



# Galileo Positioning System™/DR Pro User Guide for Radiological Imaging

# **Software Version 3.8**

Nov. 18, 2016 Revision H

**Reference Only** 

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- CR Pro™
- GPS/DR Pro™
- LaserPro16 Film Digitizer™
- Pro Imaging™
- Pro Imaging Acquisition™
- Surgeon's Checklist ™
- ProMerge™



### Warning!

Please avoid hard shutdown (unplugging power cable) to Radlink GPS, this may result in IRREVERSIBLE damage to the hardware and software.

Effective Date	Software Version	<b>Revision Level</b>
Nov. 8, 2012	3.6	Α
July 7, 2014	3.7	В
Aug 31, 2014	3.8	С
May 12, 2015	3.8	D
Aug. 1, 2016	3.8	E
Oct. 5, 2016	3.8	F
Oct. 18, 2016	3.8	G
Nov. 18, 2016	3.8	н

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### Introduction

The Radlink Radiological Imaging Software allows the operator to create studies and to manipulate and enhance x-ray images using a Radlink GPS. It also provides the means for archiving or forwarding to other facilities for further evaluation and archiving.



It is recommended that this entire guide be read completely before proceeding with the installation.

## Chapter 1: Human Imaging Setup

#### Configuring the Software for Human Imaging

1. Click the **Manage** tab located at the top of the display.

Rad	link Select Study	/   Scan   QC	Image   Comp	lete Study   Pr	int   Send   Bເ	urn CD					Manage
ID	0	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Workflow State	Local	New Patient
											New Study
											Select PACS
											Worklist
											Hospital
											Study Date ID
											Patient Name
											Accession
											Referring Workflow State
											··
											Search Reset
											View Report
											Delete
User: radlin	k (Redlink)										Ready

#### Configuring the Software for Human Acquisition (continued)

2. Setting system mode.

You could set it up manually or by scanning the QR label on the device that you want to connect.

Manual setup: If not already selected, select the Image Acquisition and DR Perkin Elmer (or DR Vieworks, DR Thales) buttons, then select Save Settings.

Radlink 3	Select Study   Scan   QC	Image   Complete Si	udy   Print   Se	and   Burn CD		OR Status READY	82%	Manage
ſ	Select Function							Logout
								System Mode
	<ul> <li>Viewing Workstation</li> </ul>							PACS/RIS
L								Destinations
٢	Select Device							Send Status
	OR Perkin Elmer	<ul> <li>DR Thales</li> </ul>	IP Address	192.168.22.1	]			DICOM Printers
	DR Vieworks	DR Demo	Reconnect					Performance
	• CR Pro	CR Demo						Hot Buttons
	Laser Pro							Worklist
L								Preferences
								CR Setup
								Required Fields
								Pre-Fetch Agent
								Help
								Save Settings

The Acquisition software for human acquisition is now enabled.

#### Configuring the Software for Human Acquisition (continued)

**Setup by scanning QR label:** Click "Or click here to scan QR label", then scan the QR label. The software will automatically connect to the access point.



## **Chapter 2: Software Configuration**

#### Configuring the PACS Server Settings (optional)

Setting the PACS Server Settings allows the GPS to view images from a Radlink PACS system.

<u>Note:</u> If the intended PACS server is not a Radlink PACS server then the IP field of the PACS Server Setting section should be left blank.

1. Click the Manage button then PACS/RIS button.

PACS Servers Sett	ings			L L
pacs				
		Name	pacs	Syst
		IP		PA
		DICOM Port	11112	Des
		0 AFT	Pro Imaging	Ser
		Source AET		DICC
		PACS AET		
		WEB Port	8080	Perf
Delete	New Ping		Copy to Destinations	Hot
				v
				Pre
Modality Worklist S	etting			CF
Name	modalityworklist			Darry
IP DIOGNAD				Requ
DICOM Port	Pro Imaging			Pre-F
Destination AET				
■ Ignore Study In:	stance UID			

The PACS Server Setting and Modality Worklist Setting window is displayed.

#### Configuring the PACS Server Settings for a GPS

1. For a Radlink GPS, enter localhost into the IP field and click Save Settings.

PACS Servers Se	ttings				
pacs		Name	pacs		
		IP	localhost		
		DICOM Port	11112		
		Source AET	Pro Imaging		
		PACS AET	proimagepacs		C
		WEB Port	8080		
Deleti	e New Ping	1	Conv to Destinations		
		<b>.</b>			
Modality Worklist	Setting				
Name	Setting modalityworklist				F
Name IP DICOM Port	Setting modalityworklist 11112				F
Modality Worklist : Name IP DICOM Port Source AET	Setting modalityworklist 11112 Pro Imaging				R
Name IP DICOM Port Source AET Destination AET	Setting modalityworklist 11112 Pro Imaging proimagepacs				R
Name IP DICOM Port Source AET Destination AET Ignore Study In	Setting modalityworklist 11112 Pro Imaging proimagepacs nstance UID				F
Modality Worklist : Name IP DICOM Port Source AET Destination AET Ignore Study Ir	Setting modalityworklist 11112 Pro Imaging proimagepacs nstance UID				F
Modality Worklist : Name IP DICOM Port Source AET Destination AET Ignore Study Ir	Setting modalityworklist 11112 Pro Imaging proimagepacs nstance UID				R
Modality Worklist: Name IP DICOM Port Source AET Destination AET I Ignore Study Ii	Setting modalityworklist  11112  Pro Imaging  proimagepacs  nstance UID				R
Modality Worklist: Name IP DICOM Port Source AET Destination AET I Ignore Study I	Setting modalityworklist 11112 Pro Imaging proimagepacs nstance UID				R

The Acquisition software is now enabled to communicate with the Radlink PACS server.

Below is an explanation of the fields:

IP:	The physical network node address of the PACS server.
DICOM Port:	The logical port of the PACS server.
Source AET:	Application Entity Title is the user chosen name of the PACS host
Destination AET:	Must be proimagepacs
WEB Port:	Default Web server port of a Radlink PACS.
Compression:	Provides the ability to save viewed images to: C:\Users\GPS
	User\ViewPro\images. The following compression formats are available:
	None, Lossless, Lossy High Quality, Lossy Medium Quality, and Lossy Low
	Quality. Note: the PACS may need to be upgraded with the latest software
	version to support this feature.

#### Configuring the PACS Server Settings for a GPS

1. For a Radlink GPS, enter the PACS server information and click **Save Settings**. Contact your IT person if you need help in determining your settings.

Select Study	Scan   QC Image   Complete Study   Print	Send   Burn CD	Manage
PACS Servers Se	ttings		Logout
pacs		Name pacs	System Mode
		₽ 192.168.168.93	PACS/RIS
		DICOM Port 11112	Destination
		Source AFT Pro Imaging	Send Statu
			DICOM Print
		WER Port 8080	Performanc
Dolot	New Ding		Hot Button
Delett	P INGW Filing	Copy to Destinations	Worklist
			Preference
Modality Worklist	Setting		CB Setur
Name	modalityworklist		Derviced E
IP			Required Fi
	11112 De las de las		Pre-Fetch A
Source AET			Help
L)octination // L	prolinagepacs		e

The Acquisition software is now enabled to communicate with the Radlink PACS server.

Below is an explanation of the fields:

IP:	The physical network node address of the PACS server.
DICOM Port:	The logical port of the PACS server.
Source AET:	Application Entity Title is the user chosen name of the PACS host
Destination AET:	Must be <b>proimagepacs</b>
WEB Port:	Default Web server port of the PACS.
Compression:	Provides the ability to save viewed images to: C:\Users\GPS User\ViewPro\images. The following compression formats are available: None, Lossless, Lossy High Quality, Lossy Medium Quality, and Lossy Low Quality. Note: the PACS may need to be upgraded with the latest software version to support this feature

#### **Query by multiple PACS Servers**

1. Choose "Select Study", click "Select PACS". Choose the PACS that you want to query. Or you can click "Control" while choose PACS to select multiple PACS. Then click "OK". From now on, the query will be conducted on you select PACS.

Radlink Select S	tudy   Scan   QC Ima	ge   Complete Si	tudy   Print   Se	nd   Burn CD				Manage
ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	New Patient
								New Study
								Search
					PACS	AET	IP	Worklist
					PACS	proimagepacs	192 168 168 93	All Studies
						F		Study Date
								D Patient Name
								Modality Referring
						Select All Ok	Cancel	Workflow State
								Next Prev Page Page
								Search Reset
								View Report
User: radlink (Radlink)								Ready

Setting the **Modality Worklist Setting** fields allows the selection of pre-filled patient information. The following assumes that the modality worklist has already been setup.

Select Study	Scan   QC Image   Complete Study   P	rint   Send   Burn C		Ν
-PACS Servers Set	ttings			
pacs		Name	pacs	Sys
		IP		P.
		DICOM Port	11112	De
		Source AET	Pro Imaging	Se
		PACS AET	proimagepacs	DIC
		WEB Port	8080	Pe
Delete	e New Ping		Copy to Destinations	Но
			.,,	
				Pre
- Modality Worklist S	Setting			с
Name	modalityworklist			Reg
IP DICOM Port	11112			
Source AET	Pro Imaging			Pie-r
Destination AET	proimagepacs			
Ignore Study In	nstance UID			
				and a second second

1. Click the **Manage** button then **PACS/RIS** button.

The Modality Worklist Setting window is located below the PACS Server Setting window.

2. Enter the PACS server information and click **Save Settings** button. Contact your IT person if you need help in determining your settings.

Select Study	Scan   QC Image   Comple	ete Study   Print   Se	nd   Burn CE		Ma
PACS Servers Se	ttings				Lo
pacs			Name	pacs	Syste
			IP		PAG
				11112	Dest
				Pro Imaging	Sen
			Source AE I		DIOO
			PACS AET	proimagepacs	DICO
			WEB Port	8080	Perfo
Delet	e New	Ping		Copy to Destinations	Hot
					w
					Pref
Modality Worklist	Setting				CP
Name	modalityworklist				
	192.168.168.93				Requi
	11112				Pre-Fe
DICOM Port					
DICOM Port Source AET	Pro Imaging				
DICOM Port Source AET Destination AET	Pro Imaging proimagepacs				

The PACS IP address has been entered in the Modality Worklist Setting section.

3. Click the Manage button then Worklist button.

Radlink	Select Study   Scan   QC Image   Complete S	Study   Print   Send   Burr	n CD		Manage
ĺ	Select Worklist Fields				Logout
	🖬 Last Name	First Name		⊠ Sex	System Mode
	☑ Accession	☑ Date of Birth		■ Full Name	PACS/RIS
	I Study Date and Time	☑ Description		■ Reason for Study	Destinations
	■ Modality	Referring Physicians		■ History	Send Status
	✓ Local	Number of Images		■ Report	
	Source	■ Printed		■ Owner Name	DICOMTINUES
	■ HIS ID Number	■ HIS Patient ID		■ HIS Patient Name	Performance
	■ HIS Patient Sex	HIS Patient Age		■ HIS Referring Dept.	Hot Buttons
	HIS Performing Dept.	HIS Referring Doctor		■ HIS In Out Number	Worklist
	■ HIS Body Part	☑ Workflow State		■ Locked by	Preferences
	■ Origination Hospital	■ Веер			CR Setup
					Required Fields
	-Workliet Display Setting				Pre-Fetch Agent
		0.5	icrollhar		Help
r	-Select Server				
	■ PACS	5 M	lodality Worklist		
L					
					Save Settings

4. Select Modality Worklist

Select Worklist Fields			
⊠ Last Name	🛛 First Name	⊠ Sex	
Z Accession	☑ Date of Birth	■ Full Name	
☑ Study Date and Time	☑ Description	■ Reason for Study	
■ Modality	Referring Physicians	■ History	
☑ Local	Number of Images	■ Report	
■ Source	Printed	Owner Name	
■ HIS ID Number	■ HIS Patient ID	HIS Patient Name	
■ HIS Patient Sex	■ HIS Patient Age	HIS Referring Dept.	
HIS Performing Dept.	HIS Referring Doctor	HIS in Out Number	
■ HIS Body Part	Workflow State	■ Locked by	
Origination Hospital	■ Веер		
			R
Westlint Directory Ostring			Pr
Vorkilst Display Setting     Pages	o Scrollbar		
Select Server			
PACS	⊠ Modality ∖	Worklist	

The Modality Worklist setting is selected.

<u>Note:</u> Software Version 3.8 allows the use of both PACS server and Modality Worklist server at the same time.

- 5. Click Select Study
- 6. Set Worklist to All Studies

ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Workflow State	Local	New Pa
C-ARM MARKETING	C-ARM MARKETI		М	11/28/0001	UNSPECIFIED	PRE-OP	06/08/2014 21:38	ARRIVED		New S
C-ARM MARKETING	C-ARM MARKETI		м	11/28/0001	UNSPECIFIED	Intra-Op	06/08/2014 21:38	ARRIVED		_ ┌ Search —
R Stitching Parallax M							06/14/2016 10:19	ARRIVED		Select Pa Worklist
R Stitching Parallax M							06/13/2016 16:05	ARRIVED		All Stu Hospital
st1	TEST5	TEST6					07/17/2015 12:23	ARRIVED	3	Study Da
HA3	THA3		м	01/01/1947	THA3-1	INTRA-OP	08/27/2015 08:56	ARRIVED	3	ID
HA4	THA4		F	01/01/1944		Intra-Op	01/01/2015 10:32	ARRIVED		Patient
KA 35 PREOP	TKA 35 PREOP		м	03/08/1931	TKA 35 PREOP	R KNEE 4V	02/15/2013 15:00	ARRIVED	<b>_</b>	Accessi Modality
-Ray Marker Pole Test							06/29/2016 15:32	ARRIVED	<b>_</b>	Referrin Workflov
-Ray Marker Test							06/27/2016 09:58	ARRIVED	<u>_</u>	
-Ray Marker Test							06/27/2016 11:46	ARRIVED	<b>_</b>	
-Ray Marker Extreme							07/06/2016 15:42	DICTATED		
R Stitching Measurem							06/07/2016 14:46	FINALIZED		
est_cloud					test_cloud		06/09/2014 10:57	FINALIZED	3	
R Stitching Measurem							06/07/2016 15:20	PRELIMINARY		Search
000000000000040	IUID		м		917		06/17/2014 14:20	SCHEDULED		
0000000000014	3.7.0.17	TESTING	м	05/07/2014	22		05/08/2014 15:37	SCHEDULED		View
00000000000014	3.7.0.17	TESTING	м	05/07/2014	29		05/09/2014 15:05	SCHEDULED		Delete

Any pre-defined modality worklist studies are displayed.

<u>Note:</u> For modality worklist servers that don't issue a study instance ID, the server's accession number will be used instead.

7. Select the desired study



<u>Note:</u> Instead of viewing an image, the scan view is displayed – saving the time of creating a new patient or study and having to enter the corresponding information. Select the body part and techniques and select **Start DR**.

8. To verify the predefined patient information, select Change Info

VRadlink Select Study   S	an   QC Image   Complete Study   Print   Send   Burn CD	CR Status READY	Manage
Patient Information — I Last Nam First Nam Middle Nam	TKA 35 PREOP       Sex       Milddlyyyy         TKA 35 PREOP       Milddlyyyy         Birthdate       D3/08/1931		Pages Prov Next

Note: The Patient Information is already entered.

The same would apply to the Study Information fields if they were also pre-filled.

#### **Optional scrollbar on Worklist page**

You may use scrollbar on worklist page instead of viewing the worklist in pages.

