

DICOM Integrations

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Overview

Impromed can request and view images from systems that meet the DICOM imaging standards developed and sponsored by the American College of Radiology and the National Electrical Manufacturers Associations. The adoption of these standards eliminates the need for Impromed operators to duplicate client and patient entry into multiple sources and allows for images to be recalled through the Impromed software.

Included in the DICOM Imaging module is support for Modality Worklist Entries which allow for job requests to be made from Impromed into the managing software for the appropriate digital imaging system. Modality Worklist is only available for imaging systems that support this feature. Supported systems include, but are not limited to, Sound-Eklin, Schick, SimonDR, Universal Ultrasound, Fuji, AGFA systems.

It is also important to note that DICOM conformance should enable Impromed to work with any Digital Imaging System that maintains a conformance to the DICOM imaging standards.

The setup of the DICOM imaging module consists of two distinct parts:

- 1. Providing Impromed with the necessary information to communicate with the digital imaging system.
- 2. Providing the digital imaging system the information necessary to communicate with Impromed.

Once communication has been established, the end result will provide a business the ability to locate and retrieve images from the digital imaging system. Additionally, some systems also support Modality Worklist. Modality Worklist allows Impromed to initiate a request for an image study to be performed in the digital imaging system.

To integrate any DICOM system with Impromed, please follow these general steps:

- **1.** A license from Impromed for the DICOM module is required.
- 2. Install the Impromed Worklist Server see "Install the Worklist Server" on page 10.
- 3. Collect the 3rd Party AE Title from the business/vendor.
- 4. Configure the Impromed Worklist Server see <u>"Configure the Worklist Server" on page 10</u>.
- 5. Update the 3rd Party PACS Server.
- 6. Update the 3rd Party Acquisition Software.
- 7. Run the Console Version on the Worklist Server.
- 8. Setup Impromed Medical Records Settings and update the license file.

The following page is a table of Approved DICOM Integrations.



DICOM Integrations

Company	Pacs Server	Acquisition Software
A Walsh Imaging		MaxxVue
EB Medical	QXLink	OXVue ²
Sedecal (VetRay)		
ALLPRO Imaging	PACSmart Store and View	PACSmart Acquisition
Aspyra ¹	AccessNET PACS	MedVIEW
Asteris ¹	Modality Distribution System	Not supported
ClearVet Digital Radiography Systems	Blade	Blade
Cuattro	UnoSM/MD/EQ	UnoSM/MD/EQ MyCloudPro
EESi	EEArchive PocketPACS	eFilm Workstation FUJI CR
EponaTech	Metron-DVM-Plus	Metron-DVM-Plus
Fovea	PetPacs QXLink	MaxxVue QXVue ² Oculus
Freeware	Conquest	Any supported acquisition software
FUJIFILM Medical Systems	Axon	FCR DICOM / FlashIIP
Genesis ¹	OmniArchive	
Hudson Digital Systems	HDSVETPACS	FCR DICOM / FlashIIP
IDEXX Digital Imaging ³	ClearCapture Dx® IDEXX PACS	ClearCapture Dx [®] IDEXX PACS
ImaSight	Dragonfly PACS	ImaSight VISION



Company	Pacs Server	Acquisition Software
Konica-Minolta	Image Pilot	Image Pilot
Rayence	VRPACS VET	Xmaru VETVIEW
Schick Technologies, Inc ¹	CDR DICOM	Not supported
Scil Animal Care		
MinXray		
Nuon Imaging	dicomPACS	dicomPACS DX-R
Vet Novations		
SimonDR, Inc.	DMMD Exuo	WhiteCap
Sound-Eklin	Nucleus DICOM TruDR Fusion PACS	VetPACS TruDR CDX ¹ eFilm
Summitt Industries (Innovet DxR)	IDC Sirius PACS	IDC Sirius Modality Worklist
UMG / Del Medical ¹	UMG Small Office PACS UMG Enterprise PACS EvoView PACS	Fuji CR
Universal Ultrasound	MYPACS	Uses multiple applications
VETinfo SYSTEMS	PowerPACS	PowerPACS
Viztek	OPAL PACS	OPAL CR



DICOM Integration Network Setup





Worklist Server

Install the Worklist Server

The configuration of the Worklist Server should be performed on the server or primary workstation. You must also have Impromed installed on this computer.

- 1. Open File Explorer.
- 2. In the address bar, type \\pdc1 (Note this is an Impromed standard naming convention. Your server name may vary).
- 3. Press Enter.
- 4. Double-click the Program CD folder.
- 5. Double-click the version folder.
- 6. Double-click the Integrations folder.
- 7. Double-click the Worklist Server folder.
- 8. Double-click the setup.exe file.
- 9. Follow the prompts to install.
- **10.** Close when installation is finished.

