données sont écrasées, il ne peut être récupéré que si elle est soutenue, soit dans l'image sur le lecteur USB ou ailleurs. Effectuez cette procédure uniquement sur un nouveau disque ou un disque existant par la corruption de données critiques, comme une infection virale grave.

Procedure

1. If the PC is on, power it down.

2. Insert the recovery USB drive into a USB port on the PC.

Figure 118: Dell OptiPlex 9020 PC back panel with thumb drive

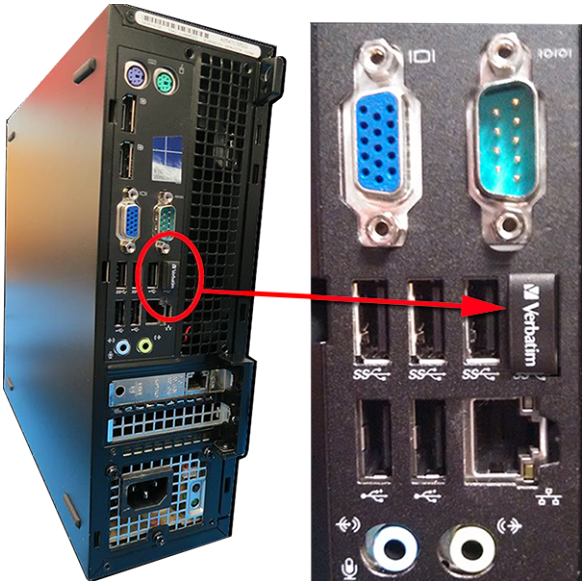
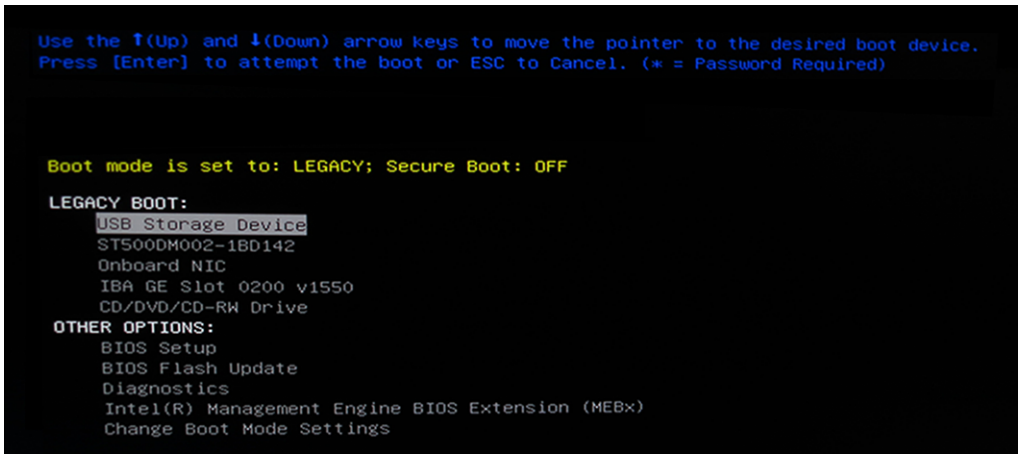


Figure 119: Dell OptiPlex 7440 tablet PC, location of USB (thumb) drive (side panel)

3. Power up the computer, and when the Dell logo is displayed on the screen, press the F12 key repeatedly until the single-use boot menu is invoked.

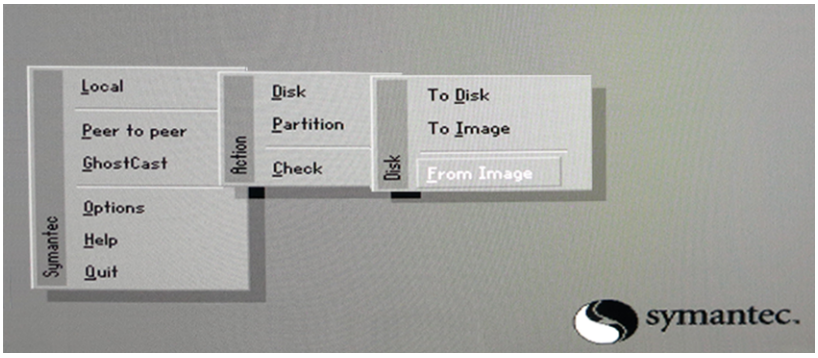
4. In the **Boot** menu, select **USB Storage Device**.



5. In the **About Symantec Ghost** dialog box, click **OK**.

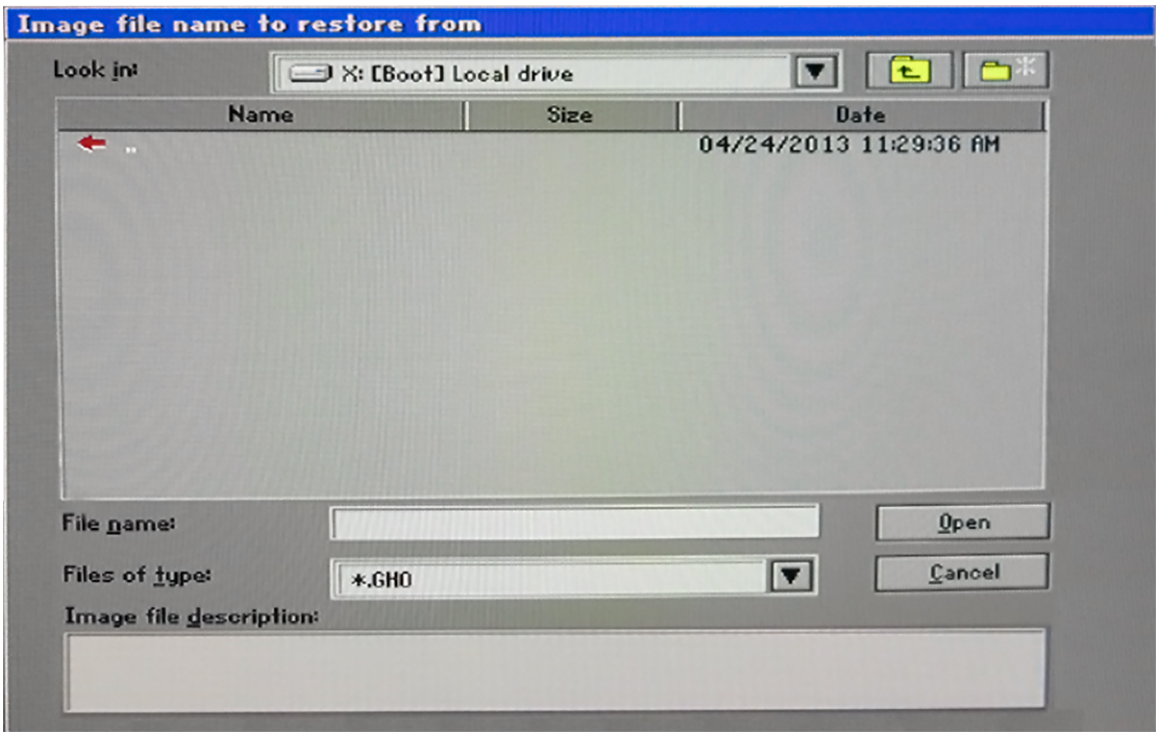
6. In the Ghost menu, click **Local** > **Disk** > **From Image**.