1. Click the **Manage** button then **Worklist** button, select **Scrollbar** under worklist display setting.

Řadlink Select Study   Scan   QC Image	Complete Study   Print   Send   Burn CD		CR Status READY	Manage
Select Worklist Fields				Logout
☑ Last Name	Z First Name	⊠ Sex		System Mode
	☑ Date of Birth	■ Full Name		PACS/RIS
☑ Study Date and Time	Description	■ Reason for Study		Destinations
■ Modality	Referring Physicians	■ History		Send Status
■ Local	Number of Images	⊠ Report		
Source	■ Printed	Owner Name		Dicomininiters
■ HIS ID Number	■ HIS Patient ID	HIS Patient Name		Performance
■ HIS Patient Sex	■ HIS Patient Age	HIS Referring Dept.		Hot Buttons
HIS Performing Dept.	HIS Referring Doctor	HIS In Out Number		Worklist
■ HIS Body Part	☑ Workflow State	■ Locked by		Preferences
Origination Hospital	■ Веер			CR Setup
				Required Fields
-Worklist Display Satting				Pre-Fetch Agent
	@ Scrollbar			Help
r Select Server				
Ø PACS	■ Modality	Worklist		
				Save Settings

### Optional scrollbar on Worklist page (continued)

1. Use the scrollbar in Select Study window to scroll up and down the studies.

1 <sup>1</sup> 2	Radlink Select	Study   Scan	QC Image   (	Comple	ete Study   Print	Send   Bu	ırn CD					R Status READY		Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	Modality	StudyDTTM	Report	Workflow State	Images		New Patient
Þ	000000000000	3.7.0.14		м	01/01/2001			PR\CR\SR	03/24/2014 10:45					New Study
	000000000000	3.7.0.15	TESTONAUTOFIL		01/01/2001			CR	03/25/2014 09:26				ſ	Worklist
	000000000000	3.7.0.15	TESTONAUTOFIL		01/01/2001			CR\SR	03/26/2014 10:00				=	All Studies
	000000000000	TESTING, TESTING		F	01/01/2001			CR\SR	03/26/2014 11:11				ſ	And Origination Hospi
	000000000000	3.7.0.17	TESTING					CR	05/09/2014 09:15					Study Date
	000000000000	test	test					CR	04/21/2014 11:02					
	000000000000							CR	04/29/2014 11:22					ID
	000000000000	test	annotations					CR	04/29/2014 14:05					Patient Name
	000000000000							CR	04/29/2014 11:33					Accession Modality
	000000000000	3.7.0.17	TESTING	м	05/07/2014			CR	05/08/2014 15:10		INCOMPLETE	1		Poforring
	000000000000	3.7.0.17	TESTING	м	05/07/2014			CR	05/08/2014 11:39					Madeflaur Charles
	000000000000	3.7.0.17	TESTING	м	05/07/2014			CR	05/08/2014 10:55					worknow State
	000000000000	3.7.0.17	TESTING	м	05/07/2014			CR	05/08/2014 11:33					
	000000000000	3.7.0.17	Testing	м	05/07/2014			CR	05/09/2014 11:33		INCOMPLETE	1		Search
	000000000000	3.7.0.17	TESTING	м	05/07/2014			CR	05/08/2014 11:05					Reset
	000000000000	3.7.0.17	TESTING	м	05/07/2014			CR	05/08/2014 16:32					View
	000000000000	3.7.0.17	TESTING	м	05/07/2014	29		CR	05/09/2014 15:03					Delete
	000000000000	3.7.0.17	TESTING	м	05/07/2014		Testing	CR	05/08/2014 14:09				-	Report

#### Worklist query via HTTP (optional)

ViewPro allows worklist query via HTTP instead of DICOM

- 1. Click the Manage button then PACS/RIS button
- 2. Leave **DICOM Port** blank
- 3. Select Save Settings in the bottom right corner

PACS Servers Settings       Name       pacs       Settings	k Select Study	Scan   QC Image   Complete Study   Print	Send   Burn Cl	)	М
Mare       pecs       System         IP       192.168.168.93       Dest         DICOM Port       Source AET       Pro Imaging         PACS AET       Proimagepacs       DICOM         WEB Port       8080       Perfer         Modality Worklist Steting       Modality worklist Steting       Perfer         Name       modalityworklist       Perfer         DICOM Port       11112       Pro-Imaging         Destination AET       Pro Imaging       Perfer	PACS Servers Set	ings			
Image:	pacs		Name	pacs	Syst
DiCOM Port       DiCOM Port       Dest         Source AET       Pro Imaging       Dicom         Delete       New       Prog       Copy to Destinations       Perf         Modality Worklist Setting       Name       modalityworklist       Perf         DiCOM Port       11112       Pro Imaging       Perf         Source AET       Pro Imaging       Perf         DiCOM Port       11112       Perf         Source AET       Pro Imaging       Perf         DiCOM Port       11112       Perf         Source AET       Pro Imaging       Perf         Dicom Port       11112       Perf         Source AET       Pro Imaging       Perf         Destination AET       proimagepacs       Perf			IP	192.168.168.93	PA
Source AET       Pro Imaging       Dicon         Delete       New       Ping       Copy to Destinations       Dicon         Modality Worklist Setting       Web       Ping       Copy to Destinations       Ping         Modality Worklist Setting       Name       modalityworklist       Ping       Ping       Ping         DICOM Port       11112       Source AET       Pro Imaging       Ping       Ping       Ping         DICOM Port       11112       Dicon AET       Ping       Ping <td></td> <td></td> <td>DICOM Port</td> <td></td> <td>Des</td>			DICOM Port		Des
PACS AET       proimagepacs       proimagepace       proimagepacepacepace       proimagepacepacepacepac			Source AET	Pro Imaging	Ser
Delete       New       Ping       Copy to Destinations       Pinf.         Modality Worklist Setting       Ping       Ping       Ping         Modality Worklist Setting       Ping       Ping       Ping         Name       modalityworklist       Ping       Ping         DICOM Port       11112       Ping       Ping         Source AET       Pro Imaging       Ping       Ping         Destination AET       proimagepaces       Ping       Ping			PACS AFT	proimagepacs	DICC
Delete       New       Ping       Copy to Destinations       Hot         Modality Worklist Setting       Prefer       Prefer       Prefer         Name       modalityworklist       Prefer       Requir         DICOM Port       11112       Prefer       Prefer         Source AET       Pro Imaging       Prefer       Prefer         Destination AET       proimagepacs       Prefer       Prefer			WEB Port	8080	Per
Modality Worklist Setting     Require       Name     modalityworklist       IP     Require       DICOM Port     11112       Source AET     Pro Imaging       Destination AET     proimagepacs	Delete	New Ping		Conv to Destinations	Ho
Modality Worklist Setting          Name       modalityworklist         IP       IP         DICOM Port       11112         Source AET       Pro Imaging         Destination AET       proimagepacs					v
Modality Worklist Setting       CR         Name       modality worklist         IP       Require         DICOM Port       11112         Source AET       Pro Imaging         Destination AET       proimagepacs					Pre
Name     modalityworklist       IP     Requi       DICOM Port     11112       Source AET     Pro Imaging       Destination AET     proimagepacs	Modality Worklist S	Setting			CF
DICOM Port 11112 Source AET Pro Imaging Destination AET proimagepacs	Name	modalityworklist	4		Requ
Source AET     Pro Imaging       Destination AET     proimagepacs	DICOM Port	11112	j		Pre-F
Destination AET proimagepacs	Source AET	Pro Imaging	]		
	Destination AET	proimagepacs			

#### Worklist query via HTTP (continued)

- 1. Click Select Study button
- 2. Change the Worklist to Search All Studies

ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Local
							06/23/2015 11:11	
000000	TEST					PHANTOM	11/26/2014 10:33	
000000000000000000000000000000000000000	BEEP TEST						02/17/2016 11:32	
000000000000000000000000000000000000000	GPSTEST						06/02/2014 16:15	
000000000000000000000000000000000000000	SCROLLTEST			01/01/2001			09/03/2014 15:35	
000000000000000000000000000000000000000	SCROLLTEST			01/01/2001			07/03/2014 14:48	
000000000000000000000000000000000000000	BEEP TEST						02/17/2016 10:42	
000000000000000000000000000000000000000	SCROLLTEST			01/01/2001			09/12/2014 13:41	
00000000000002	LON						08/20/2014 14:05	
000000000000002							12/19/2014 11:03	
000000000000004	3.7.0.17	TESTING					05/09/2014 09:15	
00000000000004	TEST						07/06/2016 11:02	
000000000000005	TESTRING						05/28/2014 11:50	
000000000000005							12/24/2014 10:40	
0000000000000006	ROTATE11						06/23/2014 11:39	
000000000000006	REBUILDTEST						06/24/2014 09:16	
000000000000006	NEW PATIENT						05/28/2014 12:29	
000000000000006	SURGTEST						07/03/2014 11:23	

Results of all studies will be brought up as usual.

#### **Setting up Destinations**

The destination settings allow you to specify where to store DICOM images after scanning.

1. To specify a destination, click the **Destinations** button.

Radlink	k Se	elect Study   Scan	QC Image   Co	omplete Study   Pri	int   Send   Burn Cl	D			R Status READY	Manage
	ſ <sup>De</sup>	estination Settings ———							ן	Logout
					Name					System Mode
					IP					PACS/RIS
					DICOM Port					Destinations
					Source AET					Send Status
					Dest AET					DICOM Printers
		Delete	New	Ping	I	Active	Include An	notations		Performance
									 J	Hot Buttons
										Worklist
										Preferences
										CR Setup
										Required Fields
										Pre-Fetch Agent
										Help
										0
										Save Settings

The **Destinations** window is displayed.

#### Setting up Destinations (continued)

To add a new destination:

- 1. Click the **New** button, and then enter the **Host** name, **IP**, **DICOM Port**, **Source AET**, and **Dest AET** fields.
- 2. Select the Active checkbox.
- 3. Check that all entered information is correct and click Save Settings.

VRadlink Select Study   Scan   QC Image   Complete Study   Print   Send   Burn CD	Manage
Destination Settings	Logout
pacs Name pacs	System Mode
₽ 192.168.168.12	PACS/RIS
DICOM Port 11112	Destinations
Source AET Pro Imaging	Send Status
Dest AET proimagepacs	DICOM Printers
Delete New Ping Z Active Z Include Annotations	Performance
	Hot Buttons
	Worklist
	Preferences
	CR Setup
	Required Fields
	Pre-Fetch Agent
	Help
	-
	Save Settings

For a GPS, the following are typical settings to store images on the internal PACS:

Name:	The name of the destination (user defined)
IP:	localhost
DICOM Port:	11112
Source AET: Dest AET:	This is an optional field, but must at least contain one letter proimagepacs

#### Setting up Destinations (continued)

To use the same setting for destination as the PACS server:

- 1. Click the **PACS/RIS** button, if the PACS server setting fields has been entered, click **Copy to Destination**
- 2. The information is now saved to **Destination**

PACS Servers Se	ttings			
pacs		Name	pacs	
			192.168.168.93	
		DICOM Port		
		Source AET	Pro Imaging	
		PACS AET	proimagepacs	
		WEB Port	8080	
Delete	New Ping		Conv to Destinations	
Modality Worklist	Setting			
Name	modalityworklist	j j		
		j ,		
DICOM Port	11112	j ,		
Source AET	Pro Imaging	j ,		
Destination AET	proimagepacs	) ,		
Ignore Study In	nstance UID			

#### Setting up Destinations (continued)

To test the connectivity of the Destination:

1. Click the **Ping** button to ensure that the Destination settings are correct. If successful, the following window will be displayed:



Additional destinations may be added in a similar fashion.

- 2. Select the **Active** checkbox. All the hosts listed with the **Active** checkbox highlighted will be sent images after they are scanned and **Complete Study** is clicked. Any hosts which don't have the **Active** checkbox highlighted will be ignored.
- 3. Select the **Include Annotations** checkbox to include annotations draw on the image.
- 4. Select Save Settings.

#### Setting up a DICOM Receiver (optional – purchased separately)

A DICOM receiver allows the reception of DICOM images from any networked DICOM storage device such as another Viewing Workstation or GPS.

To setup a DICOM Receiver:

- 1. Start the Pro Imaging software on the PC or GPS that you wish to send images
- 2. Click Manage
- 3. Click Preferences

C English	Select Language			
Chinese (南)     Chinese (南)     Chinese (南)     Chinese (雨)     Chinese (n)     Chinese (	o English	● French (Français)		
Other         DICOM Receiver Setting         O Run as a thread       • Run as a service         IP: 192.168.168.118       Promiscuous Mode         DICOM Port       104         AprXy    Preferences Viewer on CD          Fadlink Lite       • Anonymize On Export         • Enable HTTPS for PACS       • Auto Crop Stitched/Frame Grabbed Images       • Refresh Local Studies         • Save Settings Belove Exiting       • Enable On-Screen Keyboard       • Logging         • Auto Login       • Rad Workflow Optimization       • Auto Refresh Workflist         Windw Level Sensitivity (1-100)       40       •         Default Author on Report       Last Name       •         Date Format       DiCOM Structured Report       •         Report Image Height       500       •         Report Image Width       400       •         Vol       Skype       •	• Spanish (Español)	● Chinese (简体中文)	GB18030)	
DICOM Receiver Setting P Run as a thread P Run as a service IP: 192.168.168.118 Promiscuous Mode DICOM Port 104 Appry Preferences Viewer on CD Radink Lite P Anonymize On Export E nable HTTPS for PACS 4 Auto Crop Stitched/Frame Grabbed Images Refresh Local Studies E save Settings Before Exiting E nable On-Screen Keyboard Logging Auto Login Rad Workflow Optimization Auto Refresh Workflist Windou Level Sensitivity (1-100) 40 Default Author on Report Last Name First Name First Name Date Format DiCOM Structured Report Format So0 Report Format So0 Report Image Height So0 Report Image Width 400 VOP South Structured Report Context Structured Report Cont	• Other			
o Run as a thread • Run as a service   IP: 192.168.168.118 Promiscuous Mode   DICOM Port 104   Appy      Preferences   Viewer on CD Radlink Lite   • Anonymize On Export   • Enable HTTPS for PACS 9 Auto Crop Stitched/Frame Grabbed Images   • Save Settings Before Exiting • Enable On-Screen Keyboard   • Auto Login • Rad Workflow Optimization   • Auto Login • Rad Workflow Optimization   • Auto Refresh Workflist   Window Level Sensitivity (1-100)   Ø6   Default Author on Report   Last Name   Date Format   Report Image Height   Soo   Report Image Width   VOIP   Stype	DICOM Receiver Setting			
IP: 192.168.168.118 Promiscuous Mode   DICOM Port 104   Apply      Preferences   Viewer on CD Radlink Lite   Enable HTTPS for PACS 5 Auto Crop Stitched/Frame Grabbed Images   Bable HTTPS for PACS 5 Auto Crop Stitched/Frame Grabbed Images   Save Settings Before Exiting Enable On-Screen Keyboard   Auto Login Rad Workflow Optimization   Auto Login Rad Workflow Optimization   Default Author on Report Last Name   Date Format MM/dd/yyyy   Report Format DICOM Structured Report   Report Image Height 500   Report Image Width 400   VOIP Skype	● Run as a thread ● Run as a service			
DICOM Port     104     Appy       Preferences	IP: 192.168.168.118 Promiscuous Mode			
Preferences Viewer on CD Radlink Lite Anonymize On Export Anonymi	DICOM Port 104	Apply		
Viewer on CD       Radlink Lite       Anonymize On Export         E Enable HTTPS for PACS       3 Auto Crop Stitched/Frame Grabbed Images       Refresh Local Studies         E Save Settings Before Exiting       E Enable On-Screen Keyboard       E Logging         Auto Login       Rad Workflow Optimization       Auto Refresh Worklist         Window Level Sensitivity (1-100)       40       First Name         Default Author on Report       Last Name       First Name         Date Format       MM//dd/yyyy         Report Format       DICOM Structured Report         Report Image Width       500         VOIP       Skype	Preferences			
Enable HTTPS for PACS     If Auto Crop Stitched/Frame Grabbed Images     Refresh Local Studies       Save Settings Before Exiting     Enable On-Screen Keyboard     Logging       Auto Login     Rad Workflow Optimization     Auto Refresh Workflist       Window Level Sensitivity (1-100)     40       Default Author on Report     Last Name     First Name       Date Format     MM/dd/yyyy       Report Format     DICOM Structured Report       Report Image Width     500       VOIP     Skype	Viewer on CD	Dedlink Lite		
Enable Fint Ps for FACS     Enable On-Screen Keyboard     ELogging       Save Settings Before Exiting     Enable On-Screen Keyboard     ELogging       Auto Login     Rad Workflow Optimization     Auto Refresh Workflist       Window Level Sensitivity (1-100)     40       Default Author on Report     Last Name       Date Format     MM//dd/yyyy       Report Format     DICOM Structured Report       Report Image Width     500       VOIP     Skype				
Save Sutings belove Examp       Enable On-scheen Reyooard       Edgging         Auto Login       Rad Workflow Optimization       Auto Refresh Workflist         Window Level Sensitivity (1-100)       40       Enable On-scheen Reyooard         Default Author on Report       Last Name       First Name         Date Format       MM//dd/yyyy       Image Private Report         Report Format       DICOM Structured Report       Image Report         Report Image Width       500       Image Report         VOIP       Skype       Image Report				
Audo Legin     Audo Volkinow Optimization     Audo Keiresh Workist       Window Level Sensitivity (1-100)     40       Default Author on Report     Last Name       Date Format     MM/dd/yyyy       Report Format     DICOM Structured Report       Report Image Width     500       VOIP     Skype				
Default Author on Report     Last Name       Date Format     MM//dd/yyyy       Report Format     DICOM Structured Report       Report Image Width     500       VOIP     Skype	Window Level Sensitivity (1-100)			
Date Format     MM/dd/yyyy       Report Format     DICOM Structured Report       Report Image Height     500       Report Image Width     400       VOIP     Skype	Default Author on Report	Last Name	First Name	
Report Format     DICOM Structured Report       Report Image Height     500       Report Image Width     400       VOIP     Skype	Date Format	MM/dd/apag		
Report Image Height     500       Report Image Width     400       VOIP     Skype	Report Format		· · · · · · · · · · · · · · · · · · ·	
Report Image Width     400       VOIP     Skype	Report Image Height	500		
VOIP Skype	Report Image Width	400		
	VOIP	Skype	 •	