Configure the Worklist Server

The Setup AEs screen has two sections in which information needs to be entered. The Worklist Server AE is Impromed's part of the DICOM communications. The Remote AEs section provides third party imaging system identification on the network. This is what allows the two systems to communicate throughout the network.

Impromed recommends turning off the Windows Firewall on all devices included in this integration.

1. Open Impromed Worklist Server > Setup AEs from the Windows programs.

These settings control the actual Worklist Service and are stored only in the local machine's registry. It must be run as an administrator.

2. Enter the following Worklist Information (see the top portion of the figure on the following page).



- **AE** This is the name you give this DICOM "device". Impromed recommends using the computer name of the Impromed Server (i.e. pdc1 is our normal naming convention).
- **Port** This is the TCP port that the Worklist Server will listen to for new connections. Impromed recommends using port 106.
- SQL Server and Impromed Database Your SQL server (pdc1\Impromed) and Impromed database name.

Impromed Support Tools can be used to gather this information.

- 3. Each time a value is changed the Update button located at the TOP of the screen must be clicked.
- 4. Once this information has been entered, it will be necessary to enter which remote DICOM server(s) Impromed can search for DICOM files. The items in the list are also stored in the local machine's registry and used by the Worklist Server service. This information is entered into the lower half of the screen.
 - Worklist Server AE and Port Both of these are set up in the third party DICOM server software.

If using Sound Technologies from the DICOM server software, please look under Tools > Options > DICOM Server tab.

	间 Setu	p AEs v19.10.0.8							- 0	×
Тор	Work	list Server AE	Port	, r	My IP	SQL Serve	er	Database Name		_
	pdc1		1	06		pdc1\ImproMe	d	ImproMed	Update	
	Remo	te AEs								
	AETit	e	Ho	st IP		Port	Relational	Supports IMAGE Level Search	Cvt 2nd Stora	ige
	(new)									
ottom										
						0	Relational	Supports IMAGE Search	Cvt 2nd Stor	rage

- **My IP** This is the IP of the machine (it should have a static IP address). From the DICOM server device do the following to get the IP address:
 - a. Click Start > Run or Start > Start Search.



- b. Type "cmd". (Type without quotation marks.)
- c. Press Enter.
- d. Type "ipconfig". (Type without quotation marks.)
- e. Press Enter.
- f. This will list the IP address of the device.

See <u>""Appendix D: Setup AEs Table" on page 39</u> for assistance in configuring these settings for each vendor or you can also visit the vendor section on the following pages for specifics.

- **Relational** Some DICOM servers support relational querying. This is much faster and should be checked if possible.
- Supports IMAGE Search There are four levels to DICOM data that can be queried (searched for) PATIENT, STUDY, SERIES, and IMAGE. For the main view in medical records to view this data properly, data from all four levels must be available. Some DICOM servers (Sound-Eklin uses Merge's Fusion Server) do not support all of the levels. If this is the case, the data returned to Impromed will be incomplete and not display in the main medical records view. In these cases, checking this will skip the search in the main view (saving system time that would otherwise be wasted).

Data from systems like this can be viewed using the "DICOM Browser" button in the medical records module. This screen does not do a search, but actually requests that the remote server send all DICOM files for a specific patient to Impromed. The DICOM files are stored in the "Temporary Lab Screen Location" from "Global Medical Records Setup". DICOM files older than 24 hours are removed from this folder every time the DICOM Browser is used.

 Cvt 2nd Storage - An alternate DICOM storage type. This should be left unchecked unless there is an alternate storage device being used.

F The server being used for Impromed should not be considered a secondary storage device.

- 5. Click Add when finished.
- 6. Highlight the newly added row.
- 7. Click Verify (ECHO) to ensure that the two devices are communicating properly.
- 8. Once all needed servers are added to the list, clicking **Update SQL Server** will also copy this information into the Impromed database. This allows Impromed to know how to deal with certain systems.



Run the Console Version

There are two different versions of the Worklist Server. One is a service (Impromed Worklist Server) and one is a console application. Both function the same way, but the console application is useful for seeing what is actually happening if there is an issue. The install creates shortcuts to both Setup AEs and to the console version of the worklist server. Because the service and the console version use the same settings, only one of them can be running at a time.

Any changes made in Setup AE's requires that the Worklist Server service be restarted or the console closed and reopened.

- 1. Click Start > Programs or Start > All Programs.
- 2. Click Impromed Worklist Server > Impromed Worklist Service Console.

Error messages are displayed in red.