Figure 120: Symantec Ghost menu — From Image



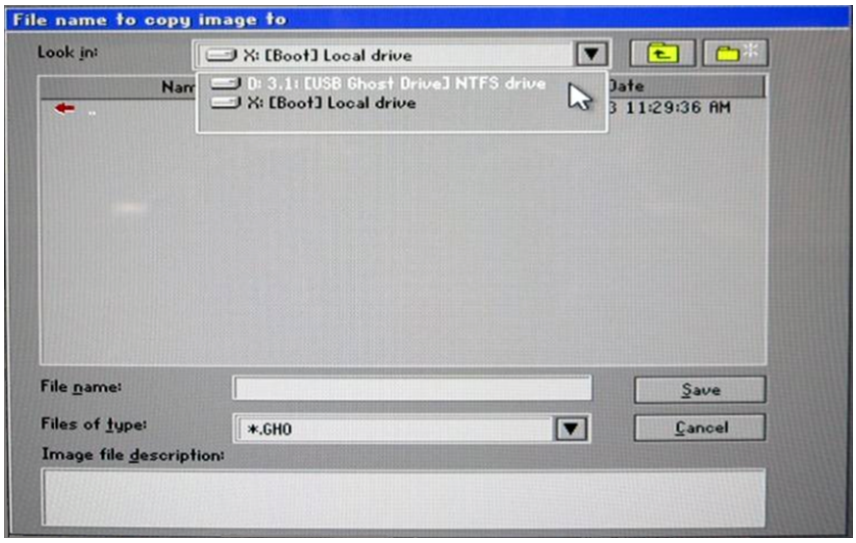
The following screen is displayed:

Figure 121: Symantec Ghost window — Image file name to restore from



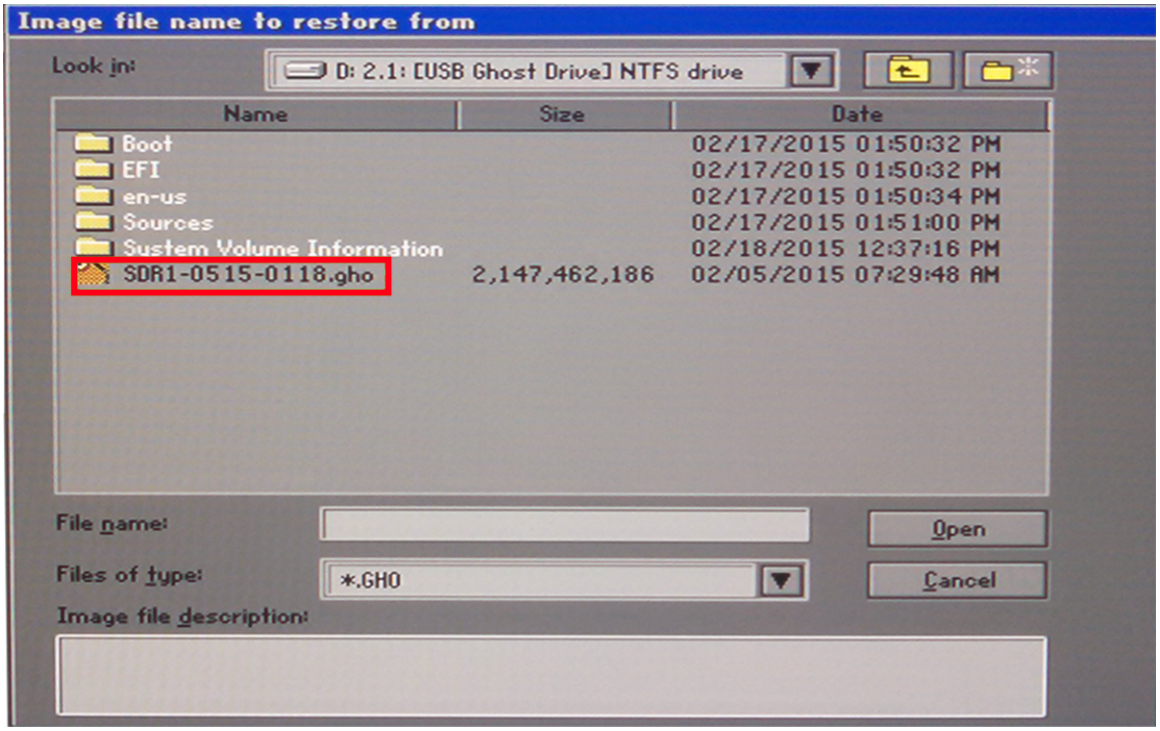
7. In the **Image file name to restore from** window, expand the **Look in** drop-down list, and select **D: 2.1: [USB Ghost Drive] NTFS drive**.

Figure 122: Symantec Ghost window — Select USB Ghost Drive



The contents of the thumb drive are displayed.

Figure 123: Symantec Ghost window — Select image file



8. Select the .gho file that you want to use to restore the PC, and click **Open**.

   The suggested format of the file name is SDR*n*-*XXXX*-*XXXX*, but it can be a different file name.

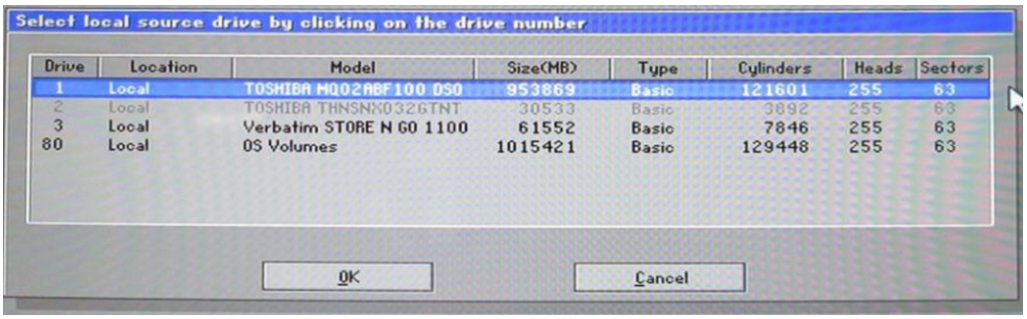
   Where:

   - Sites might want to maintain multiple image files for a particular PC over time. *n* indicates the order in which image files were created for the site. For example, if a site has three image files, each created at a different point in time, they would be numbered SDR1-*XXXX*-*XXXX*, SDR2-*XXXX*-*XXXX*, and SDR3-, with SDR1 being the first image created and SDR3 being the most recent image created.
   - *XXXX*-*XXXX* is the serial number of the PC from which the image was made.

9. In the **Select local destination drive by clicking on the drive number** window, select the main hard drive of the PC, and click **OK**.