The **DICOM Receiver Settings** are displayed in the center section.

#### Setting up a DICOM Receiver (continued)

- 4. At the sender location, click the **Destinations** button.
- 5. Click the **New** button. Edit the **NewHost** name to identify the new destination, and then enter the **IP** and **DICOM Port** fields.
- 6. Select the Active checkbox.

With addink Select Study   Scan   QC Image   Complete Study   Print   Send   Bur	n CD	Manage
Destination Settings		Logout
receiver 1 Na	me receiver 1	System Mode
	IP 192.168.168.118	PACS/RIS
DICOM	Port 104	Destinations
Source /	ET Proimaging	Send Status
Dest /	ET Proimaging	DICOM Printers
Delete New Ping	S Active S Include Annotations	Performance
		Hot Buttons
		Worklist
		Preferences
		CR Setup
		Required Fields
		Pre-Fetch Agent
		Help
		Save Settings

You may wish to click **Ping** to ensure that your connection to the receiver is enabled.

Assuming your ping is successful (See Page 24 to determine if your Ping is successful), now when **Complete Study** is selected, studies will be sent to the Receiver location.

#### **Setting up DICOM Printers**

To enable DICOM printing and configure the DICOM printer:

1. Select the **DICOM Printers** button.

Printers		-			
Name	IP	Port	AET	My AET	
Tost Status	dd Printer Demove Printer				
Settings			Layout	Jop	
		Border Density	Patient Information	Priority	
Film Destination					
Film Destination	•	· ·	Patient ID     Patient Name		
Film Destination	✓ Magnification	<ul> <li>Empty Density</li> </ul>	Patient ID Patient Name DOB	n Medium	
Film Destination	✓ Magnification	<ul> <li>Empty Density</li> </ul>	Instatuon     Instatuon     Instatunt     Patient ID     Patient Name     DOB     Sex	Medium	
Film Destination Trim Configuration	Magnification	Empty Density Min Density 0	Instauton     Patient ID     Patient Name     DOB     Sex     Position	Medium     Copies     I	
Film Destination	Magnification Smoothing	Empty Density Min Density 0	Instatution     Patient ID     Patient Name     DOB     Sex  Position	Medium     Copies     1	

The **DICOM Printers** screen is displayed.

#### Setting up DICOM Printers (continued)

To add and configure the DICOM printer:

- 1. Select the Add Printer button.
- 2. Select the blue row under Name and enter the manufacturers name (e.g., Sony)
- 3. Select the blue row under IP and enter the IP address for the printer.
- 4. Select the blue row under Port and enter the port number for the printer (e.g., 104)
- 5. Select the blue row under AET and enter the AET name (e.g., DICOM\_PRINTER).
- 6. Select Save Settings.

Printers					_
Name	IP	Port	AET	My AET	
SONY	192.168.168.13	104	SONY	SONY PRINTER	
l					
Test Clabus	Id Drinker Demous Drinker				
Test Status Ac	d Printer Remove Printer				
Test Status Ad	Id Printer Remove Printer		Layout	l	
Settings	Id Printer Remove Printer	Border Density	Patient Information	Job Priority	
Settings Film Destination PROCESSOR	id Printer Remove Printer	Border Density	Patient Information  Patient ID  Patient ID	Priority HIGH	
Film Destination PROCESSOR Trim	id Printer Remove Printer	Border Density BLACK Empty Density	Patient Information  ✓ Institution  ✓ Patient ID  ✓ Patient Name  ■ OOB	Priority HIGH Medium	
Settings	Id Printer Remove Printer	Border Density  BLACK  Empty Density BLACK	Layout     Patient Information     Zelistitution     Zelistitution	Paority HIGH Medium BLUE FILM	
Settings Film Destination PROCESSOR Trim NO Configuration	id Printer Remove Printer	Border Density • BLACK Empty Density • BLACK Min Density	Patient Information     Patient Information     Patient ID     Patient ID     Patient Name     DOB     Sex     Position	Priority HIGH Medium BLUE FILM Copies	
Settings	id Printer Remove Printer Film Size TaliNX17IN Magnification BILINEAR Smoothing NONE	Border Densily BLACK Empty Density BLACK Min Density 0	Layout Patient Information Patient ID Patient ID Patient ID Patient Name Sex Position NORTH WEST	Job Phonty HIGH Medium BLUE FILM Copies 1	

The printer listed above may now be used to print images on media supported by the printer, such as film.

#### Setting up DICOM Printers (continued)

Before printing an image, it is always best to test the connectivity to the DICOM printer:

Click the **Test Status** button to ensure that the printer settings are correct. If successful, the following window will be displayed:

	×
Sony is ready.	
	ОК

Configure printer as desired in **Settings**, **Layout**, and **Job** fields.

#### **Setting up Required Fields**

1. Select the **Required Fields** button.

Radlink	Select Study   Scan   QC Image   Complete Study   Print   Send	Burn CD	CR Status READY	Manage
	- Select Required Fields			Logout
	ID ID	■ History		System Mode
	☑ Name	■ Reason For Exam		PACS/RIS
	Accession Number	☑ Birth Date		
	■ Referring	☑ Study Date		Destinations
				Send Status
				DICOM Printers
				Performance
				Hot Buttons
				Worklist
				Preferences
				CR Setup
				Required Fields
				Pre-Fetch Agent
				Help
				Save Settings

The checkbox **ID** (*Medical Record Number*) is always selected; however you may select other fields as well. When creating a study, the system will check for all fields that are checked to ensure that they have been completed.

#### **Setting up Pre-Fetch Agent**

The Pre-Fetch Agent feature allows you to specify which images to automatically download to your local hard drive. This will save the time of downloading the images from a Radlink PACS to your local drive in order to view them.

Radlink Select Study   Scan   QC Image   Complete Study   Print   Send   Burn CD					Manage	
Pre-Fetch Agent Setting	CPre-Fetch Agent Setting					
Enable Pre-Fetch Ag	Enable Pre-Fetch Agent					
	Run as a thread	<ul> <li>Run as a service</li> </ul>			PACS/RIS	
Study Date	Today	2014/05/12			Destinations	
ID					Destinations	
Referring Physician	Starts with	•			Send Status	
Modality	All	·			DICOM Printers	
Body Part	All	·			Performance	
Description	Starts with	·			Hot Buttons	
Frequency (min.)	15				Worklist	
Number of Prior Studi	ies 2				Preferences	
Apply					CR Setun	
					Descripted Fields	
					Required Fields	
					Pre-Fetch Agent	
					Help	
					Save Settings	

1. Select the Pre-Fetch Agent button.

The Pre-Fetch Agent window is displayed.

Note that Pre-Fetch may be run in either a **Run as a Thread** (default) or **Run as a Service** mode.

When run in **Run as a Thread** mode, the software must be running in order for Pre-Fetch to function.

When run in **Run as a Service** mode, the software does not need to be running in order for Pre-Fetch to function.

#### Setting up Pre-Fetch Agent (continued)

- 1. Set the Study Date field to All Studies.
- 2. Enter a physician's name into the **Referring Physician** field.
- 3. Set the **Referring Physician** pull-down menu to **Contains**.
- 4. Select the Enable Pre-Fetch Agent checkbox.

Radlink	Radlink Select Study   Scan   QC Image   Complete Study   Print   Send   Burn CD					
ſ	Pre-Fetch Agent Setting					
	Enable Pre-Fetch Agent	0			System Mode	
		Run as a thread	Run as a service		PACS/RIS	
	Study Date	All Studies			Destinations	
				3	Sond Status	
	Referring Physician	Contains	Gordon		Send Status	
	Modality	All			DICOM Printers	
	Body Part	All		n	Performance	
	Description	Starts with			Hot Buttons	
	Frequency (min.)	15			Worklist	
	Number of Prior Studies	2			Preferences	
	Apply				CR Setup	
-					Required Fields	
					Pre-Fetch Agent	
					Help	
					Save Settings	

In this example, all the studies that contain Gordon as the referring physician will be automatically downloaded to the local image folder.

As the day progresses, a query will be automatically performed every 15 minutes so that any new studies containing Gordon will also be downloaded.

Note that if you change any selections after you've enabled the pre-fetch agent, you can either select **Apply** or uncheck and recheck the **Enable Pre-Fetch Agent** checkbox to perform a new fetch.

## **Chapter 3: Operating Instructions**

#### Starting the Imaging Software

To start the imaging software, double-click the desktop shortcut icon **Radlink Pro Imaging** shown below or click **Desktop**  $\rightarrow$  **Radlink Pro Imaging** 


#### Starting Pro Imaging Acquisition Software (continued)

Radlink	Select Study	Scan   QC Imag	e   Complete Sti	udy   Print   Sen	id   Burn CD					Manage
ID		Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Local	New Patient
										New Study
										Search Select PACS
										Worklist
										Hospital
										Study Date ID
										Patient Name
										Accession Modality
										Workflow State
										Search Reset
										View Report
										Delete
User: radlink (Rad	llink)									Ready

The **Select Study** screen is displayed with **Worklist** set to **Today** and **Study Date** set to the current date.

#### Note:

The system will automatically perform a query at startup for the **Worklist** setting (in this case **Today**), and will display all studies that match today's date (in this case, none).
Logged in user information will display at the bottom of the screen.

#### **IMPORTANT:**

- To create a study for a **New Patient**, refer to the next section entitled "Creating a Study and Scanning a New Patient".
- To create a study for an **Existing Patient**, refer to the section entitled "Creating a Study and Scanning an Existing Patient".

#### **Creating a Study and Scanning a New Patient**

Use the **New Patient** button to create new patient information.

1. Select New Patient

VRadlink Select Study   Sca	an   QC Image   Complete Study   Print   Send   Burn CD	CR Status READY	Manage
Patient Information ID Last Name First Name Middle Name	000000000000000000000000000000000000		Pages Prev Next

As mentioned previously, the required fields on the **Patient Information** window can be set by selecting **Manage** and then **Required Fields**. All required fields are denoted using a white font versus a gray font for the non-required fields.

In the above example, **ID** is the only required field.

2. Patient **ID** will be generated automatically. User could also choose to enter **ID** for the patient.

VRadlink Select Study   Se	an   QC Image   Complete Study   Print   Send   Burn CD	DR Status READY	% Manage
Patient Information II Last Nam First Nam Middle Nam	0000000000039     Sex       JONES     MMdd/yyyy       MMKE     02/13/1946		Pages Prev Next

If an **ID** already exists, the patient information is auto-filled.

In the above case, the fields for an example patient "Mike Jones" automatically appeared once his Medical Record Number was entered into the **ID** field by the user.

If a predefined **ID** record doesn't exist (there will be no auto-fill), simply enter the rest of the patient information in the desired fields.

3. Select Next

🖉 Radlink Select Study   Scan   QC Image   Complete Study   Print   Send   Burn CD	R Satus READY	88%	Manage
Study Information Study Date Wednesday, September 17, 2014 - Time(thum) 1502 Pre-defined Examp Accession Number Study Description Priority Study Description Referring Reeson For Exam			Pages Prev Next

The Study Information window is displayed.

Like in the previous **Patient Information** fields, the required fields for the **Study Information** window can be set by selecting **Manage** and then **Required Fields**.

Enter the study information in the desired fields of the Study Information window

4. Select Next.



The **Scan** window is displayed.

5. Either select where on the skeleton you would like to take an image of, or select the body part from the pull-down list using the **Body Part** menu in the upper right corner.



The Body Part pull-down menu is displayed.

- 6. Select desired **Body Part** from the pull-down menu.
- 7. Set the View and Size fields.



The general recommended technique fields: **kVp**, **mAs**, and **Gain** are automatically populated by default depending on the selected **Body Part**, **View**, and **Size**.

Note: These are reference values only. A trained x-ray technician may choose to adjust these values for their environment (and reset as defaults) as they see fit.

These settings should work well in a clinical setting, but may be changed and customized. Select **Save** to retain any custom settings.

Although the **Gain** setting will affect image processing, the **kVp** and **mAs** settings are informational only (and may be displayed after the image is acquired in the **QC Image** tab by clicking the hot button **INFO**).

Note: You may also view the EI (Exposure Index) by pressing the INFO hot button.

8. Click on Start DR.



A scan window appears to indicate it is ready for the scan.

After the scan is completed, the image is post-processed (by Radlink's proprietary software to improve image quality) and then is displayed for the user in the **QC Image** tab.



Note: Software will auto scroll to the latest acquired image

If you want to continue scanning additional images to this study, select the Scan tab at the top.

The software will return the user to the QC Image window/tab following each individual scan

When the user has completed acquiring & viewing images, select the **Complete Study** tab on the top row to push the images to the PACS destination (defined in the **Destinations** window).

After selecting **Complete Study**, the software will return you to the **Select Study** tab

#### **Creating a Study and Scanning an Existing Patient**

The **New Study** feature may be used instead of **New Patient** if a patient record already exists. This may save the user time in not having to enter the patient's basic information again.

- 1. Display the existing study in the **Select Study** window: (using the **Worklist** field, *e.g.* **Today**)
  - a. Enter the last name of the patient into the **Patient Name** field and select **All Studies** from **Worklist**

OR

- b. Enter the ID of the patient into the ID field and select All Studies from Worklist
- 2. Click-on the leftmost column in the desired row (to the left of the **ID** number)

<b>V</b>	Radlink Select Study   Scan   QC Image	Comp	lete Study	Print	Send	Burn CD			DR Status READY	81%	Manage
	ID	Last Name	First Name	Sex	Dob	Accession Descriptio StudyDTTM	Referring Report	Workflow Locked State by	Originatio Hospital	Local	New Patient
×	0000000000039										New Study
											Worklist
											Today -
											And Origination Hospi
											ID Patient Name
											Accession Modality Referring
											Workflow State
											Deast
											Reset
											Delete
											Boport
											Ready

The example patient data for "Mike Jones" is displayed above, and is now highlighted.