		×
Stopping Service - ImproMedWLS Waiting for Service to Stop - ImproMedWLS Service Stopped - ImproMedWLS		^
AEs setup pdcl has STARTED on Port 186		
-		

Once tested and running properly, please configure the ImpromedWLS Service:

- 3. From the Impromed Database Server:
 - a. Open Services.
 - b. Right-click Impromed Worklist Server.
 - c. Click Properties.
 - d. Select Automatic for the Startup Type.
 - e. Click Start if the service is not already running.
 - f. Click OK to save changes and close Properties.



Remote DICOM Server and Acquisition Software

The same three values set in Impromed (AE Title, Port, and IP) will also need to be entered on the remote DICOM Server and in the DICOM acquisition software (for the Modality Worklist).

A Walsh Imaging

A Walsh Imaging representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the A Walsh Imaging AE Title, IP address, and Port of the PACS server. If the A Walsh Imaging system is already set up, the business can contact A Walsh Imaging Technical Support at (866) 429-9729 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
A Walsh Imaging	QXLink	M	M	

If the QXLink software is being utilized as the PACS Server, make the most recent version is being used for all pieces of software.

ALLPRO Imaging

ALLPRO Imaging representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the ALLPRO Imaging AE Title, IP address, and Port of the PACS server. If the ALLPRO Imaging system is already set up, the business can contact ALLPRO Imaging at (888) 862-4050 for assistance in gathering the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
ALLPRO Imaging	PACSmart Store and View		Ø	



Aspyra

Aspyra representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Aspyra AE Title, IP address, and Port of the PACS server. If the Aspyra system is already set up, the business can contact Aspyra at (800) 437-9000, Ext. 2331 for assistance in gathering the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Aspyra	AccessNET PACS			

Asteris DICOM Setup

Asteris representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Asteris AE Title, IP address, and Port of the PACS server. If the Asteris system is already set up, the business can contact Asteris Technical Support at (877) 727-8374 to gather the information.

			<u>IMAGE</u>	
<u>Vendor</u>	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Asteris	Modality Distribution System			

ClearVet Digital Radiography Systems

ClearVet representatives should setup the IP end of the PACS Server and enter that information into the acquisition software. If a ClearVet representative is using any other acquisition software, please have them send a request to ClearVet for testing with this acquisition software. The ClearVet BLADE software is used to work with the Modality Worklist. The Blade PACS software can be queried from Impromed using the Study Level Search (DICOM Browser Button). The provider of the ClearVet Digital System should be able to contact the Field Engineer for their territory to gain assistance in configuring this integration.

			<u>IMAGE</u>	
<u>Vendor</u>	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
ClearVet Digital Radiography Systems	Blade	M	M	



Cuattro

Cuattro representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Cuattro AE Title, IP address, and Port of the PACS server. If the Cuattro system is already set up, the business can contact Cuattro Technical Support at (800) 709-4515 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Cuattro	MyCloudPRO		R	
	UnoSM/MD/EQ		-	_

EB Medical

EB Medical representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the EB Medical AE Title, IP address, and Port of the PACS server. If the EB Medical system is already set up, the business can contact EB Medical Technical Support at (703) 623-2868 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
EB Medical	QXLink			

If the QXLink software is being utilized as the PACS Server, make the most recent version is being used for all pieces of software.

EESi DICOM Setup

EESi representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the EESi AE Title, IP address, and Port of the PACS server. If the EESi system is already set up, the business can contact EESi Technical Support at (727) 938-3374 (option 2) to gather the information.

			IMAGE	
<u>Vendor</u>	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
FFO:	EEArchive			
EESI	PocketPACS			



EponaTech

EponaTech representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the EponaTech AE Title, IP address, and Port of the PACS server. If the EponaTech system is already set up, the business can contact EponaTech at (805) 238-7509 for assistance in gathering the information.

			IMAGE	
<u>Vendor</u>	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
EponaTech	Metron-DVM-Plus	M	M	

Fovea Direct Digital Radiography System

Fovea representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Fovea AE Title, IP address, and Port of the PACS server. If the Fovea system is already set up, the business can contact Fovea Direct Digital Radiography System at (888) FOVEA-01 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
_	PetPACS			
Foved	QXLink		☑	

If the QXLink software is being utilized as the PACS Server, verify the most recent version is being used for all pieces of software.



FUJIFILM DICOM Setup

Fuji representatives should setup the IP end of the PACS Server and enter that information into the acquisition software. If a Fuji representative is using any other acquisition software, please have them send a request to Fuji for testing with this acquisition software. The provider of the FUJIFILM System should be able to contact the Field Engineer for their territory to gain assistance in configuring this integration.