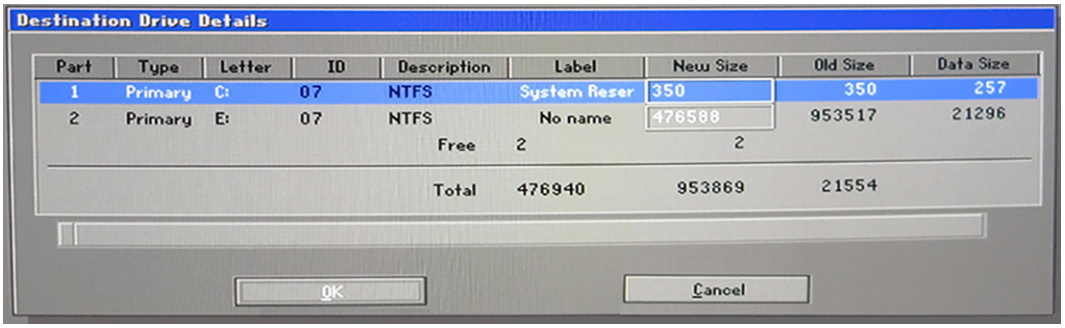
   The drive is typically drive 1 in the table.

Figure 124: Symantec Ghost window — Select local source drive



The details of the PC hard drive are displayed.

Figure 125: Symantec Ghost window — Destination Drive Details

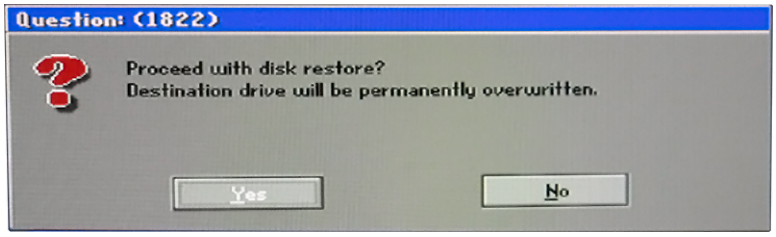


10. In the **Destination Drive Details** window, click **OK**. Do not make any changes in this window.

11. At the prompt, **Proceed with disk restore?**, click **Yes** to restore the hard drive or **No** to cancel the restoration.

    If you click **Yes**, the restoration process begins. After the process has started, DO NOT power down the PC or disconnect the USB backup drive. If you click **No**, the Ghost software discards all of your selections and returns to the main Ghost menu. No changes are made to the system.

Figure 126: Symantec Ghost message — Proceed with disk restore?



12. The restoration process takes approximately 10 – 30 minutes to complete. Restart the PC when prompted.
13. After the PC has restarted, perform basic system integrity testing and image acquisition to verify that the system is functioning properly.

Updating the Sound SMART DR™ Software with Auto Update

X-ray system updates can be installed or not as needed by the site.

About this task

When you log in to the Sound SMART DR™ PC, the software automatically checks for updates. If updates are available, the following message is displayed:

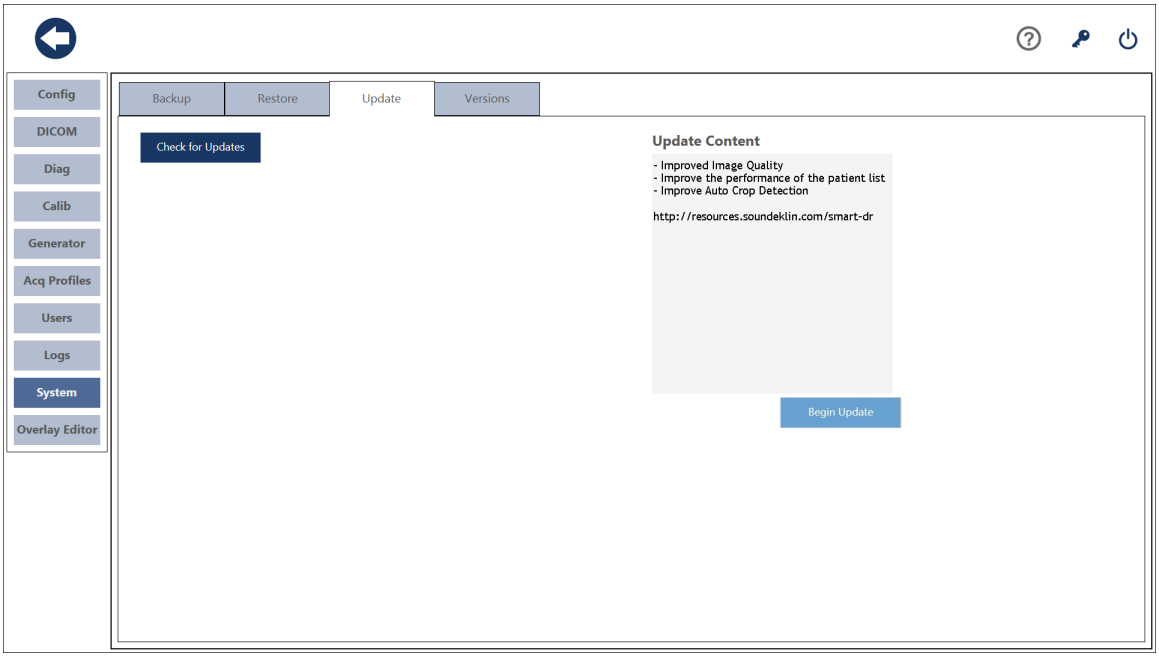
Procedure

1. Open the **Management** window. See the topic, *Displaying the Management screen* on page 98, for instructions.

2. Click **System** > **Update**.

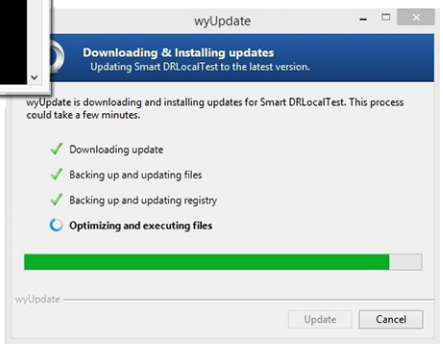
   The **Update** tab is displayed. When the software detects new updates for the system, they are displayed in the Update Content area of the tab. If no updates are displayed, you can select **Check for Updates** to check manually.