### Creating a Study and Scanning an Existing Patient (continued)

3. With the patient's information now highlighted, select New Study on the right menu list

VRadlink Select Study   Sca	nn   QC Image   Complete Study   Print   Send   Burn CD	READY 809	6 Manage
Patient Information ID Last Name First Name Middle Name	00000000000000000000000000000000000000		Pages Prov Next

All previously entered information for the patient is automatically transferred to the **Patient Information** window for the new study.

# Creating a Study and Scanning an Existing Patient (continued)

4. Select Next

VRadlink Select Study   Scan   QC	Image   Complete Study   Print   Send   Burn CD		DR Szus READY	80%	Manage
Study Information Study Date Pre-defined Exams Accession Number Study Description Reason For Exam	Wednesday, September 17, 2014	Time(hhmm) History Priority Referring	1513		Pages Prev Next

None of the previously entered **Study Information** fields will be transferred, but you may manually fill in these fields if desired.

### Creating a Study and Scanning an Existing Patient (continued)

5. Select Next



The **Scan** window is displayed for the new study.

At this point you can proceed as detailed earlier in the Scan instructions for a New Patient (on Pages 39-43), or by entering the **Technique** (information in the upper right corner), and selecting **Start DR**.

When the user has completed acquiring & viewing images, select the **Complete Study** tab on the top row to push the images to the PACS destination (defined in the **Destinations** window).

After selecting **Complete Study**, the software will return you to the **Select Study** tab

#### **Setting up Pre-defined shots**

The **Pre-defined Shots** feature may be used to either create a **New Patient** or create a **New Study** 

Note: You are allowed to set up one or multiple sets of scanning techniques under one study.

1. Select Manage and then select CR Setup

🖉 Radlink Select Study   Scan   QC I	mage   Complete Study   Print   Send   Burn CD	Manage
Scanner Control		Logout
Calibrate	Erase Plate 2 • iterations Reset Plate HW Config	System Mode
		PACS/RIS
CR Preferences		Destinations
■ Save QC Images	Bit Depth 15	Send Status
Erase Plate	Record Technique Check L/R Marker Before Complete	
Horizontal Flip	● All ● Chest PA, AP/PA ● None	DICOM Printers
Institution Name		Performance
Station Name		Hot Buttons
Patient ID Prefix	Auto Assign 15	Worklist
		Proforences
Pre-defined Shots		Freierences
Pre-defined Exams	Pre-defined Shots	CR Setup
Name (Unique)		Required Fields
Exam Code		Pre-Fetch Agent
		Help
Priority		Theip
Thony		
	Add	
		Source Sottinge
		Save Settings

The **Pre-defined Shots Settings** are displayed in the screen.

2. Enter Name, Exam Code and select Priority under Pre-defined Exams

3. Click Add under Pre-defined shots, and then click Save Settings

Valia Select Study   Scan   C	QC Image   Complete Study   Print   Send   Burn CD	Manage
Scanner Control		Logout
Calibrate	Erase Plate 2 • iterations Reset Plate HW Config	System Mode
		PACS/RIS
CR Preferences		Destinations
Save QC Images	Bit Depth 15 bits	Send Status
Erase Plate	Record Technique Check L/R Marker Before Complete	DICOM Printers
Horizontal Flip	● All ● Chest PA, AP/PA ● None	Performance
Station Name		Hot Buttons
Patient ID Prefix	Auto Assign 15	Worklist
		Desferresses
Pre-defined Shots		Preferences
Pre-defined Exams	Pre-defined Shots	CR Setup
Name (Unique)	Jack Jack, 11 code	Required Fields
Exam Code	11 code	Pre-Fetch Agent
Description		Help
Priority		
	Add Delete Add Delete	
		Save Settings

The Pre-defined shots setting is added

4. Click "Add" under "Pre-defined Shots"



Scan window brought up and allows you to add a Scanning technique

- 5. Select **Body Part** and set the values for the technique.
- 6. Click Save button.

The Scanning technique is added under Pre-defined Shots

1. Click Save Settings button

Calibrate	Frase Plate 2	, iterations	Reset Plate	HW Config	i
			HOUTHING		
-CR Preferences					
Save QC Images	Bit Depth	15	- bits		
■ Erase Plate	Record Technique	Check L/R Marker E	Before Complete		l
Horizontal Flip	● All ● Chest PA, AP/PA ● Non	ə 			i i
Institution Name					
Station Name			Auto Applica 15		
			Auto Assign 15		- 1
Pro dofined Shots					
c Pre-defined Exams					
		ook 11 oodo			
Name (Unique)			T. KNEE, AF		l
Exam Code					- li
Priority					1
		Delete	Add	Delete	
	Add				
	Add				

9. Repeat Steps 4-7 to add another technique if desired

Select Study   Scan   QC	Clmage   Complete Study   Print   Send   Burn CD	
Scanner Control		
Calibrate	Erase Plate 2 • iterations Reset Plate HW Config	Sy
CR Preferences		
Save QC Images	Bit Depth 15 bits	S
■ Erase Plate	Record Technique Echeck L/R Marker Before Complete	DIC
Horizontal Flip	● All ● Chest PA, AP/PA ● None	Pé
Institution Name		
Patient ID Prefix	Auto Assign 15	-
c Pre-defined Shots		Pi
e Pre-defined Exams	- Pre-defined Shots	
		Red
Name (Unique)	11 code	Pre-
Description		
Priority		
	Add Delete Add Delete	

Note: You may add multiple Pre-defined Shot(s) techniques to one Pre-defined Exam(s)

# Scan using the Pre-defined shots setting

- 1. Select New Patient in Select Study window
- 2. Enter ID and select Next
- 3. Select the desired Pre-defined Exams
- 4. Select Next

Viradlink Select Study   Scan   QC Image   Complete Study   Print   Send   Burn CD							
Study Information Study Date Monday . May 12, 2014 Pre-defined Examp Accession Number Study Description Reason For Exam	Pages Prev Next						

#### Scan using the Pre-defined shots setting (continued)

The Pre-defined technique is loaded automatically in the Scan Window

Exam Shot follows the order of the techniques of Pre-defined shots

Note: You may manually click NEXT or PREV in the Exam Shot window to change the order

1. Click Scan



#### Scan using the Pre-defined shots setting (continued)

Scanned image will be brought up. You may now go back to **Scan** window and the second technique of the Pre-defined Shots is ready.



#### 1. Click Scan

In the above example, a total of two pre-defined images showed up under this study, because we configured the Pre-defined Shots window with two techniques.

<u>Note:</u> For additional images, continue to proceed back to the **Scan** window after acquiring an image

#### **Image Processing**

Image Processing reduces noise and artifacts and sharpens image structures, making them easier to view and promote a better image for diagnosis.

<u>Note:</u> The default settings should be acceptable for the majority of images, however may be changed based on preference, technique, x-ray experience, etc.



1. Select the Image Processing button on the right list while in the QC Image window

The Image Processing options are displayed.

#### Window Leveling (W/L)

Normally selecting the best available **Image Processing** algorithm type (e.g. Strong, Medium, etc.) will produce the optimal image, but depending on the user's preference, you may manually change the image-brightness and/or image-contrast by adjusting the **Window Leveling** using the method described below.

- 1. Select the image you intend to change and press the **W/L** button located on the right side of the display.
- 2. Adjust by "clicking & dragging" the cursor on the image
  - Moving horizontally will change the window setting (contrast)



• Moving vertically will change the level (brightness)

### Region of Interest Window Leveling (ROI W/L)

This feature allows the selection of a specific region of the anatomy – with the purpose of **Window Leveling** the brightness/contrast of the image to best represent the area highlighted by the user's selection.

<u>Note:</u> This option optimizes the image quality of the specific region only. The pixels inside the chosen area are used to determine the W/L settings used by the software.

1. Select the image you intend to change and select the **W/L** button twice. The second time you click the button, the description inside the box will change to **ROI W/L** 



#### Region of Interest Window Leveling (continued)

2. Choose the region of interest by clicking (while holding the click) and dragging over the selected area of interest, making a rectangle around the region of interest



### Region of Interest Window Leveling (continued)

3. Release the click after dragging over the selected area.



**Note:** The window leveling will change for the whole image, with the emphasis on the selected area having the best image brightness/contrast ratio.

#### **Window Level Preset**

This feature is available when the **W/L PRESET** hot button is checked.

- 1. Change the W/L to a desired appearance
- 2. Click the W/L PRESET hot button
- 3. Label the appropriate body part in the Name field
- 4. Click Save

Window Level Preset			×
Presets			
chest			
Current Preset			
Name	Window	Level	Save
chest	17873	12967	Delete

These Window Leveling values can now be recalled for each instance of this body part.

**Note:** This feature is dependent on the body part selected during the initial acquisition of the image. Saving these values for a "Chest Image" that is scanned with **CHEST** setting in the **Body Part** menu – and then applying these values to a "Chest Image" that has been scanned with **ABDOMINAL** setting will provide less than optimal results, for instance.

### Negative Image (NEG)

Displaying a negative image may make it easier to view things such as blood vessels.

To display a negative image:

1. Select the **NEG** button while viewing an image.



A negative image is displayed.

**Note:** To toggle a negative image back to its original state, select **NEG** again.

#### **Enlarging Images**



#### 1. Select an image and press the

button that is directly below the image



The image is now magnified to full-screen mode.

<u>Note:</u> The buttons that were previously on the right side of the software window and the thumbnails at were previously at the bottom of the software window are now removed.

Note: The hot buttons are still available in full-screen mode

# Enlarging Images (continued)



2. To return to the previous view press the **button**.



#### **Creating a New Series**

Creating a new series is useful for segmenting scans by modality or body part into a separate folder.

To create a new series:

1. Go to Scan window and select New Series



A new series is now created under the same patient **ID** record and study

Note: The new series that was just created begins with zero images in it

# Creating a New Series (continued)

1. Select Start DR



Note: The newly scanned image is placed into the second series, denoted as (2) (1 images)

# **Cropping Images**

The **Image Cropping** button on the right menu list allows you to select an area of an existing image and create an enlargement.



1. While in the **QC Image** window, select **Image Cropping** 

The image cropping box will appear as shown above

#### Cropping Images (continued)

1. Move the box by clicking it in the middle region and dragging it toward the desired image area



In the example above, the image cropping box has been moved to the patient's left collarbone.

# Cropping Images (continued)

1. Size the box by selecting an edge or corner and dragging it to the desired size.



In the example image above, the box has been reshaped into a rectangle that more closely follows the shape of the patient's collarbone.

### Cropping Images (continued)

1. When you have adjusted the cropping box to the desired size, select Finish.



The cropped area has been captured and generated as an additional image in this series. A thumbnail image has been also created and placed on the bottom bar.
#### **Geometry Measurements**

Length and angle-geometry measurements of the image can also be obtained for reference.

1. While in QC Image window, click the Measurements button.



- 2. Click LINE button for length measurements
  - Click and drag from one reference point to another to measure relative distances

<u>Note:</u> Accuracy of measurements can be greatly improved using the **Calibration** tool to convert all relative measurements to measurements in millimeters using an object of known size

- 3. Click **ANG** button for angle measurement.
  - 1. As shown below, angles are measured by aligning the two **X**'s (from each line) on top of each other and measuring the relative angles between the **O**'s on the opposite side of the lines



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#### Image Scale Calibration (in millimeters)

Image scale can be calibrated to enable higher accuracy for length measurements.

- 1. While in **QC Image** window, click the **Calibration** button.
- 2. Click the **RULER** button for length calibration & **CIRC** button for circular diameter calibration.
- 3. Click & drag on the image to reference the surface-to-surface length of the calibration object.
- 4. Enter the known physical length/diameter of the calibration object when **CalibrationDialog** box appears after you are done making your selection
- 5. Click the Done button to save the calibration or Clear to undo all calibration settings



Note: The automatic calibration (25mm Marker) button is activated now in 3.8 version.

#### **Adding Annotations on Images**

Annotations can be added on images and saved to final PACS destinations.

- 1. While in the **QC Image** window, click the **Annotation** button
- 1. Click the **PTR** button for pointer and **FREE STYLE** button for free-hand drawing using pointer
- 1. Select **CLEAR** to undo all annotations and select **DEL LAST** to undo the last added annotation



Note: The DEL LAST button will also delete the last angle or length measurement made

#### Storing the Study to the PACS

When you are satisfied with the quality of the scanned images, you need to store them:

1. Select Complete Study from the top row of tabs



The message above appears and the cursor is shown as an hourglass. At this time no other operations may be performed.

<u>Note:</u> This begins the delivery process to every active destination specified in **Manage** or **Destinations** Settings.

### Verifying Complete Study

To verify that the study has been successfully stored after selecting Complete Study:

1. Click Manage button, then Send Status button

Destination All	•	Status All	-						Syste
Job ID	MRN	Study DTTM	# Images	Destination	CreatedDTTM	UpdatedDTTM	Retries	Status	PA
96	00000000000045	20140512 142110	1	pacs	5/12/2014 3:17 PM	5/12/2014 3:17 PM	0	Success	Des
95	00000000000040	20140512 141535	1	pacs	5/12/2014 3:17 PM	5/12/2014 3:17 PM	0	Success	Sen
94	00000000000039	20140512 125200	3	pacs	5/12/2014 3:17 PM	5/12/2014 3:17 PM	0	Success	DICO
									Perf
									Hot
									v
									Pret
									CF
									Requ
									Pre-Fe

The Send Status window is displayed showing the progress of the send operation.

Note: For the 3 example studies in the above picture, under the **Status** column, the current state is automatically updated to indicate the progress (e.g. these are reading **Success**)

#### A typical progression is **Pending** > **Executing** > **Success**

Once Success appears, the study has reached its destination(s). If the study contains a few images, you may already see **Success** by the time you look at the **Send Status** window.

If there are problems, **Send Status** will attempt to send the study 10 times before giving up and indicating a **Status** of **Error**. The number of attempts will be displayed in the Retries column.

For studies that failed to send, re-select the study and then select **Send** on the bottom to resend the study. See, **Troubleshooting**, chapter 5, for more information.

#### **Image Retrieving**

Download the images from a Radlink PACS to local drive to view:

1. Click **Select Study** Tab, select the desired study and system will automatically take you to QC Image window.

P	Radlink Select Study	Scan   QC Imag	je   Complete St	udy   Print   Ser	nd   Burn CD					Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Local	New Patient
×	1078064	FOSTER	NIALANE	F	03/16/2007	88031	Chest 2 views, frontal	10/06/2014 19:09		New Study
										Search <u>Select PACS</u> Worklist All Studies

2. Click **Select Study** Tab again, you can see image downloading progress bar under "Local" column

V	Radlink Select Study	Scan   QC In	nage   Complete	Study   Print	Send   Burn CD					Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Local	New Patient
×	1078064		NIALANE						Loading	New Study
										Search <u>Select PACS</u> Worklist All Studies

3. After download is finished, a small computer icon appears meaning that the study is successfully downloaded to local.

<b>V</b>	Radlink Select Study	Scan   QC Imag	e   Complete Stu	udy   Print   Sen	d   Burn CD					Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Local	New Patient
×	1078064	FOSTER	NIALANE	F	03/16/2007	88031	Chest 2 views, frontal	10/06/2014 19:09		New Study
										Search <u>Select PACS</u> Worklist All Studies

#### **Using Reports**

You may also attach notes to studies and save them with the images to the PACS.