			<u>IMAGE</u>	
<u>Vendor</u>	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
FUJIFILM Medical Systems	Axon		M	

Gather Fusion AE Title from Sound-Eklin

Sound-Eklin will need to know the Impromed AE settings that have been established. Please provide this information to the Sound-Eklin Technician on-site or have the business contact Sound-Eklin by phone at (800) 268-5354 and choose option 3. Currently, Sound-Eklin does not want any Impromed staff to enter their PACS Server or Acquisition software. Once the Sound-Eklin setup is completed by Sound-Eklin, the business must ask for the AE Title, Port number, and IP address so they may contact Impromed with this information so they are able to finish the setup of the Setup AEs.

Tip from Sound-Eklin: Current Fusion Servers pad AE Titles shorter than 16 characters with nulls. Using the 16 character limit, eliminates Fusion from adding nulls. If this is not done, Impromed is unable to retrieve the information appropriately.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Sound-Eklin	Fusion PACS		M	



Genesis

Genesis representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Genesis AE Title, IP address, and Port of the PACS server. If the Genesis system is already set up, the business can contact Genesis Digital Imaging at (888) 436-3444 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Genesis	OmniArchive			

Hudson Digital Systems

Hudson representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Hudson AE Title, IP address, and Port of the PACS server. If the Hudson system is already set up, the business can contact Hudson Digital Imaging at (877) 278-9800 for assistance in gathering the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Hudson Digital Systems	HDSVETPACS			

The Impromed Worklist Server no older than January 2011 is needed to perform successfully.

IDEXX Digital Imaging

IDEXX representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the IDEXX AE Title, IP address, and Port of the PACS server. If the IDEXX system is already set up, the business can contact IDEXX Technical Support at (877) 433-9948 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
IDEXX Digital Imaging	IDEXX PACS		Ø	



Integrating Impromed with IDEXX PACS

Currently IDEXX PACS does not recognize the Worklist Server service, so the original method to integrate IDEXX PACS with Impromed will need to be configured.

1. Software from IDEXX will need to be purchased for this integration. IDEXX should help you install the equipment and their software. The software from IDEXX has to be on every Impromed computer that you need to be able to view the information from IDEXX.

The computers that have the IDEXX Software installed need to have the normal Windows user added to the Administrators Group in the Domain and/or workstation.

- Call Impromed and a Customer Support Technician will help you load a new license to activate the IDEXX PACS integration.
- **3.** After that a button will appear in the Medical Records for the operator to pull from the IDEXX Software into Impromed.
 - a. Patient not found in IDEXX PACS. Click to Add. Allows operators to create the patient in IDEXX PACS from Impromed.
 - **b.** Birthdate must be filled in. Operators must fill in the birthdate before viewing or adding a patient to IDEXX PACS from Impromed.
 - c. Client Selected Operators do not have a patient selected.
 - **d.** No IDEXX PACS Images Impromed cannot find any images in IDEXX PACS for the selected patient.
 - e. View IDEXX PACS Images Allows operators to view the image(s) for the selected patient.

For IDEXX PACS Software Support please call (877) 433-9948.

ImaSight

ImaSight representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the ImaSight AE Title, IP address, and Port of the PACS server. If the ImaSight system is already set up, the business can contact ImaSight at (866) 989-7979 for assistance in gathering the information.

			IMAGE	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
ImaSight	Dragonfly PACS			



Konica Minolta DICOM Setup

Konica representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Konica AE Title, IP address, and Port of the PACS server. If the Konica system is already set up, the business can contact Konica DICOM Support and Validation at (800) 945-0456 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Konica Minolta	Image Pilot			

MinXray

MinXray representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the MinXray AE Title, IP address, and Port of the PACS server. If the MinXray system is already set up, the business can contact MinXray at (800) 221-2245 for assistance in gathering the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
MinXray	dicomPACS		M	

Nuon Imaging

Nuon Imaging representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Nuon Imaging AE Title, IP address, and Port of the PACS server. If the Nuon Imaging system is already set up, the business can contact Nuon Imaging at (866) 455-3050 (West Canada) or (866) 977-1033 (East Canada) for assistance in gathering the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Scil Animal Care (Vet Novations)	dicomPACS		M	



Rayence

Rayence representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Rayence AE Title, IP address, and Port of the PACS server. If the Rayence system is already set up, the business can contact Rayence DICOM Support at (800) 729-3623 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Rayence	VRPACS VET		M	

Schick DICOM Setup

Schick CDR Server (multi-user installation) must be installed for this integration to work.

Schick representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Schick AE Title, IP address, and Port of the PACS server. If the Schick system is already set up, the business can contact Patterson Technology Center at (877) 498-6505 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Schick Technologies	CDR DICOM			

Scil Animal Care (Vet Novations)

Scil Animal Care (Vet Novations) representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Scil Animal Care (Vet Novations) AE Title, IP address, and Port of the PACS server. If the Scil Animal Care (Vet Novations) system is already set up, the business can contact Scil Animal Care at (847) 223-6323 (USA) or Vet Novations at (866) 382-6937 (Canada) for assistance in gathering the information.