Figure 127: Update tab



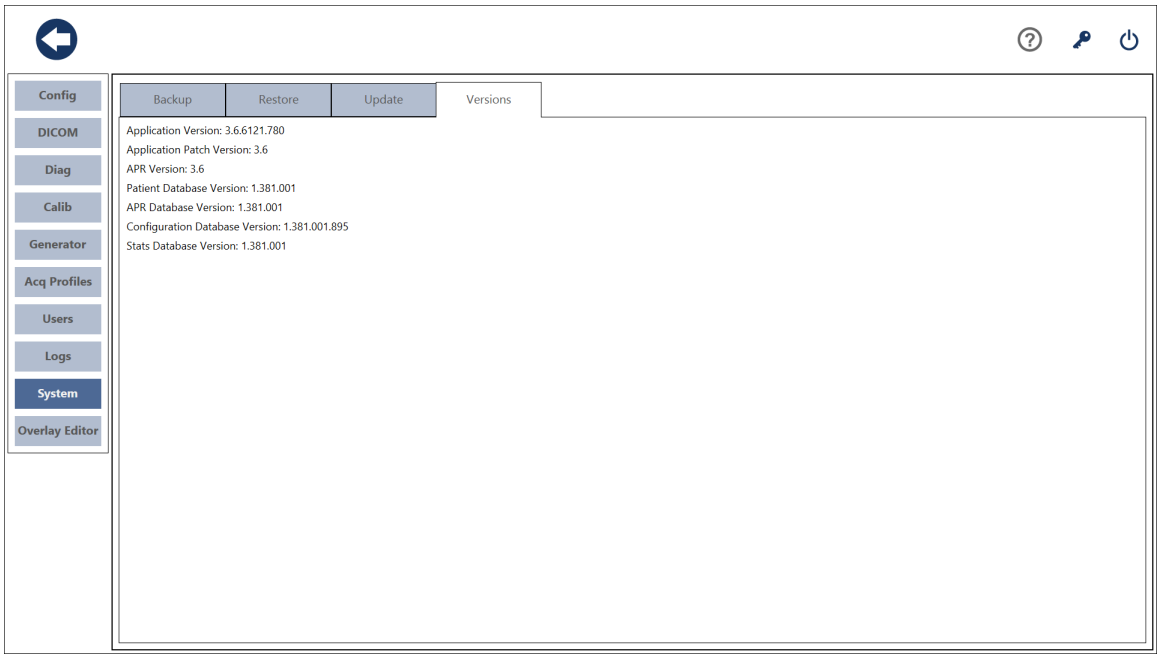
3. If you want to install the update, select **Begin Update**.

   The x-ray software closes, and the update begins automatically. A **DOS** window and the **wyUpdate** window are displayed. When the update is complete, the software restarts, and a web page is displayed that provides information about the update.



4. Close the web browser to return to the Sound SMART DR™ software.
5. Open the **Management** window. See the topic, *Displaying the Management screen* on page 98, for instructions.

6. Select **System** > **Versions**, and ensure that the updates were successful.



Windows Operating System Updates

Only install important or required Windows operating system updates.

Caution: Do not update the Intel PRO/100 card driver. The list of updates might include the Intel PRO/100 card because the Pleora driver replaces the Intel driver for the PaxScan panel. If the Intel PRO/100 driver is updated, the connection to the PaxScan x-ray panel will no longer work properly.

Ne pas mettre à jour le pilote Intel PRO / 100 de la carte. La liste des mises à jour pourrait inclure le processeur Intel PRO / 100 carte car le pilote Pleora remplace le pilote Intel pour la PaxScan panneau . Si le PRO / 100 pilote Intel est mis à jour , la connexion au panneau x -ray PaxScan ne fonctionnera plus correctement.

Performing Panel Gain Calibration

The Sound user can perform gain calibration on the active panel. The system will remind you to perform gain calibration based on the frequency you select on the Advanced tab of the Config screen.

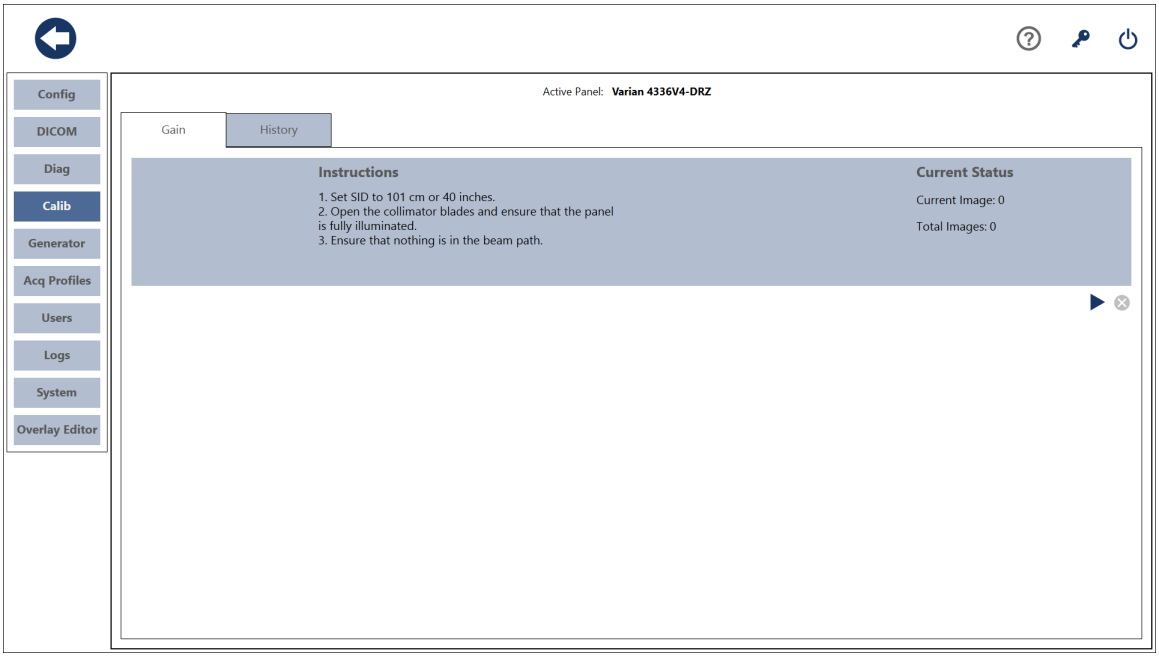
Prerequisites

Before you begin this task, ensure that the panel is installed, configured, and active on the x-ray system. If it is not, the **Gain** tab will not be displayed. For information about setting the frequency of gain calibration reminders, see *Configuring Advanced Options*.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Calib**.

   The **Gain** tab is displayed by default.



3. Follow the instructions in the screen, and select **Start Calibration**.

   The **Start Calibration** button looks like this:

   ▶

   When you start the calibration process, the system backs up the `\IMAGERs` directory. The default backup location is `C:\Users\Current_User\Documents`.

   Gain calibrations can be stopped if necessary. If the calibration is stopped or fails, the calibration data is discarded and the pious calibration data is used.

   Note: The panel will experience a time-out if you allow more than two minutes between image acquisitions during gain calibration. If the time-out occurs, cancel and restart the calibration.