To set the default doctor name so that you don't have to re-enter it for each report:

1. Click Manage button then Preferences button

Select Language			
o English	<ul> <li>French (Français)</li> </ul>		
<ul> <li>Spanish (Español)</li> </ul>	● Chinese (简体中文	GB18030)	
• Other			
DICOM Receiver Setting			
● Run as a thread ● Run as a service			
IP: 192.168.168.118 Promiscuous Mode			
DICOM Port 104	Арріу		
Preferences			
Viewer on CD	Padlink Lite		
Enable HTTPS for PACS		Refresh Local Studies	
	Enable On-Screen Keyboard		
	Bad Workflow Optimization	<ul> <li>Auto Refresh Worklist</li> </ul>	
Window Level Sensitivity (1-100)	40		
Default Author on Report	Last Name	First Name	
Date Format	MM/dd/yyyy		
Report Format	DICOM Structured Report	•	
Report Image Height	500		
Report Image Width	400		
VOIP	Skype		

The Default Author on Report is displayed in the Preferences section.

2. Enter the author's name in the First Name and Last Name fields.

o English	<ul> <li>French (Français)</li> </ul>		
<ul> <li>Spanish (Español)</li> </ul>	● Chinese (简体中文	(GB18030)	
• Other			
DICOM Receiver Setting			
● Run as a thread ● Run as a service			
IP: 192.168.168.118 Promiscuous Mode			
DICOM Port 104	Apply		
Desfavoração			
viewer on CD	Radlink Lite	<ul> <li>Anonymize On Export</li> </ul>	
Enable HTTPS for PACS	Auto Crop Stitched/Frame Grabbed Images	Refresh Local Studies	
Save Settings Before Exiting	Enable On-Screen Keyboard	I Logging	
☑ Auto Login	Rad Workflow Optimization	■ Auto Refresh Worklist	
Window Level Sensitivity (1-100)	40		R
Default Author on Report	Last Name Robert	First Name Gordon	Pr
Date Format	MM/dd/yyyy	•	
Report Format	DICOM Structured Report	•	
Report Image Height	500		
Report Image Width	400		
VOIP	Skype	•	

Note: In this example above, the report author "Robert Gordon" has been entered

To enter notes on a specific patient:

- 1. Select the desired study and view it in the QC Image window
- 2. Click Report

Report NIA	LANE, FOSTER	Chest 2 views, front	al and lateral	-
10/06/2014 C FastMed - Swan Patient Information: ID: 1078064 Name: NIALANE Birthday: Sex: F Study Date: 10/06 Description: Ches Referring Physici	FOSTER 5/2014 st 2 views, frontal and late an: Egurrola^Ana Martin	eral a		Destinations I receiver 1
Impression				
Physician				Save
Physician Prefix	Last	First	Suffix	Save Sign

The above (structured) Report window is displayed

Note: The destinations are shown in the upper right hand corner

Only after entering a report, select **Save** or **Sign** to send the report to all active destinations.

3. Select the Impression area and type a report.

10/06/2014	CR	nest 2 views, fronta	and lateral	Destinations
FastMed - Swan Patient Informatio ID: 1078064 Name: NIALAN Birthday: Sex: F Study Date: 10 Description: Cf Referring Phys	n: IE,FOSTER /06/2014 nest 2 views, frontal and late ician: Egurrola^Ana Martina	irəl a		
Impression During visit patier	It complained of chest pain.	2		Save
Impression During visit patier Physician	It complained of chest pain.	22		Save

Note: While Save sends the report to the specified destination, you may still modify it.

4. When you are finished with a report, select Sign

Report NI, 10/06/2014	ALANE,FOSTER C	chest 2 views, fronta	l and lateral	Destinations
FastMed - Swan Patient Information ID: 1078064 Name: NIALAN Birthday: Sex: F Study Date: 10/ Description: Ch Referring Physi	n: E,FOSTER 06/2014 est 2 views, frontal and late cian: Egurrola^Ana Martina	iral a		Preceiver 1
Impression				
Impression Physician				Save

After clicking **Sign**, the report is displayed in a read only window, and also stored to the active destination(s).

**Note:** A signed report can no longer be modified.

**<u>Note:</u>** To view the **Impression** field and the currently displayed image simultaneously, press the "Minimize" icon at the top of the **Report** window.

To enter a second report:

1. Select the **Impression** area and type a report.

× 🖻 🛅 🖌	200				
Report	James, Thomas	05/12/2014 CR		ſ	Destinations
radlink Patient Inform ID: 0000000 Name: Jan Birthday: Sex: Study Date Description Referring F	nation: 000000040 nes,Thomas e: 05/12/2014 n: Physician:			E	<u> </u>
During visit pa Diagnosed a Report	atient complained of che ngina and prescribed at signed by Dr. Gordon,Ro	st pain. enolol. obert M.D. at 15:53:28, 05/1	2/2014		
	n				
Impressio					
Impressio Follow-up. Patient claim' Schedule a h	's that he's feeling better. eart scan.				
Impressio Follow-up. Patient claim' Schedule a h	's that he's feeling better. eart scan.				Save
Impressio Follow-up. Patient claim' Schedule a h Physician Prefix	's that he's feeling better. eart scan.   I	First	Suffix		Save Sign

1. When you are finished with the second report, click **Sign** or **Save** button.

🦉 Repo	ort						
:  💾   8	× 🖻 🖺 🐊	8 7 0					
	Report	James,Thomas	05/12/2	014 CR			Destinations
	radlink Patient Informa ID: 0000000 Name: Jam Birthday: Sex Study Date: Description: Referring Pl During visit pat Diagnosed an Report si	ation: 20000040 es,Thomas 05/12/2014 hysician: tient complained of che: gina and prescribed ate igned by Dr. Gordon,Ro	st pain. enolol. bert M.D. at	15:53:28, 05/12/2014	Ļ	E	
	Impression	) Written by Gord	on Rober	t		-	
	Follow-up. Patient claim's Schedule a he	that he's feeling better. art scan.		-			
	Physician						Save
	Prefix	Last		First	Suffix		Sign
	Dr. 🔹	Robert		Gordon	M.D. •		Close
Ready							.::

Note: While Save sends the report to the specified destination, you may still modify it.

When you have finished with the report and don't wish to make any more changes, click **Sign** button to finalize it.

🦉 Repo	ort										
💾   8	× 🖻 🛅 🖌	2 🗅 🗖 🗖									
	Report	James,Tho	omas (	)5/12/20	014 CR					Destinations	
	Sex: Study Dat Descriptic Referring	e: 05/12/2014 on: Physician:						-		V pacs	
	During visit p Diagnosed a Report	patient complaine angina and prese t signed by Dr. G	ed of chest p cribed ateno ordon,Robe	ain. Iol. rt M.D. at 1	15:53:28, 05/12/20	)14		E	:		
	Follow-up. Patient claim Schedule a I Report	n's that he's feelir heart scan. t signed by Dr. G	ng better. ordon,Robe	rt M.D. at 1	5:55:20, 05/12/20	)14					
	Impressio	on						•	-		
	Physiciar	n								Save	
	Prefix	La	est		First		Suffix			Sign	
	Dr. 👻	R	obert		Gordon		M.D. ▼			Close	
Ready											.::

<u>Note:</u> The second report was pushed into the "read-only area" of the window, and was stored to the active destination(s).

To determine whether a study has a report:

1. Click the **Select Study** button and set Worklist to **All Studies** 

<b>V</b>	Radlink Select St	tudy   Scan   QC	Image   Complete	Study	Print   Send   Burr	n CD				READY	Manage
	ID	Last Name	First Name	Sex	Dob	Description	StudyDTTM	Report	Workflow State	Images	New Patient
•	00000000000039	Jones	Mike		02/13/1946		05/12/2014 12:52		ARRIVED	3	New Study
	000000000000040							Ľ		1	Worklist
											Today
											And Origination Hospi
											Study Date 05/12/2014
											ID
											Patient Name
											Accession Modality
											Referring
											Workflow State
											Search
											Reset
											View
											Delete
											Report

Any study that has a report will contain an icon displayed in the **Report** column.

**Note:** In the above example, only the bottom study contains a report.

To read a report, select any study that has this icon, and then select the **Report** button in the bottom right corner of the software window screen.

## Report editing using IE browser

You may edit and save reports using IE browser

To set the **Report Format** to HTML format:

- 1. Select Manage, and then select Preferences
- 2. Select HTML for Report Format
- 3. Select Save Settings in the bottom right corner

o English	<ul> <li>French (Français)</li> </ul>		
<ul> <li>Spanish (Español)</li> </ul>	● Chinese (简体中文	(GB18030)	۲
• Other			
DICOM Receiver Setting			
● Run as a thread ● Run as a service			
IP: 192.168.168.118 Promiscuous Mode			
DICOM Port 104	Apply		
Proforancea			
viewer on CD	Radlink Lite	<ul> <li>Anonymize On Export</li> </ul>	
Enable HTTPS for PACS	Auto Crop Stitched/Frame Grabbed Images	Refresh Local Studies	
☑ Save Settings Before Exiting	Enable On-Screen Keyboard	Logging	
☑ Auto Login	Rad Workflow Optimization	Auto Refresh Worklist	
Window Level Sensitivity (1-100)	40		R
Default Author on Report	Last Name Robert	First Name Gordon	Pr
Date Format	MM/dd/yyyy	•	
Report Format	HTML	•	
Report Image Height	DICOM Structured Report		
Report Image Width	HTML		
VOIP	Skype	•	

## Report editing using IE browser (continued)

To enter notes on a specific patient:

- 1. Select the desired study and open it in the QC Image window
- 2. Click Report

🖉 R	eport														<u>1997</u> 87	C	]	×
B	I	Ū	X <sub>2</sub>	X <sup>2</sup>		]≣		<del>5</del>	•≡	+=	_	12 3	Ξ	8	<u>69</u>	<u>T</u> *		
Tem	plate		~	]	Bac	kgrou	nd 🗡	F	oregro	und 🗸	]	Font		~	Size		~	
								(	Cancel	Save								

The HTML format **Report** window is displayed.

<u>Note:</u> After entering a report, when **Save** is selected the report will be stored to all active destinations

#### Converting viewed images to JPEG files

To convert and save an image as a compressed JPEG file:

- 1. Select Manage then click Hot Buttons and check the SAVE JPEG box, click Save Settings
- 2. View the desired image back in the QC Image window



- 3. Select the hot button SAVE JPEG
- 4. In the Save As window, specify the desired location and select Save

**Note:** If more than one image is displayed when **SAVE JPEG** is selected, only the active window will be saved.

• The active window is shown in the center main-viewing screen, highlighted by the red box

### Add JPEG Image/ Import Images

1. Copy and paste jpeg images to "C:\Users\GPS User\ViewPro\incoming" folder, they automatically convert to DICOM images into current study, but will create a new series for each input image.



Image "Lighthouse" is imported to software with study series number (2).

#### **Rearrange Image**

1. Right click thumbnails in QC Image window, move up or move down images to change order. Can go through different series.



#### Auto Crop Stitched/Frame Grabbed Images

1. Auto-crop the images grabbed from the frame grabber, to have the circular-shaped image only. This will crop away the non-essential content from grabbed image.







<u>Note:</u> This is an optional function. Go to **Manage, Preferences.** Check **Auto Crop Stitched/Frame Grabbed Images** will activate it.

### Printing

Images may be printed to any of the printers that were previously setup in **Chapter 1: Setting Up DICOM Printers** (Pages 27-29) and/or to the printer defined as the Windows default printer

- 1. Press the **Print** tab located at the top of the display.
- 2. View the image window you intend to print
- 3. Click the checkbox of the printer(s) you wish to print in the **Printers** section.
- 4. Press the **Print** button.



For a non-DICOM printer (such as the Windows default printer), only one image may be printed at a time even though multiple images can be displayed.

#### The following options apply to DICOM Printing Only:

True Size when checked will print the actual size of the image to film.

True Size when unchecked will print the image as it is currently viewed on the display.

Select the image(s) you wish to print using the



Click the checkbox of the printer(s) you wish to print, and press the **Print** button.

#### Printing images from different patients

Images from different patients are allowed to be printed in the same print session.

- 1. Press the **Print** tab located at the top of the display
- 2. View the image window you intend to print
- 3. Click **GRID** button



Note: Grid windows will pop-up and allow you to set up the layout of the film

#### Printing images from different patients (continued)

- 4. Select the desired layout and click **OK** button.
- 5. Left click in the grid where you want to place the next image
- 6. Click the Patient Folder button
- 7. Search the desired patient



The Search Patients window should pop up and allow you to add images from different patients in the same print session.

<u>Note:</u> You can search by patient name, patient ID, accession # or referring. You can also narrow down by modality.

#### Printing images from different patients (continued)

8. Select the patient, click Load button and close the Search Patients window



**Note:** All the images of that patient will be loaded as thumbnails at the bottom.

- 9. Select the desired image to fill in the grid.
- 10. Repeat 5-8 to add images from other patients if needed.

#### Printing images from different patients (continued)

11. Double click the printer you wish to print with, while inside the Printers section

🖉 Radlink Select Study   Scan   QC Image   Com	plete Study   <b>Print</b>   Send	Burn CD			Manage					
JONES, MIKE ID 000000000003 DOB 02/13/1946 Age 68Yrs 2Mos Sex Studies = 05/13/2014 10.00, (1) (1) (mage)	Print Setting Currently Selected Printer									
■ 061/22014252, (1) (1 images) (2) (2 images)	Printer Name: SONY Host 192.168.168.13 Settings Film Destination Smoothing PROCESSOR NONE • Trim Border Density NO • BLACK • Film Size Empty Density HANX17IN • BLACK • Magnification Type Min Density BLINEAR • Configuration 300 © Status	Port: AE Title: 104 SONY Layout Patent Information Position Position Position NORTH WES - Font Arial • Sex Accession Study DTM Study Descrip Verify Save Reset	My AE Title: Radlink Job Phority HIGH • Medium BLUE FILM • Copies 1 © Bit Depth 12 • Cancel Apply		Film 1/1 PRSV NOT ADD DEL Patient Folder					
X XIY X/Y RESET SELECT HE	STO INFO STITCH MAG GLASS <	PAN CLEAR NEXT REPORT SAVE	W.A. LOCATE LOCK LEFT RESET PRESET ON DISK MOUSE BUTTON MOUSE	SNRGS CNE DEL ING CHALIST CNE LAST	Dicom Print Print					
					Ready					

The **Print Setting** window will pop up and allow you to modify the setting of the printer:

- 12. Select the **Save** button.
- 13. Select the **Print** button.

# Printing images for multiple sheets

- 1. Press the **Print** tab located at the top of the display.
- 2. View the image window you intend to print
- 3. Select the layout of the film and add images
- 4. Click **NEXT** button under **Film** box



New sheet will be loaded and allows you to set up the layout and add images for the next film.

You may Click ADD or DEL buttons to add or delete the sheets.

#### **Burning a CD/DVD**

Exams may be burned to a CD/DVD and inserted into a PC for later viewing.

To burn a CD:

- 1. Select Burn CD
- 2. Set Worklist to All Studies to view all studies that are ready to be burned to CD.

Se	lect Study	Scan   QC I	mage   Con	nplete Study	Print   Bur	n CD					Manage
	Patient ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Referring	Report	Worklist
F	123456	Jones	Mike	м	19460213			20080201			
	123456	Jones	Mike	м	19460213			20080201			And PATIENT ID
											PATIENT NAME
											ACCESSION
											STUDY DATE 20080201
											Pages Prev Next
											Search
											Reset
											Burn
											Ready

The Burn CD window appears.

<u>Note:</u> Only the studies that have been previously viewed are shown. If the study you are attempting to burn to CD is not displayed after selecting **All Studies**, you must first go **Select Study**, find the study, and then view it.