			IMAGE	
<u>Vendor</u>	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Scil Animal Care (Vet Novations)	dicomPACS		M	



SimonDR

SimonDR representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Whitecap AE Title, IP address, and Port of the PACS server. If the Whitecap system is already set up, the business can contact SimonDR Technical Support at (410) 636-5555 ext 130 to gather the information.

			<u>IMAGE</u>	
<u>Vendor</u>	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
SimonDR	DMMD Exuo		M	

These settings may differ with each installation.

ExuoPACS v0.1.10732 is the most recent version that works with Impromed.

Sound-Eklin's Nucleus DICOM Server - version 3.5 and 3.6

If further assistance is needed to configure Nucleus or TruDR systems, please contact Sound-Eklin's Technical Support at (800) 268-5354 and choose option 3.

Sound-Eklin has begun phasing out this software

- **1**. Once the Nucleus software is opened click **Tools > Options**.
- 2. Click on the DICOM Providers tab.
- **3.** Here you will click on the first blank line for the entry from the top section of the Impromed Worklist Setup AEs screen to be entered.
- 4. Click on **Verify** when the Impromed Worklist is entered. A verification windows appears with the status of the communication between the DICOM "devices". If the status is not valid, please repeat steps 1-4 to ensure accurate data.
- 5. Click **OK** when finished.



..

Sound-Eklin's VetPACS Acquisition software - version 3.5 and 3.6

- **1.** From the VetPACS software desktop click on **Configuration > Application Settings**.
- 2. Click on the DICOM Server tab.
- **3.** Click the **Add** button.
- 4. Enter the Impromed Worklist AE Title, IP address, Port, and the Local IP address.
- 5. Check Modality Worklist.
- 6. Click the Verify button. The Status should change to a smiley face. If a smiley face does not appear, please repeat steps 1-6, verifying all information is accurate. If any further problems occur, please contact Impromed Technical Support at (800) 925-7171.
- 7. Click the Save Config button.
- 8. Click the **Update** button.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
	Nucleus DICOM	Ø	Ø	
Sound-Eklin	TruDR	Ø	Ø	
	CDX			



Summitt Industries

Summitt Industries representative should setup the IP end of the PACS Server and enter that information into the acquisition software. If a Summitt Industries representative is using any other acquisition software, please have them send a request to Summitt Industries for testing with this acquisition software. The provider of the Summitt Industries System should be able to contact the Field Engineer for their territory to gain assistance in configuring this integration.

Software versions for both PACS and the Modality Worklist packages should be on 1.6 or higher.

By default their port is 9939 and their AE title is IDC_PACS_SCP. To verify these setting follow these steps within the Sirius software:

- **1**. Click the Configuration Manager Icon (looks like a folder) from the toolbar.
- 2. Click **Study Image Settings > Configure Mini PACS**. The defaults listed in this screen will have the AE Title and current Port number. The SCU settings are also listed here.
- 3. Enter the Worklist Server here.
- 4. Check Send to this AE Title.
- 5. Save the settings.

With the Modality Worklist open follow these steps:

- From the Configuration Manager, click Worklist Settings > Configure Worklist Connection > Worklist Provider > Select New.
- 2. Enter the information from the Worklist Server here.
- 3. Save the settings.

			IMAGE	
<u>Vendor</u>	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Summitt Industries (Innovet DxR)	IDC Sirius PACS	M	M	



Universal Ultrasound MYPACS Integration

If any assistance is needed on gathering the information for this integration to work, please contact Universal Ultrasound at (800) 842-0607. A DICOM Server log is displayed on the bottom of the database search area. It displays the host name (Your server) DICOM information such as your AE Title, IP Address, and Port number. It will also show the status of the server: "Server is Running" etc.

Dicom Server
1/23/2009 9:30:10 AM MYPACS_AE 192.168.0.250 at 104 MyPacs DICOM Server is Running

Clicking this icon on the top menu will open the DICOM Query and Retrieve module.

NickNam	e ServerAE	ServerIP	ServerPort	Timeout (sec.)	Compression
MAIN	MYPACS_AE	192.168.1.188	104	0	JPEG Lossless
danpc	MYPACS_AE	192.168.1.225	104	0	Don't Recompress
Omni	OmniVue	192.168.1.225	109	0	Don't Recompress
Fuji SCP	VETIIP	65.115.230.145	105	0	Don't Recompress
Fuji SCU	VETSCU	65.115.230.145	104	0	Don't Recompress
San of the	192 168 1 188				

In DICOM Query and Retrieve, operators can do the following:

Editing Local DICOM Information

- 1. Operators may change Local DICOM information by typing over or deleting the current DICOM information.
- 2. When done, press Edit & Reset.