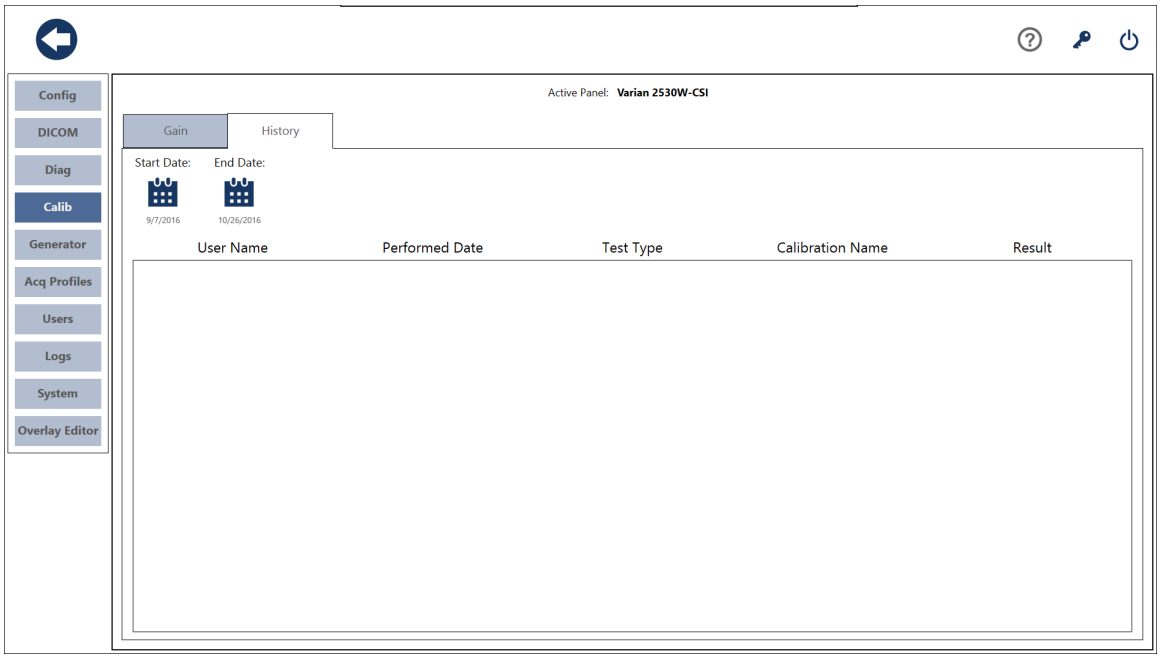
   When the calibration is complete, a message is displayed indicating success or failure.

Viewing Gain Calibration History

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Select **Calib**.

3. Select **History**.



4. Select the **Start Date** icon.

   In the pop-up calendar, select the first date in the date range for histories that you want to view.

5. Select the **End Date** icon.

   In pop-up calendar, select the last date in the date range for histories that you want to view. The gain calibration history for the range of dates that you selected is displayed.

Cleaning the X-ray System

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. Cleaning and preventative maintenance should be performed approximately every six months or as required by the site.

- *Approved Disinfection Agents* on page 198
- *Cautions* on page 198
- *Removing Dust From Fans and Heatsinks* on page 198

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.

Chapter

7

Diagnostics

Contents

Diagnostic Tools

This chapter describes the diagnostic tools that are available to Sound users for troubleshooting issues that might arise after the system is installed and configured.

Verifying Application Version Information

Sound and Vet users can verify version information for the system software and components.

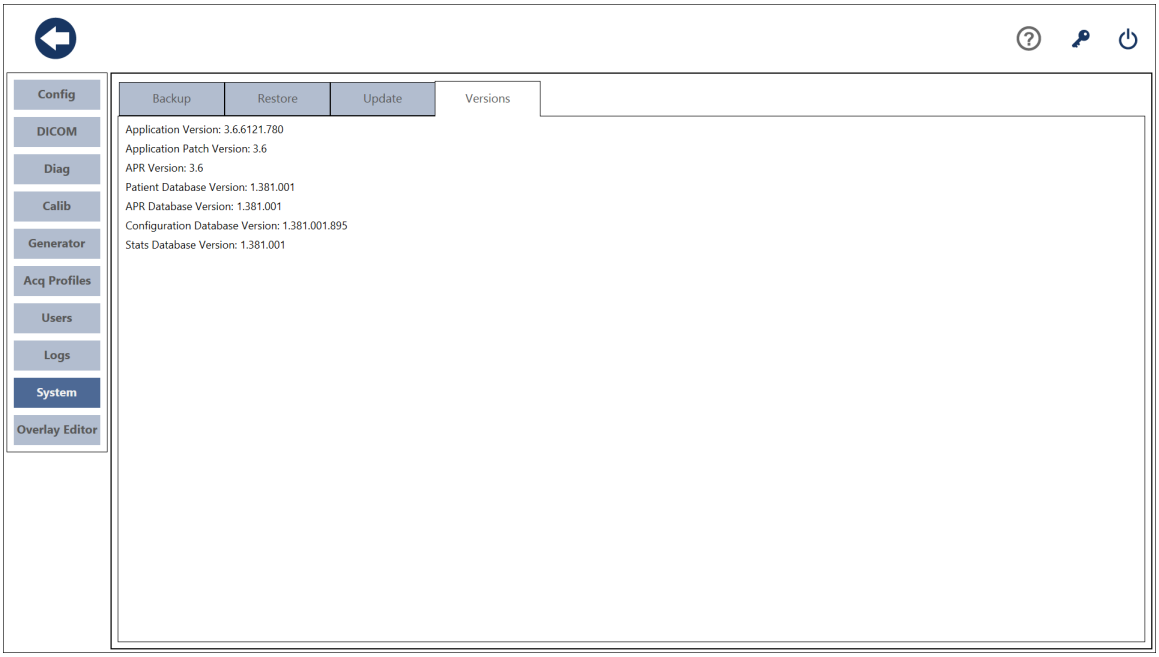
About this task

Version information can be useful for troubleshooting and updating the system.

Procedure

1. Open the **Management** screen. See *Displaying the Management screen* on page 98 for instructions.
2. Click **System** > **Versions**.
   Version information for software and system components are displayed.

Figure 128: Versions tab

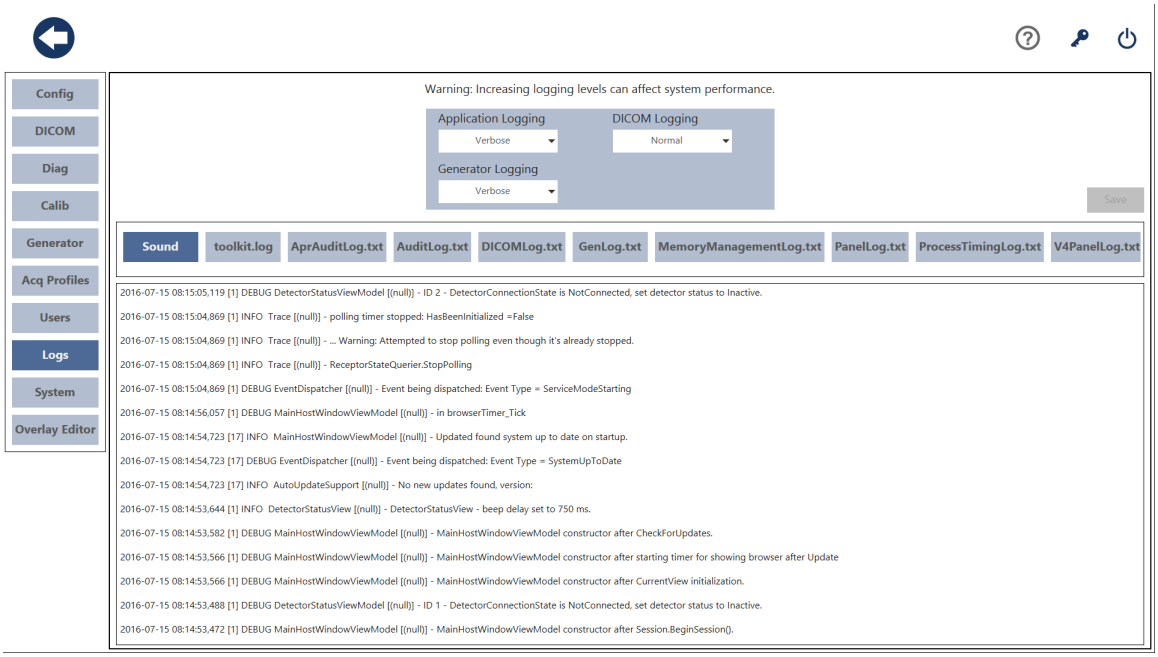


Log Files

The x-ray system captures and saves information about how applications and DICOM are functioning and saves that information to log files.