#### Burning a CD/DVD (continued)

3. Select and highlight the desired studies

1 <sup>2</sup> î	Radlink Select	Study   Scan	QC Image   (	Compl	lete Study   Print	Send   Bu	urn CD						Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	Modality	StudyDTTM	Report	Images	Workflow State	Worklist
	000000000000	JONES	MIKE		02/13/1946	35		CR	05/13/2014 10:00		1	COMPLETE	Today ·
Þ	0000000000000												And Origination Hospital
													Study Date 05/13/2014 ID Patient Name Accession Modality Referring Referring Pages Prov Nost Search Reset Report Burn
													Ready

In this example: The bottom study with StudyDTTM of 20140513 is highlighted.

<u>Note:</u> Multiple studies may be burned to CD/DVD by pressing the **CTRL** key, and selecting all the desired studies.

**Note:** The green bar located in the lower left corner of the software. The green bar(s) will indicate how much space the selected studies will occupy when burned on the CD.

#### Burning a CD/DVD (continued)

4. Insert a CD/DVD and select Burn

Burn to Disc
Prepare this disc
Disc title:
May 13 2014
Recording speed:
48x •
New files being burned to the disc will replace any files already on the disc if they have the same name.
Close the wizard after the files have been burned
Next Cancel

The CD/DVD Writing Wizard window appears.

- At this point you can name the CD/DVD, or use the default
- 5. Select Next

Ignore the windows pop-up window below that indicates that files are being written to the CD.

i 🕸 You have files waiting to be written to the CD.	×
To see the files now, click this balloon.	
<u> </u>	$\checkmark$

Once the CD/DVD has been burned, the CD/DVD is ejected & is ready to be used

#### Viewing a Burned CD/DVD

1. To view the study that was burned, insert the CD/DVD into a PC.



2. When the above window appears, click Accept.



When the above window appears, click Install.

# Viewing a Burned CD/DVD (continued)

🐻 View	ProLiteLauncher Setup	×
6	Installing .NET Framework 2.0	
	<u>C</u> ancel	

The installation status is displayed.

Application I	nstall - Security Warning 🛛 🔀
Publisher ca Are you sure	nnot be verified. e you want to install this application?
Name:	Radlink Lite Launcher
From:	D:
Publisher:	Unknown Publisher
	Install Don't Install
While a trust th	applications can be useful, they can potentially harm your computer. If you do not ne source, do not install this software. <u>More Information</u>

3. When the above window appears, click Install.

#### Viewing a Burned CD (continued)

👩 Rai	dlink Pro Imaging										
S	elect Study   View li	mage   Print									Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Referring	Report	Worklist
•	00000000000000047	Jones	Indiana	м	02/01/1964			05/13/2014 10:25			All Studies •
											And
											PATIENT NAME
											ACCESSION
											MODALITY
											REFERRING
											STUDY DATE
											[]
											Prev Next
											Search
											Reset
											View
											Delete
											Ready

**Note:** A version of the Radlink Pro Imaging viewing software appears after several minutes.

<u>Note:</u> The default viewer used is **Radlink Lite**. To use the e-Film Lite viewing software instead of the Radlink Lite viewing software, prior to burning, go to **Manage/Preference** and set the **Viewer on CD** field to **eFilm Lite**.

#### Stitching Images (Optional – purchased separately)

The current release supports functions to stitch multiple X-ray images. Stitching function requires images taken with markers to increase accuracy.

To enter the password for stitching:

- 1. Select Manage
- 2. Select Help

<b>Varadlink</b> Se	elect Study   Scan   QC	Image   Complete Study   Print   Send   Burn CD		Manage						
Rad	dlink, Inc			Logout						
V P	Veb Site: ?hone:	<u>http://www.radlink.com</u> (310) 643-6900 Fax: (310) 364-3150	EC REP MDSS GmbH, Schiffgraben 41, 30175 Hannover, Germany	System Mode						
E	Email:	support@eradlink.com		PACS/RIS						
S	Address: Software Version:	815 N Nash St, El Segundo, CA 90245 3.8.1.3RC1 built on July 13, 2016		Destinations						
S	titching Software Version:	<u>31</u>	0123	Send Status						
	NCOM Receiver Version:	<u>3.1</u>		DICOM Printers						
rlio	ense Kev			Performance						
H	Host ID 2185724157									
T L	License Key QTPKCQJTKC2S5R5NLID525N03S384SDMLID525NN585S25NLID525									
s	Stitching software is enabled									
0	NCOM Receiver is enabled			CR Setup						
				Required Fields						
				Dro Estab Agont						
				Fie-Feich Agent						
				Help						
				Save Settings						

# Stitching Images (continued)

3. Enter the password into the License Key field and select Save Settings.

🖉 Radlink Select Study   Scan   0	QC Image   Complete Study   Print   Send	Burn CD	Manage
Radlink, Inc			Logout
Web Site:	http://www.radlink.com	EC REP MDSS GmbH. Schifforaben 41.30175 Hannover. Germany	System Mode
Email:	support@eradlink.com		PACS/RIS
Address:	815 N Nash St, El Segundo, CA 90245		Destinations
Stitching Software Version:	3.1	0123	Destinutions
DICOM Receiver Version:	<u>3.1</u>		Send Status
			DICOM Printers
License Key			Performance
Host ID 21857	24157		Hot Buttons
License Key	QJTKC2S5R5NLID525NO3S384SDMLID525NN585S25NLI	D528	Worklist
Stitching software is enabled			Preferences
DICOM Receiver is enabled			CR Setup
			Dequired Fields
			Pre-Fetch Agent
			Help
			Save Settings

The message 'Stitching software is enabled' is displayed.

## Stitching Images (continued)

To stitch multiple images together:

1. Go to **Manage**, then click on **Hot Buttons** and check the box **STITCH LAST TWO** and **STICH LAST THREE**.

☑ X (Study Layout 1X1)	☑ X   Y (Study Layout 1X2)	🖬 GRAB FRAME	
<ul> <li>X/Y (Study Layout 2X1)</li> </ul>	Z AUTO W/L	ROTATE IMAGE	
⊴ <> (MAX)	☑ RESET	DELETE LAST	
■ NEG	⊠ W/L	ORTHO PLAN	
ZOOM		SAVE SCREEN	
☑ PAN	🖬 ANG	■ PTR. TO LINE DIST.	
■ FREE STYLE	■ CLEAR	STITCH LAST THREE	
	■ NEXT SERIES		
■ PREV IMAGE	■ NEXT IMAGE		
☑ INFO	STITCH LAST TWO		
☑ SAVE JPEG	■ W/L PRESET		
■ LOCATE ON DISK	■ VOIP		
☑ MAGNIFYING GLASS	■ HISTOGRAM		
	SELECT MOUSE		
MANUAL SURGEON'S CHECKLIST	GUIDED SURGEON'S CHECKLIST		
	■ CINE		

The stitching feature is now enabled.
2. Go to **Manage**, then **Preferences** and check the box **Auto Crop Stitched Images** This option removes a portion of the image surrounding the stitched area and makes the resulting image appear more seamless.

o English	<ul> <li>French (Français)</li> </ul>					
<ul> <li>Spanish (Español)</li> </ul>	● Chinese (简体中文)	•文GB18030)				
• Other						
DICOM Receiver Setting						
● Run as a thread ● Run as a service						
IP: 192.168.168.118 Promiscuous Mode						
DICOM Port 104	Apply					
Preferences						
Viewer on CD	Radlink Lite	<ul> <li>Anonymize On Export</li> </ul>				
Enable HTTPS for PACS	Auto Crop Stitched/Frame Grabbed Images	■ Refresh Local Studies				
Save Settings Before Exiting	■ Enable On-Screen Keyboard	■ Logging				
☑ Auto Login	Rad Workflow Optimization	Auto Refresh Worklist				
Window Level Sensitivity (1-100)	40					
Default Author on Report	Last Name	First Name				
Date Format	MM/dd/yyyy	·				
Report Format	DICOM Structured Report	•				
Report Image Height	500					
Report Image Width	400					
VOIP	Skype	-				

3. After shooting X-Ray images, set up marker template. Use "Image Cropping" function to crop out marker from image.





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4. To get better quality, use W/L or ROI to make marker look clear.



5. Use "Save to JPEG" button to save the image as "C:\DR\_DATA\templateImage.jpg".



6. Use W/L or ROI to adjust the images that you want to stitch, make the marker clear and similar to the template.



7. Select an image, and click "Stitch last two" or "stitch last three".



8. When the stitched image showed up, use tool at right to change stitched image if needed. Then click "Done".



The final stitched X-ray image is displayed. To stitch three images, you can use "Stitch last three" button. For more than 3 images, you can stitch them one by one.

#### **Panoramic view**

Panoramic view is a new feature introduced in version 3.8.1.4. To have this function enabled, contact Radlink to acquire the license with Pano function.

The Pano function can automatically construct a panoramic view based on a live image stream. The "Pano" button is shown below.



To get a panoramic image, follow the following steps. Note: Patient direction should be either right to left or left to right.

1. Click on "Pano" button to open Pano Window.



#### Panoramic view (continued)

2. When the fluoro is ready, click "Start Pano" button on the Pano Window. During scanning, the panoramic image at the lower part of the window will keep updating itself as each new frame is coming in.



3. When the rightmost/leftmost position has been imaged, click the "Stop Pano" button. To save result, click the "Save" button.



# Panoramic view (continued)

4. The panoramic image will be added to the last image of the current study.



#### **Static Panoramic view**

Static Panoramic view is a new feature introduced in version 3.8.1.5. To have this function enabled, contact Radlink to acquire the license with Pano function.

The Static Pano function can automatically construct a panoramic view based on static grabbed images. This function stitches all grabbed images together to generate a panoramic view in real time. The "Pano Static" button is shown below.



To get a static panoramic image, follow the following steps. Note: Patient direction should be either right to left or left to right.

1. Click on "Pano Static" button to open Pano Window.



#### Static Panoramic view (continued)

2. When the fluoro is ready, click "Grab Frame" button on the Static Pano Window when there is appropriate motion between two frames. During scanning, the panoramic image at the lower part of the window will keep updating itself as each new frame is coming in.



3. When the rightmost/leftmost position has been imaged, click the "Save" button to save the shown result.



### Static Panoramic view (continued)

4. The static panoramic image will be added to the last image of the current study.



#### **Backup/Restore ViewPro Folder**

You are allowed to set up a backup folder in order to backup all the data in ViewPro folder.

- 1. Go to Manage, and then click Performance
- 2. Click Browse under Application to setup a backup folder.
- 3. Click Backup to copy the files from the Home Folder to Backup Folder

VRadlink Select Study   Scan   QC Image   Complete Study   Print   Send   Burn CD	Manage
System Performance Setting	Logout
Memory Buffer HWM (MB) 200	System Mode
Memory Buffer LWM (MB) 100	PACS/RIS
Disk HWM (%) 90 Browse For Folder	Destinations
Disk LWM (%) 50	Send Status
Delete Studies Older Than (Days) 30	DICOM Printers
Local Database Rebuild P is CR ho User	Performance
P      Control Panel     Decycle Bin	Hot Buttons
CApplication	Worklist
Working C:\Users\CR Pro Use Browse	Preferences
Home Folder Apply	CR Setup
r Backup	Required Fields
Study Date Errom 05/13/2014 • To 05/13/2014 •	Pre-Fetch Agent
	Help
	Save Settings

You may check the **Delete After Copy** box, and ViewPro will delete files in the **Home Folder** after importing them into the **Backup Folder** 

**Note:** You may set the study date to narrow down the files you need/choose to backup.

### Backup/Restore ViewPro Folder (continued)

To restore the files from **Backup folder** back to **Home folder** after the backup:

- 1. Go to Manage, and then click Performance
- 2. Click Browse under Application to set the **Backup Folder** path as **Home Folder**.
- 3. Click **Apply** button.
- 4. Go to Select Study window

1	Radlink Select	Study   Scan	QC Image   0	Comple	ete Study   Print	Send   Bur	n CD						Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	Modality	StudyDTTM	Report	Images	Workflow State	New Patient
•	0000000000000	JONES	MIKE		02/13/1946	35		CR	05/13/2014 10:00		1	COMPLETE	New Study
	000000000000	Jones	Indiana	м	02/01/1964			CR	05/13/2014 10:25		1	INCOMPLETE	۲ <sup>Worklist</sup>
													Today -
													And
													Study Date
													E
													Rationt Name
													Modality
													Pages
													Prev Next
													Search
													Reset
													View
													Delete
													Report
													Restore
													Ready

The **Restore** button shows up at the right bottom.

5. Select the studies that you want to restore by highlighting all the desired studies

# Backup/Restore ViewPro Folder (continued)

#### 6. Click Restore button

V	Radlink Select	Study   Scan	QC Image   0	Comple	ete Study   Print	Send   Burr	n CD						Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	Modality	StudyDTTM	Report	Images	Workflow State	New Patient
•	0000000000000	JONES	MIKE		02/13/1946	35		CR	05/13/2014 10:00			SCHEDULED	New Study
	000000000000	Jones	Indiana	м	02/01/1964			CR	05/13/2014 10:25				۲ <sup>Worklist</sup>
													Today ·
													And Origination Hos
													Study Date 05/13/2014
							_						ID
						-							Patient Name
						Kestoring studie	s nas completed successf	DK					Accession Modality
							_						Pages
													Prev Next
													Search
													Reset
													View
													Delete
													Report
													Restore
													Ready

A message will pop up indicating that restoration of the files has completed successfully.

7. Click OK

# Backup/Restore ViewPro Folder (continued)

- 8. Go to Manage, and then click Performance
- 9. Click **Default** button for the **Home Folder** path setting.

VRadlink Select Study   Scan   QC Image   Complete Study   Print   Send   Burn CD	Manage
System Performance Setting	Logout
Memory Buffer HWM (MB) 200	System Mode
Memory Buffer LWM (MB) 100	PACS/RIS
Disk HWM (%) 90	Destinations
Disk LWM (%) 50	Send Status
	DICOM Printers
	Performance
	Hot Buttons
	Worklist
Working C:\Users\CR Pro Use Browse Changing nome toder to default has completed successfully.	Preferences
Home Folder Apply	CR Setup
	Required Fields
Study Date From 05/12/2014 - To 05/13/2014 -	Pre-Fetch Agent
To Folder C:\User\CR Pro User\D	Help
	Save Settings

10. Click the **Apply** button

#### **Workflow States**

**Note:** The Workflow States are a configurable portion of the Radlink Pro Imaging software. All fields may be customized to display information that the end user will define for the software.

It is required that Microsoft Word be used to take reports in this functionality. Microsoft Word is sold separately.

#### In this example:

The Radlink embedded ThinPACS is configured with a list of workflow states that best suits the needs of the site. The complete list of workflow states is:

Workflow State	Description
ARRIVED	When a study first arrives at the PACS, its state is ARRIVED.
VERIFIED	The completeness and accuracy of the study has been verified.
DICTATED	A report has been dictated for the study.
FINALIZED	The report has been approved and finalized.

A site can be configured with a subset of the states "**ARRIVED**, **VERIFIED**, **DICTATED**, **FINALIZED**".

If a site is not configured with Workflow States, the following buttons will not be present.

If the site is configured with Workflow States, the software will take the following sequence.

If a site is configured with the full set of workflow states, the status of the **Workflow State** column would be as follows:

- 1. Go to Select Study
- 2. Select the desired study that you want to view

V	Radlink Select	Study   Scan	QC Image   C	Comple	ete Study   Print	Send   Burr	n CD						Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	Modality	StudyDTTM	Report	Images	Workflow State	New Patient
•	0000000000000							CR					New Study
	000000000000	Jones	Mike		02/13/1946			CR	05/16/2014 11:44		1	FINALIZED	f Worklist
													Today -
													And Origination Hos
													Study Date
													05/16/2014
													Patient Name
													Accession Modality
													Referring
													Pages
													Prev Next
													Search
													Reset
													View
													Delete
													Report
													Ready

In the example case above, the highlighted study has a Workflow State of "**ARRIVED**", meaning the study has arrived to the PACS destination.