Adding or Editing Remote DICOM Servers

- 1. Click the **Clear** button to add a new DICOM server.
- 2. Enter the Remote DICOM server information: Server IP, Server AE, Server Port Timeout (leave at "0" for unlimited), and a Name for the connection.
- 3. Choose the compression to use for sending the images to a remote server.
- 4. Click Verify & Update when done. The new server or edited server will be added to the remote server list as shown.

Add new remo Server IP	bte server 192.168.1.188	0.0
Server AE	MYPACS_AE	O Don't Recompress
Server Port	104	O J2K Lossless
Timeout(sec	0	JPEG Lossy JPEG Lossless
Name It	MAIN	O BLE
Clear	Verify & Update	Delete

Nickh	lame	ServerAE	ServerIP	ServerPort	Timeout (sec.)	Compression
MAIN		MYPACS_AE	192.168.1.188	104	0	JPEG Lossless
danp	9	MYPACS_AE	192.168.1.225	104	0	Don't Recompress
Omni		OmniVue	192.168.1.225	109	0	Don't Recompress
Fuji S	CP	VETIIP	65.115.230.145	105	0	Don't Recompress
FuiiS	CU	VETSCU	65.115.230.145	104	0	Don't Recompress



UMG / Del Medical

UMG / Del Medical representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the AE Title, IP address, and Port of the PACS server. If the system is already set up, the business can contact Del Medical Technical Support at (800) 800-6006 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
UMG / Del Medical	EvoView PACS			

Universal Ultrasound Acquisition Software

Currently, Universal Ultrasound can use any of the following acquisition pieces: FUJI FCR, SEDECAL QXVue, Ultrasound MyLabs series, and more. Because there are a number of different versions of acquisition software, businesses should be given the Impromed AE information to pass along to Universal Ultrasound. When Universal Ultrasound has finished setting up acquisition software, the information should be verified with the existing information in Setup AEs and the connections should be tested.

			IMAGE	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Universal Ultrasound	MYPACS		Ø	

VETinfo SYSTEMS

RADinfo representatives should setup the PowerPACS Server and the PowerPACS acquisition software and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the PowerPACS AE Title, IP address, and Port of the PACS server. If the RADinfo system is already set up, the business can contact VETinfo SYSTEMS Technical Support at (877) 722-6747 to gather the information.

			IMAGE	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
VETinfo SYSTEMS	PowerPACS			



VetRay Technology by Sedecal

Sedecal representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Sedecal AE Title, IP address, and Port of the PACS server. If the Sedecal system is already set up, the business can contact Sedecal Technical Support at (888) 483-8729 to gather the information.

			<u>IMAGE</u>	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Sedecal (VetRay)	QXLink		M	

If the QXLink software is being utilized as the PACS Server, verify the most recent version is being used for all pieces of software.

Viztek

Viztek representatives should setup the PACS Server and be able to provide that information to Impromed and vice versa. Please provide the business with the Impromed AE Title, IP address, and Port and gather the Viztek AE Title, IP address, and Port of the PACS server. If the Viztek system is already set up, the business can contact Viztek at (800) 366-5343 for assistance in gathering the information.

			IMAGE	
Vendor	PACS	<u>Relational</u>	<u>Search</u>	<u>Storage</u>
Viztek	OPAL PACS		Ø	



Impromed Setup

Do NOT begin this setup until the PACS Server is configured correctly because this will decrease overall system performance.

After all of the above configuration is complete, the Worklist Server information needs to be entered into Impromed. From the Impromed Desktop:

- 1. Click S > Setup > Medical Records > Medical Records Global Settings. There are a number of items to go through on this setup screen, please follow the steps carefully.
- 2. Click on the **DICOM** tab. The DICOM Worklist Server information must be identical to the top portion of the SetupAEs screen, as well as the IP address of the machine running the Impromed Worklist Server.

🕏 Global Medical Records Setup 🛛 —				\times
These settings are for all practices.			<u>0</u> K	
General Advanced Transfer Op	General Advanced Transfer Options DICOM SNOMED CT			
AE Title	AE Title		App	ly.
Port	Port			
IP	IP			
DICOM Patie				
🔲 Open DICOM files using a 3rd p	party viewer			
Viewer Location:				
Per Business DICOM Settings				
		_		
Click to edit Per Busines				

The DICOM Storage Server will not be filled in unless requested by the third-party software.

3. The DICOM Patient ID Options button tells Impromed how the business is entering patient IDs into their DICOM server.

The delimiter can be nothing (i.e. a blank space).