The following log files can be viewed in the Management screen on the **Logs** tab.

Figure 129: Logs window



Sound — This log file captures information about the performance of the PC application.

APRAuditLog.txt — The `APRAditLog.txt` log records information about manual changes made to APR settings from within the software.

AuditLog.txt — The `Auditlog.txt` report records information about the PC application such as when it was started and ended, and the initials of the technologists who log in and log out.

DICOMLog.txt — The `DICOMLog.txt` file records information about export and import jobs for the DICOM devices configured for this x-ray system. The logs record the start and end of the job; type of job; data file; destination; status; remote IP address; remote port; copies; and DICOM device options.

Important: Set Application or DICOM logging to Verbose mode only when instructed to do so by a technical support representative.

GenLog.txt — The `GenLog.txt` file records communication between the PC and the x-ray generator.

MemoryManagementLog.txt — The `MemoryManagementLog.txt` file records information about how the PC application is using system memory.

PanelLog.txt	The `PanelLog.txt` file records communication between the PC application and the flat-panel detector.
ProcessTimingLog.txt	The `ProcessTimingLog.txt` file records information about the amount of time x-ray system processes are taking.
V4PanelLog.txt	This file records communication between the PC application and the 4336Wv4 flat-panel detector.
VirtualCPLog.txt	The `VirtualCPLog.txt` file records information about the initialization and connection status.

Reviewing log files

Application and DICOM log files can be configured to use Normal or Verbose modes. The log files can be reviewed in the **Management** screen in the Logs tab.

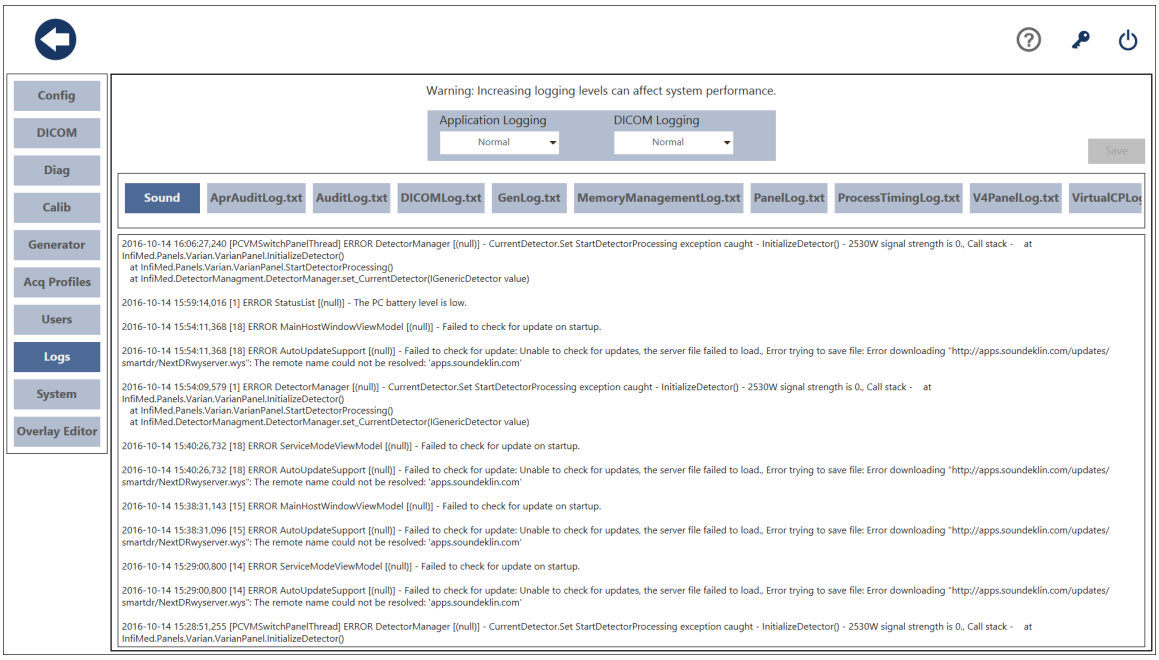
Prerequisites

Before you begin this task, review the topic *Log Files* on page 202 to familiarize yourself with the types of log files and what they capture.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Click **Logs**.

   The logging window is displayed:



3. In the log file window, click the name of the log file that you want to review.

   The information that the log has captured is displayed in the space beneath the log file toolbar. For example, **Sound** is selected in the figure above, and the log file contents are displayed in the area below. The log text files are saved to the `C:\DiagI5` directory.

Collecting Data

The Data Collector feature can be used to gather information about the x-ray system for backup and diagnostic purposes.

About this task

Any user type can access all of the fields in Data Collector.

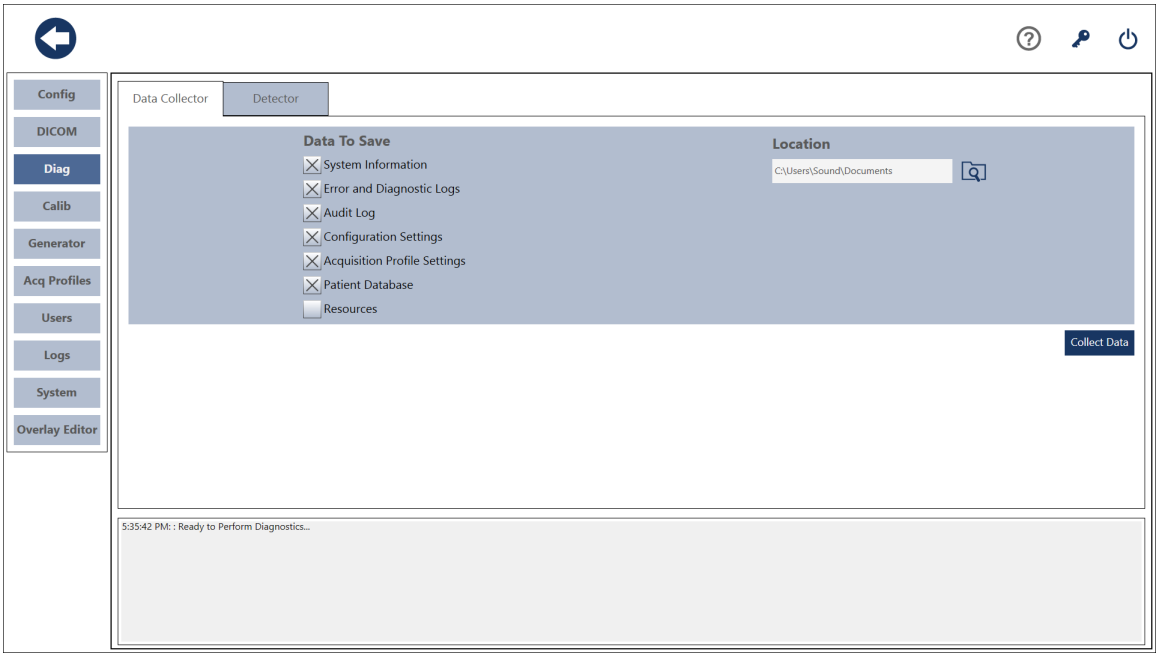
Procedure

1. Open the **Management** screen. See *Displaying the Management screen* on page 98 for instructions.
2. Click **Diag** > **Data Collector**.