3. Click the Verify button.



**Note:** In this example, the button which has been custom defined is the **Verify** button at the top of the software. The action that has been defined when this button is pressed is that the software will verify that all of the images that were supposed to be sent with the study have properly arrived.

4. Click the **Dictate** button.



Note: In this example, the software was able to properly verify that all of the images that should have arrived have successfully been transferred. The button at the top will now read the next custom setting, **DICTATE**, and the **Workflow State** of the study changed to **VERIFIED**.

5. Click SUBMIT to submit the report

👰 Report					
Save Report	<u>Eile Edit View Insert Format Iools Table Hel</u>				Type a question for help 🔹 🗙
Submit	🗄 🖬 🖬 🕞 🖓 🖓 🖏 🖄 🗞 🛷 🛙	9 • 🗠 •   💋 • 🧶 🧊 💷 🌆 🎫 🦓   🖓 ¶ 150%	🔹 🞯   🕮 Bead 💂 🗄 🗛 Normal + Bold 🔹 Times New R	toman 🔹 12 🔹 🖪 🖌 💆 📑 🗃 🗮 🏣 🏣 🗄	連連 🕮 - 🕙 - 🛕 - 💂
Cancel					
Query Template					
Name					
Key					
		Testing			
Templates		Testing			
	Forms abl 🕫 📑 😭				E
					L
Query Shortcut					
Name					
Kou					
Shortcuts					
					*
	= 0,0 2 0 1		117		*
					Ready

**Note:** A report window for the current study will be brought up for the user to make notes to. There is a **SUBMIT** button on the left side for when the user has completed all of the notes for this study.

6. Click the **Review Report** button.



<u>Note:</u> The **Dictate** button will now show **Review Report** and the state of the study will be changed to **Dictated** 

<u>Note:</u> When the report is at the **Dictated** state, multiple edits can be made before finalizing of the report

7. Click the Finalize button

🤌 Report		
	Elle Edit View Juset Format Tools Table Help	Type a question for help 🔹 🗙
Save Report	🗈 🕋 🛺 🚡 🗇 🚰 🐧 🖓 🏨 🕺 🖧 🏈 🗢 🗤 🖉 🕉 😓 🖉 💭 🐨 🥘 🐨 🕼 🗰 🦓 🖓 📲 1995 👘 😨 🖓 🖓 📲 1995 👘 😨 🖓 🖓 📲 1995 👘 😨 🖓 🖓 📲 1995 👘 😨	4) 🖽 • 🚧 • <u>A</u> • 💂
Finalize		
Save		1
Cancel		
Guilder		
Query Shortcut		
Name		
	Testing	
кеу		
Shortcuts	Confirm	
·		
	[former vv]	
۲		
Delete		
Save Shortcut		
Name		
Key		
Save		
		÷
		•
		Dec 4:

<u>Note:</u> A report window for the current study will be brought up again for editing with both **Save** & **Finalize** buttons available.

• By Clicking the **Save** button, the report window will be closed and the workflow state will continue to read as the **Dictated** state. The user may continue to add notes at this point.

V	Radlink Select	Study   Scan	QC Image   C	Comple	ete Study   Print	Send   Bur	n CD						Manage
	ID	Last Name	First Name	Sex	Dob	Accession	Description	Modality	StudyDTTM	Report	Images	Workflow State	New Patient
•	000000000000	Jones	Mike		02/13/1946			CR	05/16/2014 12:00		1	FINALIZED	New Study
	000000000000	Jones	Mike		02/13/1946			CR	05/16/2014 11:44		1	FINALIZED	Worklist
													Today -
													And Origination Hos
													Study Date 05/16/2014
													ID E
													Patient Name
													Accession Modality
													Referring
													Pages
													Prev Next
													Search
													Reset
													View
													Delete
													Report
													Ready

<u>Note:</u> The **Review Report** button will now read as a **Report** button, and the state of the study will be changed to **FINALIZED** 

8. Click the **Report** button.



The finalized report will be opened in adobe PDF format for viewing and distribution.

#### Query by Multiple Workflow States

- 1. Log on PACS.
- 2. Select "Select Study". In "Workflow State", choose the state that you want to query. "Read" and "Unread" are defined as below.

Workflow State	Description
READ	Consist of REVIEWED, FINALIZED, FINALIZED + ADDENDUM states.
UNREAD	Consist of ARRIVED, PRELIMILARY states.

3. Click "Search" button.

ID	Last Name	First Name	Sex	Dob	Accession	Description	StudyDTTM	Workflow State	Local	New
test	TEST	TEST		01/01/1801			06/24/2014 10:35	FINALIZED+ADDENDUM		New
test	TEST	TEST		01/01/1801			07/10/2014 12:05	FINALIZED+ADDENDUM		_ ┌Search
addentest	ADDEN						08/26/2014 10:20	FINALIZED+ADDENDUM		Select Worklis
001	3816TEST	3816		02/29/2000	3816	YEAH!!	07/07/2014 14:44	FINALIZED+ADDENDUM		All St Hospita
0000000000000056							05/30/2014 14:35	FINALIZED+ADDENDUM		Study
000000000000006	52						06/20/2014 10:01	FINALIZED+ADDENDUM		ID
000000000000006	BEEPTEST						06/24/2014 15:24	FINALIZED+ADDENDUM		Patient
000000000000006	NEW PATIENT						05/28/2014 12:04	FINALIZED+ADDENDUM		Access
000000000000004	TESTING, TESTING			01/01/2001			05/28/2014 11:43	FINALIZED+ADDENDUM		Referri Workfle
test_cloud					test_cloud		06/09/2014 10:57	FINALIZED		Read
IUIDtest2	2						09/08/2014 09:49	FINALIZED		
DR Stitching Measurem							06/07/2016 14:46	FINALIZED	_	
00000000000047	JONES	INDIANA		02/01/1964		2	05/13/2014 10:25	FINALIZED		
00000000000014	3.7.0.17	TESTING		05/07/2014		TESTING	05/08/2014 14:09	FINALIZED		
00000000000014	3.7.0.17	TESTING		05/07/2014	29		05/09/2014 15:03	FINALIZED		Search
00000000000014	3.7.0.17	TESTING		05/07/2014			05/08/2014 11:39	FINALIZED		
00000000000014	3.7.0.17	TESTING		05/07/2014			05/08/2014 17:02	FINALIZED		View
00000000000000	99						06/20/2014 11:57	FINALIZED		Delete

All study with "Read" state are returned after the search.

#### **Report Template**

The Radlink Pro Imaging software allows users to define the layout of a report (a template) in Microsoft Word format, where it can also be saved to PACS.

- 1. Select the desired study and view it in the **QC Image** window
- 2. Click Report from hot button list to bring up the report window in Microsoft Word format
- 3. Select **Template** to modify templates.

🕖 Report	
Open Report	
Current Study	
Other Study	
Accession	
Template	
Next	
	·

# Report Template (continued)

- 4. Click the **Next** button
- 5. On the opened template editor, click **New** to open a blank report without the template or click **Open** to load new templates in Microsoft Word format from your PC.

🐉 Report		
Query Template	Eile Edit View Insert Format Tools Table Help	Type a question for help
Name		A .
Key		A
,		
Templeter		
Private Translater		
Private Templates     Dublic Reports		
Add Templa	late	
Add Folder		
Delete		
E	Forms • x	
	abl 🖂 📑 🖃 🗰 🛄 📿 🍙	
Open Search		
Save Template		
Name		
Key		
Save		
Query Shortcut		
autory charton		
Name		
Kau		•
ney		1
Shortcuts		
A •		•
		Ready

# Report Template (continued)

- 6. Edit template content
- 7. Click the **Save** button to save the report to PACS (which can be used in Workflow)

😢 Report				<u> </u>
Query Template	Eile Edit View Insert Format Iools Table Help		Type a question for help	- ×
Name		🖇 🟹 🥊 100% 🔹 🛞 🔛 Read 📕 🐴 Normal 🔹 Times New Rom	nan • 12 • B / U 圖書書畫語• 注注語課語 图• **• A• 】	
Кеу				f i
Templates				
Private Templates				
New Template		Radlink Template		
		_		
E	Forms 💌 🗙			
	abl 🗹 📑 🛃 🖃 🚟 🔳 📿 🍰			
Open Search				
Save Template				
Name				
Radlink Template 1				
Key				
Save				
Owner Chardent				
Query Shortcut				
Name				
Key				
· · · · · · · · · · · · · · · · · · ·				•
Shortcuts	= G ( ) ( ) ( )	m		•
· · ·				
				Ready

#### Lexicon/Shortcut

Radlink Pro Imaging software allows users to define/retrieve Lexicon/shortcuts

To create a new shortcut:

- 1. Enter the Name and Key under Save Shortcut column
- 2. Select desired text in Microsoft Word window
- 3. Click Save



### Lexicon/Shortcut (continued)

To query the shortcut:

- 1. Place the mouse in the Microsoft Word window at the point that you want to add the text of the shortcut.
- 2. Double-click the desired Shortcut Name under the Query Shortcut column.



The text of the shortcut will be added to your report.

# Surgeon's Checklist

#### Proprietary software designed by surgeons, for surgeons

Radlink has worked extensively with orthopedic surgeons who've helped design software that perfectly suits their needs in the OR. Radlink's "Surgeon's Checklist" offers easy to use scale calibration, distance and angle measurements, and easy to follow steps that guides hip surgeon's through the process of ensuring proper implant fit using both pre-operative and intra-operative images.

#### **Introduction**



The Surgeon's Checklist can be activated by clicking one of the hot buttons like this at QC Image window. The hot button is removable if you go to **Manage**, then **Hot Buttons** to uncheck the selection.

The checklist has 5 options to select from the pull down menu for different purposes. User should also select the Left or Right side of body that needs operation.



**Pre-Op HIP** is used for marks and measurements on the X-ray images of the patient before total hip replacement surgery. It has 3 sections which are all covered in **HIP** 

**HIP** is used for marks and measurements on the X-ray image of the same patient after total hip replacement surgery.

**ANTERIOR HIP** is used for marks and measurements for doing anterior approach incision.

KNEE is used for marks and measurements on knee X-ray images of the patient

Here are the five Checklists:





🖳 Surg	eon Che	cklist for A	nterior	_	<u>1</u> 2		×	
Checkli	st For		~		Left		aht	
1. Edu	cation	al Video	s 🗆	-				
		Vie	w Video	os				
2 Dec	ition D	ationt						
(1) F	atient s			table	Ì	-		
(1)1		a flaward 2	) E de en			Done		
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3. Lev	el Pelv	is for R	otation					
(1) C	enter C	arm ove	pelvis					
(2) T	ilt table	to right or	left to le	vel pe	lvis a	is need	ded	
		Che	ck Poi	nts				
4. Lev	el Pelv	ris for Ti	lt 🗌					
(1) C	enter C-	arm over	acetab	ulum				
	1		- -		D.:			
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	1		1	in real rock			-	
(3)	Overlay	/ Obturator	<u>C</u>	Check Points				
5. Ace	tabula	r Positio	n [	]				
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(2) (	(2) Continue impact out and shack impact							
(2) (								
	Check Points							

Note: User can write notes in the Surgeon's Notes at bottom of the checklist.
#### • Pelvic Tracker Workflow:

- Turn on the Pelvic Tracker. A blue light will turn on indicating the device is on. Position the patient in the Lateral-position prior to starting your THA, with the pelvis of the patient perpendicular to the ground (vertical). Using proper sterile technique, insert the Radlink Sensor into the isolation bag, probe cover, or a similar sterile bag enclosure. Carefully cut off the excess of the bag and seal the Sensor using a Tegaderm, IOban or another similar adhesive-based sterile wrapping material.
- 2. Once the Sensor is sealed and sterile-wrapped, place the Sensor on the patients' lliac Crest just above the incision, and secure the Sensor to the patient using IOban or a similar sterile adhesive tape.
- 3. Click the *Show Pelvic Tracker* button and wait for the model image to appear on the screen. The Pelvic Tracker can also be shown alongside the X-ray image by clicking the X|Y hot button and opening the Pelvic Tracker through Surgeon's Checklist in the second window.
- 4. Press "Reset Alignment" to Zero the Sensor to the initial position prior to beginning the THA procedure.
- 5. The rotation and tilt can be tracked by the numbers underneath the Pelvic Tracker model during the procedure. Prior to capturing your next x-ray, restore the "Rotation" output in the Pelvic Tracker measurements to ~0° (+/- 2-3°) depending on the physician's tolerance for imperfect pelvis position in the x-ray image.
- 6. If you find that the initial position was not exactly as desired, you can adjust the target position of the Sensor measurements by making a slight correction to patient position and then clicking the *Reset Alignment* button once the setup is complete.
  - e.g. If your first image of the pelvis is rotated ~10° too far forward, rotate the patient back ~10° and press the *Reset Alignment* button. The model will reset to the animated position and the Rotation and Tilt numbers will be reset back to 0. This will be the position and orientation that will be used to reposition the patient in any subsequential X-ray images captured.



7. Click the *Hide Pelvic Tracker* button to go back to the X-ray image.

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## HIP

#### Reconcile Position

1. Click the *Transischial or Teardrop Line* button and draw a line under the ischium or teardrop. Draw Trans-ischial line by drawing a line connecting the two lowest points on the pelvis (Ischial Tuberosity)



- 2. Click the S button and draw a line in the middle of the spine (mid sacrum).
- 3. Click the Sym button and draw a line between two pubis bones (mid symphysis).



If lines are not close to each other, the checklist will display a suggested rotation degree in red color on the left.

Re-do x-ray if necessary, make sure patient is correctly positioned after rotation.

Note: the lines are automatically set to be perpendicular to the Transischial or Teardrop Line

4. Click the *Pelvic Tilt* button, draw lines from left to right then top to bottom of the pelvis.



The calculated ratio is the length from top to bottom divided by left to right. An equal ratio will assure the pre-op and intra-op images are having the same position.

- Abduction Angle
  - 1. Click the *Right or Left ABD* button according to the side of the cup.
  - 2. Adjust the upper side to match the major axis of the cup and measure the angle



Note: Bottom side is parallel to the Transischial or Teardrop Line.

#### HIP

#### • Anteversion

1. Click *Major Minor Axis* button, draw the approximate major axis and minor axis of the cup.



Software will calculate the anteversion angle of the cup.

#### • Anteversion

- 1. Enter the desired cup size and angle in Cup Size(mm), ABD, Anterversion section.
- 2. Click Draw Ellipse button.



Software will generate an ellipse according to the data that user put in. So that doctors could adjust the cup position to match the ideal ellipse shape.

Note: Only one ellipse can be drawn on the image.

3. There is an option *Link* at the left of the section.

<b>V</b>	60	45	20	Draw
Link	Cup Size(mm)	ABD	Anteversion	Ellipse

Check this option will enable the ellipse on the current image to display on every image of the series that has **Link** option checked.

Uncheck the link will detach the current image from the linked group. User can change the ellipse without affecting other images.

#### • Limb Length TDL

- 1. Click RT Apex button, then click at the bone apex (lesser trochanter) of the right leg
- 2. Click LT Apex button, then click at the bone apex (lesser trochanter) of the left leg



Difference of the leg length will be calculated in millimeter.

**Note:** the measurement lines are automatically set to be perpendicular to the *Transischial or Teardrop Line* 

## <u>HIP</u>

## Limb Length TIL

1. Click *LLD* button, according to the point that Transischial line touched on one lesser trochanter, click same point on the opposite lesser trochanter.