Patient ID Options	
 Fixed Length Delimited Delimiter: IDEXX PACS ID Patient Field Value Dam 	<u>Ω</u> K Cancel

 If the client ID is 1 and the patient ID is A, it needs to be "merged" to work as the Patient ID in DICOM. Most businesses (so far) have been entering the IDs in the DICOM server as "1A" or "1 A". This setting determines how the ID is formatted by Impromed when searching DICOM servers and is also how it is stored for the Modality Worklist (used when third-parties search the server for items that need to be performed).

Once this is set, DO NOT change it. Changes will cause DICOM files to become invisible to Impromed.

- 4. Enter a valid path for the Viewer Location. This is used to temporarily store the DICOM images. For assistance in creating this folder see <u>"Appendix A: Creating the MR Temp Folder" on page 35</u>.
- 5. If multiple businesses are using multiple acquisition stations, please complete the following (otherwise skip to step 6):
 - a. Open the appropriate business.

These steps must be repeated for each business.

- b. Click S > Setup > Medical Records > Medical Record Global Settings.
- c. Click the button: Click to edit Per Practice Scheduled Station AEs.
- d. Right-click on the desired modality.
- e. Left-click on Add Station AE.
- f. Enter the Station AE name.
- g. Press Enter.
- h. Repeat as necessary for each modality.
- i. Click Close when finished. The Global Medical Records Setup should appear.
- 6. Click Apply.
- **7.** Click **OK**.



Multiple Business DICOM Integration

Impromed allows multiple businesses to each have their own DICOM integration with a few extra items that need to be configured. Each business can have different vendors supplying their equipment and software, but both must be compatible with Impromed for the integration to work. The PACS side of the integration will be the same as listed in the above vendors, however, the Impromed side will be slightly different. Impromed recommends that businesses establish a Virtual Private Network (VPN) for the integration to perform properly.

Impromed Worklist Server

Both PACS servers will need to be entered into the Impromed Worklist Server service by repeating steps 5-9 under <u>"Configure the Worklist Server" on page 10</u> as needed. When finished configuring the Worklist Server, Impromed will need to be configured as well.

Impromed Configuration

Acquisition Stations will need to be entered into this service by repeating the steps on <u>page 31</u> as needed.

Using DICOM with Impromed

Modality Worklist Entries

With most DICOM and Impromed integrations, the Worklist Entry in Medical Records can be used to gather information to be sent to the Acquisition Software. This helps businesses with three steps: 1) create the patient once instead of creating it multiple times in different software packages; 2) create the modality to be used for the X-Ray; and 3) link charges to modalities so they are not missed.

To add a worklist entry object to an open medical record:

- **1.** Click the Object drop-down arrow. A list of available objects opens.
- 2. Click Worklist Entry.
- 3. Click Add Item. The Worklist Entry dialog box opens with information already filled in by default.
- 4. Click the Modality drop-down list. A Modality list appears.



- 5. Select the appropriate Modality.
- 6. Enter a Study Description for the Worklist Entry, if desired. The Study Description is a free text field.
- 7. Adjust the Start **Date** and Start **Time**, if necessary.
- 8. Enter a Step **Description** for the Worklist Entry, if desired.
- 9. Click the Provider drop-down arrow. A list of care providers opens.
- 10. Select the Provider from the list.
- **11.** Click **Save** to add the Worklist Entry, and click Exit to close the dialog box.

Viewing DICOM Images

Image Level Search

Currently, most DICOM integrations do utilize this method. To view images from the Medical Records Module, the Medical Record View Settings will need to be modified:

This will have to be done on each computer for Impromed and each Impromed operator.

- 1. Click on the Pencil (*L*) button in the upper right hand corner.
- 2. Click the Add button.
- Enter the name DICOM.
- 4. Check the DICOM Image option.
- 5. Click the **OK** button.
- 6. Click the OK button. A new button will now appear at the top of the screen called DICOM.
- 7. Click the DICOM button at the top and the image items for the active patient will be shown.
- 8. After clicking the DICOM button, click any of the image items to view the image.



Study Level Search

Currently, Sound-Eklin Fusion and ClearVet Digital Radiography Systems utilize this method. To view images from these systems within Impromed's Medical Records Module:

- **1.** Select the client and patient.
- 2. Click on the DICOM Browser button.

Viewing Only (does not support Modality Worklist)

Schick and UMG / Del Medical does not support modality worklist entries. Because of this, client and patient information will need to be manually entered into the Schick system in order to capture, and be able to be retrieved by and viewed from Impromed.

Entering in the Patient ID (ClientID + PetID) correctly in the Schick system will guarantee that images can be retrieved and viewed in Impromed.

Genesis and Asteris are PACS providers. Their purpose is to store images for retrieval from other applications. The type and version of the acquisition software being used will determine if any manual entry of information is necessary.

In the event that client and patient information needs to manually be entered, please enter the Patient ID (ClientID + PetID) correctly into the system. This guarantees that images can be retrieved and viewed in Impromed.