3. Select the types of data to be collected.

   You can select or deselect any of the data options displayed on the tab. By default, all of the options except Resources are selected.

Figure 130: Data Collector



System Information	Enable this option to back up system information.
Error and Diagnostic Logs	Enable this option to back up information that can be used to troubleshoot errors and diagnose problems with the system.
Audit Log	Enable this option to back up information about audits.
Configuration Settings	Enable this option to back up the system configuration data.
Acquisition Profile Settings	Enable this option to back up acquisition profile data.
Patient Database	Enable this option to back up the patient database.
Resources	Enable this option to back up language support settings.

The `StandAloneStrings` and `VetStrings.xml` files are backed up only for United States English.

The files are in XML format, and they are located in the `C:\Program Files\Sound Eklin\Resources\Languages`.

4. In the Location field, accept the default location or specify a new location in which to save the collected data.

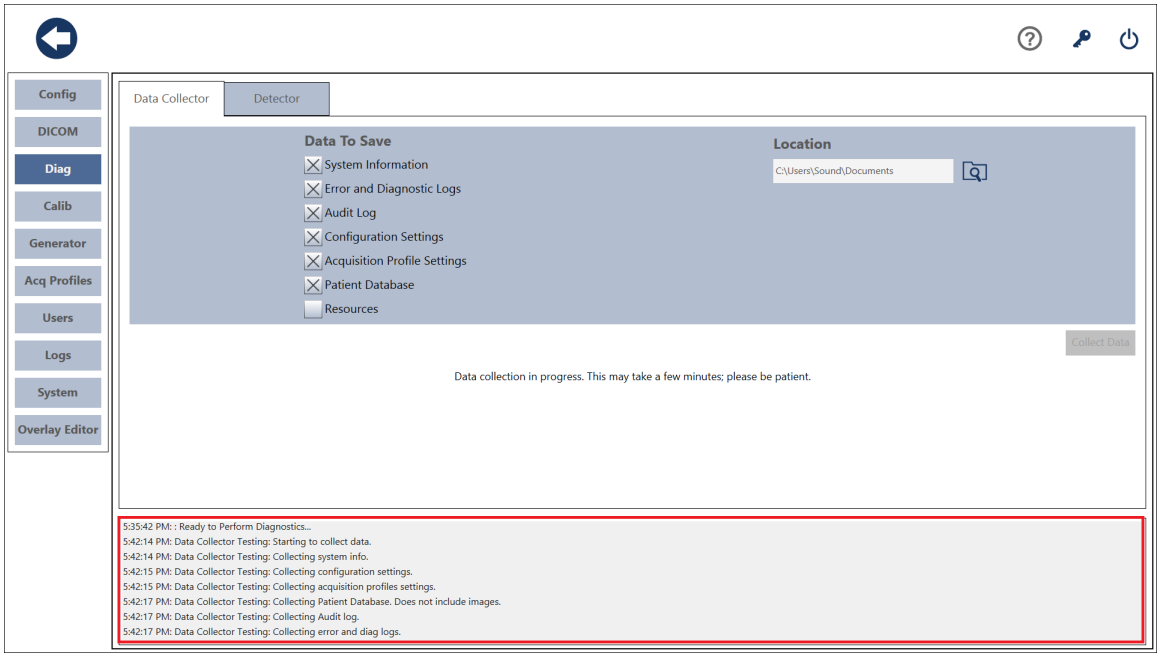
   The default location is the `C:\Users\Current_User\Documents` directory, where *Current_User* is the username that is logged into the Windows operating system. For example, the images in this topic show the location path `C:\Users\Sound\Documents`. Sound is the user that is logged into the Windows operating system.

   The files are saved to a password-protected zip file.. The zip file's name is SD1Data_*YYMMDDHHMMSS*, and the password is `Gen5Logs`. *YYMMDDHHMMSS* is the two-digit year, month, day, hour, minute, and second that the file is saved.

5. Click **Collect Data** to begin the data collection process.

   When the process is complete, a log that shows the diagnostic tests that were performed is displayed. See the highlighted area the following figure.

Figure 131: Location for log of diagnostic tests performed



Viewing Panel Software Versions

Viewing the panel software version can be useful in diagnosing problems with the panel.

Procedure

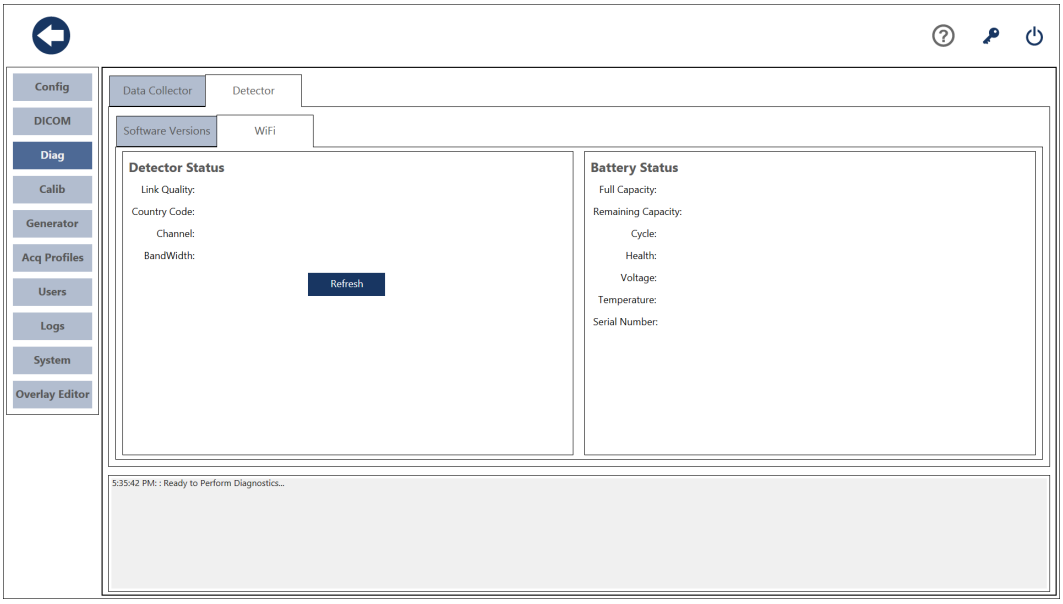
1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Select **Diag**.
3. Select **Detector** > **Software Versions**, and ensure that the versions are accurate for the panel being used.

Diagnosing WiFi Connection Issues

Information about the panel WiFi connection can be viewed in the **Management** screen.

Procedure

1. Open the **Management** screen. See the topic, *Displaying the Management screen* on page 98, for instructions.
2. Select **Diag**.
3. Select **Detector** > **WiFi**. See *WiFi tab settings* on page 208 for parameter descriptions.



4. Optional: Select **Refresh** to reload the WiFi information.

WiFi tab settings

Table 54: WiFi tab parameters

Field	Description	Valid values
Link Quality		0 – 100
Country Code	The country code set on the panel.	Default: 841
Channel	The wireless channel set on the panel.	Default: 40
Bandwidth	This value is set on the panel.	20 or 40. Default: 40
Full Capacity	The maximum panel battery charge measured in mAh as reported by the battery.	Not applicable

Field	Description	Valid values
Remaining Capacity	The current panel battery charge measured in mAh as reported by the battery.	Not applicable
Cycle	The number of times the battery has been charged.	Not applicable
Health		0 – 100%
Voltage	The current battery voltage measured in mV.	Not applicable
Temperature	Current panel temperature in degrees Celsius.	Not applicable
Serial Number	The serial number of the installed panel.	Not applicable

Chapter

8

Access Help

Contents

Sound provides options for help with the user interface. Access them from the **Help** icon on 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.

Help Options window

Figure 132: Help Options window

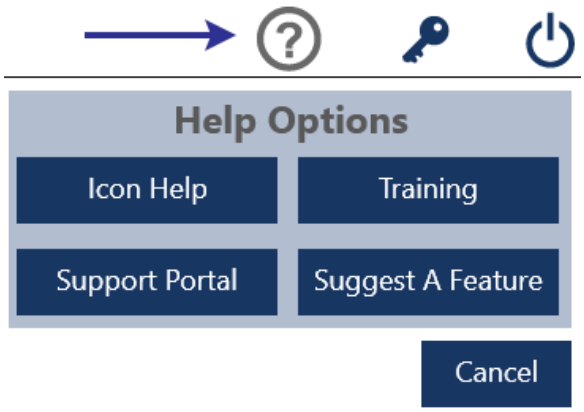


Table 55: Help Options

Item	Descriptions
	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**. See *Figure 133: Access the Sound Experience Support Portal* on page 213. • First time users click **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.

Item	Descriptions
Suggest a Feature	Accesses portal you can use to provide feedback to Sound™ about the Sound SMART DR™ software. See *Figure 134: Suggest a Feature* on page 213.
Cancel	Closes the window.

Figure 133: Access the Sound Experience Support Portal

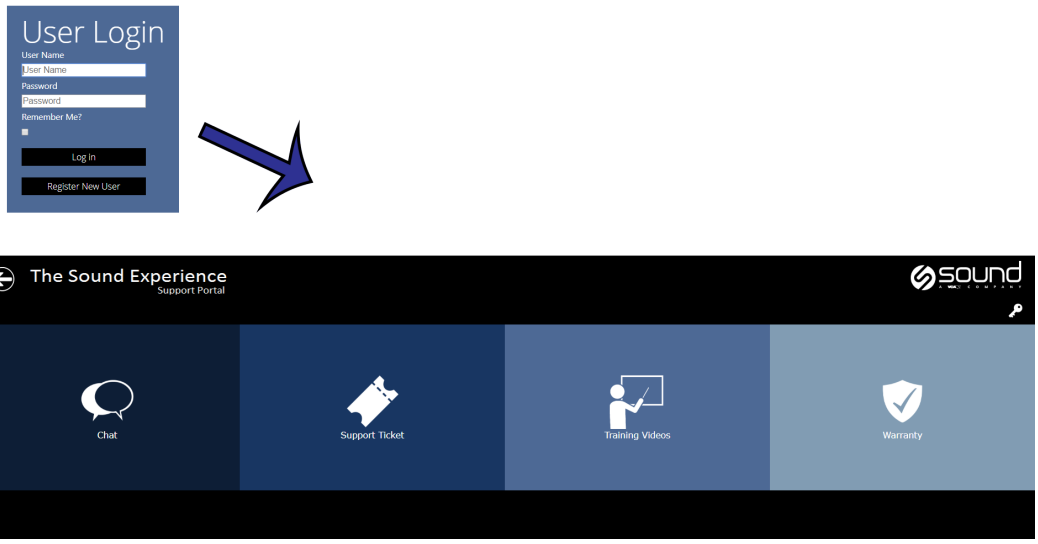
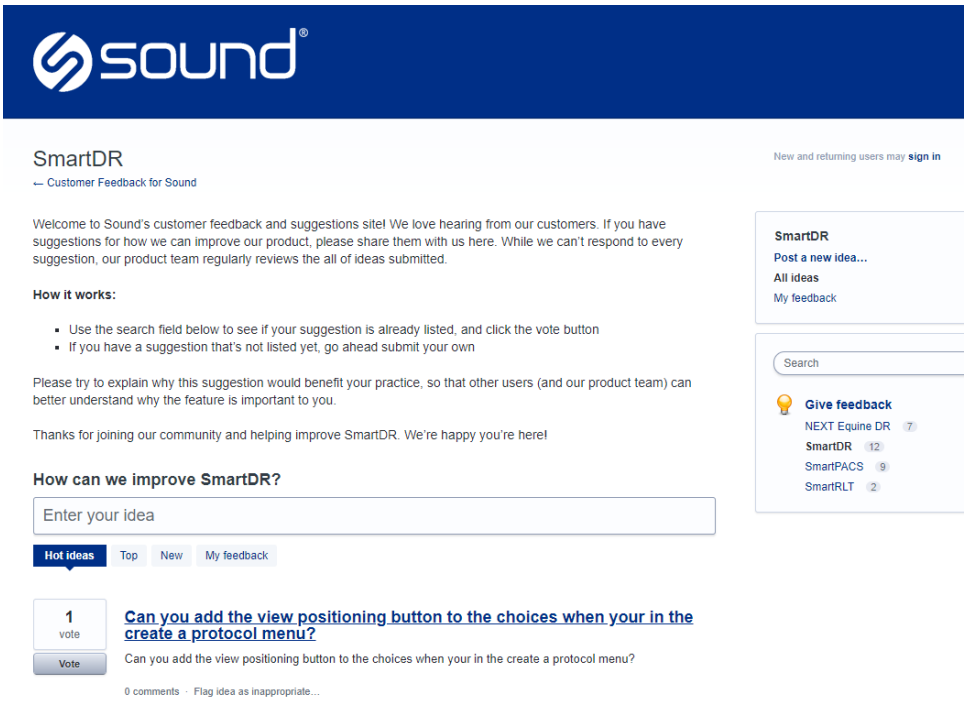


Figure 134: Suggest a Feature



Chapter

9

Technical Support

Contents

Technical Support

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.
5810 Van Allen Way
Carlsbad, CA 92008
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

Open the **Management** screen, select **Config** > **Site Information**.

The system serial number is located in the **Model Information** section.