Appendix A: Creating the MR Temp Folder

Depending on your version of Windows®, the following steps will vary.

- 1. Open Windows File Explorer.
- 2. Note the amount of free space on the hard disk drives.
- 3. Double-click on the disk with the most free space.
- 4. Right-click > New Folder.
- 5. Name the folder **iDocs** and press Enter.
- 6. Right-click on the iDocs folder and click Share With > Specific People.
- 7. Choose Everyone from the drop-down menu, then click Add.
- 8. Right-click **Everyone**, then left-click Co-Owner.
- 9. Click Share.
- 10. Click Continue.
- 11. Click Done.
- **12.** Close to return to the Windows desktop.



Appendix B: Frequently Asked Questions

What components do businesses need for the integration to work?

A basic Impromed network, DICOM Image (PACS) Server and acquisition (Image) station.

DICOM Communications consists of four parts:

- Modality Worklist Entries (Optional)
- Image Acquisition
- Transfer Image from Acquisition to Server
- Image Retrieval

What information is needed for the communication to work properly?

Both the DICOM Vendor and Impromed will need the following information about each component:

- AE (Application Entity) Title
- IP Address
- Port

What if the verification works, but the business does not see images?

The verification simply means that the two components are able to allow the handshake to go through. If the images are not viewable between components, restarting both would be a good place to begin. Also, verify that all services are running correctly on both components.

What if the verification fails?

Verify that both components have the same information entered. The AE Titles are case sensitive.



What if a client has a DICOM system that is not listed on the approved vendor list?

Contact Impromed's Business Development Department with information about the system not listed so we are able to contact the vendor and see what we can do before implementation at a business.

Can the Modality list be shortened in Impromed?

At this time, a program suggestion would need to be placed for the Modality list to be shortened.

Can the Study Description be pre-populated?

Currently, the Study Description is free text only.



Appendix C: Troubleshooting DICOM

Verify the services are running

- 1. From the Impromed Database Server:
 - a. From the Windows Start, search for **Services**.
 - b. Right-click Impromed Worklist Server.
 - c. Click on Properties.
 - d. Select Automatic for the Startup type.
 - e. Click Start if the service is not already running.
 - f. Click OK to save changes and close Computer Management.
 - g. Close Services.
- 2. Contact the appropriate digital radiograph provider to verify the settings on the digital radiograph system.

Verify the Windows Firewall is Configured

Depending on your version of Windows, the following steps will vary.

- **1.** Open the **Control Panel**.
- 2. With View by: Category as the view, click on Windows Defender Firewall.
- 3. Click on Advanced Settings.
- 4. Click on Windows Firewall Properties.
- 5. For each Profile (Domain, Private, and Public), choose Off for Firewall state:.

If there is a restriction for disabling the Firewall, then change the option for Inbound connections, to "Allow" for each profile.

6. Click OK.

Verify the AE Titles, Ports, and IP Addresses

Walk through the steps on pages 10-13 and repeat the steps with the correct <u>"Remote DICOM Server and</u> <u>Acquisition Software" on page 14</u>.



Appendix D: Setup AEs Table

			IMAGE	
Vendor	PACS	Relational	Search	Storage
A Walsh Imaging Sedecal (VetRay) EB Medical	QXLink	প্র	Ø	
ALLPRO Imaging	PACSmart Store and View		Ø	
Aspyra	AccessNET PACS		Ø	
Asteris	Modality Distribution System			
ClearVet Digital Radiography Systems	Blade	Ø	Ø	
Cuattro	MyCloudPRO UnoSM/MD/EQ		Ø	
EESi	EEArchive PocketPACS			
EponaTech	Metron-DVM-Plus			Ø
Fovea	QXLink PetPacs		Ø	
Freeware	Conquest	Ø	☑	
FUJIFILM Medical Systems	Axon			
Genesis	OmniArchive	Ø		
Hudson Digital Systems	HDSVETPACS			
IDEXX Digital Imaging	IDEXX PACS		Ø	
ImaSight	Dragonfly PACS		Ø	
Konica Minolta	Image Pilot			
Rayence	VRPACS VET			
Schick Technologies	CDR DICOM			



			IMAGE	
Vendor	PACS	Relational	Search	Storage
Scil Animal Care				
Vet Novations	dicomPACS			
MinXray, Inc.				
Nuon Imaging				
SimonDR	DMMD Exuo v0.1.10732			
	Nucleus DICOM	M	M	
	TruDR	N	M	
Sound-Eklin	Fusion PACS			
	CDX	Ø		
Summitt Industries (Innovet DxR)	IDC Sirius PACS			
UMG	EvoView PACS			
Universal Ultrasound	MYPACS			
VETinfo SYSTEMS	PowerPACS			
Viztek	OPAL PACS			