- Offset
  - 1. Click *RT Center Point* button, then click the middle between the bones of leg and pelvis. Adjust the two endpoints of the line to the exact edge of the bones.
  - 2. Click *LT Center Point* button, then draw the line same as step 1 with the same distance away from the Transischial or Teardrop Line



Note: Offset measurements lines are parallel to the Transischial or Teardrop Line.

#### HIP

#### HIP

#### Assessment

- 1. Checkmark Cup Apposition once verified by surgeon
- 2. Checkmark Screw Length once verified by surgeon
- 3. Checkmark Canal fit/fill once verified by surgeon
- 4. Type in notes if necessary

Cup Apposition	🔲 Yes	🔲 No	
Screw Length	🗖 Yes	🗖 No	
Canal Fit/Fill	Accept		
	Change 1 Size		
	Change 2 Size		
Surgeon's Notes			

#### Cup Position

- 1. Click X|Y button and bring up the pre-op image side to side
- 2. Click Teardrop-Brim Line button and draw ilioischial line on both images



- 3. Enter ilioischial angle from pre-op image in the *Teardrop-Brim line's Normal Inclination*. Image will rotate so that horizontal line is now parallel to inter-tear drop line
- 4. Check left or right box to match left or right THA case



- 5. Click *Draw Ellipse* button, an ellipse will appear based on the input True Inclination and True Anteversion value.
- 6. Click *Detect Ellipse* button. Hold left click on the cup's edge to locate three best points to form an ellipse. Software will automatically create an ellipse based on the three points, True Inclination and True Anteversion angles will be generated as well.
- 7. Click the drawing board to change color of the ellipse.
- 8. Click Click Here to Move onto LLD/Offset to create a new series of study.



**Note:** There is a bullseye button at the top. Click it will bring out two axis and some marks for location assistance.

- Limb Length/Offset
  - 1. Click Mark Key Image, current image will be marked as key image. Click again to unmark it.
  - 2. Click Last Key Image, software will jump to the last key image in this series.
  - 3. Click Last Image, software will jump to the last image in this series.



- 4. Click *Show Edges,* software will automatically detect possible edges and mark them with yellow.
- 5. Click the desired edges and they will turn to blue.
- 6. Click Hide Edges, only the blue edges will be kept.



- 7. Click the button in the middle with two images overlaying. Select desired image.
- 8. Set operative image on top and move it around to determine LLD and offset. All the marks on that image will be carried over as red color. Use Hot Keys to do micro adjustments.
- 9. Click *Hide Overlay* to hide the image on top.
- 10. Level of transparency of overlaid image can be adjusted.



#### Hot keys:

- Page up/ Page down rotate overlaid image clockwise/counter clockwise
- Up/ Down move overlaid image up or down
- Left/ Right move overlaid image left or right
- +/ - change transparency of the top image

- 11. Stitching C-arm images.
  - 1) Draw teardrop-brim lines for both hip on the pre-op image

2) Draw the corresponding teardrop-brim line on each of the two c-arm image. Make sure the line ends at the end of the teardrop.

3) Stitch. The software will align the center of the teardrops horizontally.



- 12. Check *Interleave Pixels,* the overlaying image at the top will only display pixels at odd columns.
- 13. Uncheck Interleave Pixels to go back to regular image overlay.



- 14. Click Lighter, image will become Delta% lighter
- 15. Click Normal, image will go back to normal brightness
- 16. Click Darker, image will become Delta% darker



Delta percentage can be altered to increase or reduce brightness changing rate.

#### • AP VIEW

- 1. Click *Tibia-Femoral Axis* button
- 2. Draw a line along the femur
- 3. Draw a line along the tibia



Software will tell the angles for the two lines to reach parallel.

Angle is displayed on both image and Checklist.

#### • AP VIEW

- 1. Click Femoral Component button
- 2. Draw a line along the femur
- 3. Draw a line along the intersection of the femoral component artificial joint



Software will tell the angles for the two lines to reach perpendicular.

#### • AP VIEW

- 1. Click *Tibial Component* button
- 2. Draw a line along the tibia
- 3. Draw a line along the intersection of the tibial component artificial joint



Software will tell the angles for the two lines to reach perpendicular.

#### • LAT VIEW

- 1. Click Femoral Component button
- 2. Draw a line along the femur
- 3. Draw a line along the contact surface of femoral component and femur



Software will tell the angles for the two lines to reach perpendicular

#### • LAT VIEW

- 1. Click Tibial Component button
- 2. Draw a line along the tibia
- 3. Draw a line along the contact surface of tibial component.



Software will tell the angles for the two lines to reach perpendicular.

# Pre-Op HIP Reconcile Position, Limb Length and Offset are all covered in HIP

# Template

Create different sizes of simulated Acetabular Cup and Femoral Component to help find good fit for hip replacement.

# **Introduction**



The template can be activated by clicking one of the hot buttons like this Image.

A Template Planning window will appear on the left. User should also select the Left or Right side of body that needs operation.



#### Calibration

- 1. Click *Calibrate* button.
- 2. Click 25mm Marker button on the right side.
- 3. Find the metal ball on the image and click its center, edge will be automatically detected.
- 4. Type in 25 for the physical length then click OK.



Magnification Factor will be calculated as: default length/25 - 1

Since the actual size of the metal ball is 25 millimeter, the calibration assures all the planning and measurements are running under actual size.

- HIP
  - LLD
    - 1. Click the *Transischial or Teardrop Line* button and draw a line under the ischium or teardrop
    - 2. Click RT Apex button, then click at the bone apex of the right leg
    - 3. Click LT Apex button, then click at the bone apex of the left leg



Difference of the leg length will be calculated in millimeter.

**Note:** the measurement lines are automatically set to be perpendicular to the *Transischial or Teardrop Line* 

#### HIP

#### • Femoral Head

- 1. Click the Outline button
- 2. Draw a circle along the femoral head, software will generate the diameter of the circle



- Acetabular
  - 1. Click the *Browse* button.
  - 2. Select cup type and click OK.



- 3. Select Cup Size and a cup template will appear on the image.
- 4. Drag and adjust the cup to the desired position.



#### • Femoral Component

- 1. Click the *Browse* button.
- 2. Select component type and click OK.



- 3. Select Size, Offset and Type, and the component will appear on the image.
- 4. Drag it to the desired position.



5. Click the *INFO* hot button if user decided to hide the information of the template. Click again will bring the information back.


# Acquire a test image

Before the GPS system is used in a case, it is recommend that the user follows the instructions described in the next section to verify the WiFi communication between the FPD and computer is functioning properly.

## **Vieworks Flat Panel Detector**

- When communication is established with Vieworks panel. Click Windows Start button, type "Chameleonsetup" in the bottom search section. Select ChameleonSetup.exe from the search results.
- 2. User should see both "SCU" and "Detectors" section have a connected device highlighted with green status. (If no device is showing up, click **Refresh device list** at bottom right side and check if one of the three lights near power button showing solid blue. Restart panel if no light showing solid blue. Once the device shows up, double click to highlight)
- 3. Click Next. Click Diagnosis in the middle.
- 4. Click Get Normal Image at bottom right.
- 5. Click **ROI** at bottom. Hold left click and drag a rectangle on the image.

If you see a test image similar like this, it means the panel successfully sent an image to computer, so the connection is good.

Diagnosis Detector 1 : FXRD-1417WB (V6DADU616) (Temp: 42.3, Interface: Thether)	
Preview	Apply Offset On Gain On
	Effective Area Off Direction Off Frame Count 1 Pixel Value x: 903 y: 876 Value: 21
	Pickup ROI (0, 0), (0, 0) Min: 0 Max: 0 Avg: 0 Std: 0
W1 0 W2 55 Pan Zoom W/L Invert Fit Statistic ROI Zoom x1 Zoom x4	Save Image Close

6. Click **Close** to exit.

## Perkin Elmer Flat Panel Detector

1. When communication is established with the XRpad, click Windows **Start** button, type "xis" in the bottom search section. Select **xis** program from the search results.

#### 2. Press Enum / Setup GbIF Detector.

- 3. Press Init to initialize the XRpad for imaging.
- 4. The XRpad is now initialized in XIS and ready to image.
- 5. To configure a trigger mode, select **Options -> Detector Options**.
- 6. In the Detector Options window, select **Soft Triggering**.
- 7. To prepare to acquire a single shot, click **Acquire -> Single Shot**.
- 8. XIS is now waiting for a soft trigger to trigger the image acquisition.
- 9. Click Acquire -> Set Soft Trigger to bring up the software trigger window.
- 10. Click Single Soft Trigger to trigger the acquisition.
- 11. The image may appear black at first before it is windowed properly.
- 12. To window the image, left click with the mouse and continue to hold it down while dragging a rectangle around a region of interest. Release the left mouse button and click the right mouse button once. The image will be automatically windowed to the region selected in the red rectangle.

If you see a test image similar like this, it means the panel successfully sent an image to computer, so the connection is good.



13. Close the window to exit.

## **Thales Flat Panel Detector**

- 1. When communication is established with Thales panel. Click Windows **Start** button, type "pixrad" in the bottom search section. Select **Pixrad Viewer** program from the search results.
- 2. Click **Select** at top left
- 3. Choose config\_3543EZ folder, click OK. Wait for initializing.
- 4. Pick MODE1 under Application mode at bottom left.

		Acquisitio	n		
		්		Corrections	
5.	Click Start	Start	Stop	Preview	at bottom.

- 6. If you see the software show a test image with massive straight lines, it means the panel successfully sent an image to computer, so the connection is good.
- 7. Close the window to exit.

# **Chapter 4: Software Upgrades**

For instructions on how to reinstall the GPS software or upgrade to a later version, see:

http://radlink.com/usermanuals.html

To download the latest version of software, see:

http://radlink.com/downloads.php

If you are experiencing trouble with viewing instructions or downloading software, please contact your Radlink service provider.

# **Chapter 5: Troubleshooting**

This section addresses how to resolve some of the common problems using the imaging software.

## **Image Problems**

The information in this section is provided for general informational proposes only. Please refer to your x-ray manufacturer for techniques as well as hints on taking better images. Contact your authorized Radlink service provider for any problems you cannot resolve.



#### **Cause/Solution:**

When random vertical lines are present throughout an image it usually means that calibration needs to be performed. See the section on calibration.



#### **Cause/Solution:**

Overexposure is a possible result of using too much mAs.

To correct existing image, use window leveling (W/L). Decrease the mAs in future exposures



Grainy Image (Quantum Mottle/Noise)

# Cause/Solution:

If an image is grainy, it may be underexposed.

The user may need to increase the KVP and/or mAs.



Too white (underpenetrated)

#### **Cause/Solution:**

If an image is too white it may be underexposed because of low mAs or KVP settings.

To resolve, use window leveling (W/L). The user may need to increase the KVP and/or mAs.



#### **Causes/Solutions :**

1. The imaging algorithms are not compatible with the software. To resolve, view the image and select the **Image Processing** button and then select the **Default** button or another that yields the best image.

If a pop-up message appears that the processing of the body part is unsupported, call your Radlink service provider.

2. A raw (unprocessed) image was placed in the incoming folder. To resolve, follow the steps in step 1.



Mostly all white image when viewed from a burned CD

### Cause/Solution:

If the **Complete Study** button was not selected on the GPS before burning a CD, the image will appear nearly-all-white when viewed.

To correct, select the study, click **Complete Study**, and burn a CD again.

# **Send Status Indicates Error**

One of the things that could lead to an error is if the network went down that connects the GPS to a remote PACS (not the embedded Radlink PACS). In this case, the software will wait 15 minutes to re-establish connection before indicating an **Error** state.

Select Study	Select Study   Scan   QC Image   Complete Study   Print   Burn CD Manage										
؟ ا	Send Status -									٦	Exit Program
	Destinatio	n All		<ul> <li>Status</li> </ul>	All	•					System Mode
	Job ID	MRN	Study DTTM	# Images	Destinatior	CreatedDT	UpdatedD <sup>-</sup>	Retries	Status		PACS/RIS
	3	123456	20080201	1	PACS 1	2/1/2008	2/1/2008	10	Error		Destinations
	2	123456	20080201	4	PACS 1	2/1/2008	2/1/2008	0	Success		Send Status
	1	123456	20080201	4	PACS 1	2/1/2008	2/1/2008	0	Success		DICOM Printers
	0	123456	20080201	4	PACS 1	2/1/2008	2/1/2008	0	Success		Performance
											Hot Buttons
											Worklist
											Preferences
											CR Setup
											Required Fields
											Pre-Fetch Agent
											Help
				_	_	_					
	Cancel	8	Send				Prev F	Page	Next Page		Save Settings
										_	

To resend a study that is displayed with a status of **Error**, highlight it and select **Send**.

The system will try again 10 times to send the study to the destination.

# Send Status indicates Error (continued)

If the error still exists:

- 1. Select Manage
- 2. Select **Destinations**
- 3. If there is more than one host, highlight the host listed in the Send Status' **Destination** column that contains an **Error**.
- 4. Click the **Ping** button to ensure that the Destination settings are correct. If successful, the below window will be displayed.
- 5. If the **Ping** is unsuccessful for the destination in question, you will need to contact your Radlink service provider for further assistance.

DICOM ping to PACS 1 completed successfully.
ОК

# Can't read a Burned CD

Most likely the problem is the .NET framework 2.0 is not installed on the PC in which the CD is inserted.

Here are instructions for installing the batch file that will install the required files:

- 1. Start > Run
- 2. Enter your CD drive letter and path. For example: D:\ViewProLightSetup.bat
- 3. Select Ok
- 4. Follow on-screen instructions
- 5. After installation has completed, eject, and then re-insert the CD

The optional e-Film Lite viewer may be used instead of the default Radlink Lite viewer. See the **Burning a CD** section.

## A Burned CD doesn't contain markers

This can be caused by not selecting **Complete Study** before burning the CD.

# No connection with PACS server

If the following pop-up window appears, the connection to the PACS server is not established. Please refer to Chapter 1: Configuring the PACS Server Settings.

Search Failed: DicomService module unable to establish DICOM connection. Please check the DICOM connection setting
ОК

#### The following applies to a Radlink GPS unit

If a user clicks **Log Off** in the window below instead of **Switch User**, the PACS service may shut down.



One method to fix this problem is to simply restart the GPS:

#### Start > Turn Off Computer > Restart

# **Chapter 6: Appendix**

This section describes the set of features according to menu.

# **Select Study Menu**

#### **New Patient**

Used to create new patient and study information before a scan is performed.

#### **New Study**

Used to carryover existing patient information before a new scan is performed. To use, highlight desired study by clicking in the left most column in Select Study window and press New Study.

#### Worklist

A pull-down menu of available pre-defined dates is displayed

Selecting a Worklist value will do the following:

Today – display all studies with the current day's date Past 2 Days – display all studies with the current day's date and yesterday's date Past 7 Days – display all studies within the last week Past 30 Days – display all studies within the last 30 days All Studies – display all studies regardless of date

#### And

Used in conjunction with Worklist and Search. Consists of 4 fields:

> PATIENT ID (aka Medical Record Number or MRN) PATIENT NAME (must be last name) ACCESSION DATE RANGE

After specifying one or more **And** field(s), the Search button or Enter key must be selected.

#### Pages

Next – displays the next group of studies Prev – displays the previous group of studies

#### Search

When Search is selected, the studies that match the Worklist and the fields in the **And** section are displayed.

#### Reset

Resets the Worklist to Today and inserts the current day's date into the DATE RANGE field.

#### View

Downloads selected studies to your local hard drive so that they may be displayed faster the next time they're selected. To use, highlight one or more studies by placing the cursor in the leftmost column next to the study and click. The row will appear highlighted. Then press the View button. To highlight multiple studies hold down the CTRL key while making selections and then press the View button.

#### Delete

Deletes the GPS's local images for each highlighted study. Note that any studies that were previously stored to a PACS are not deleted.

#### **Column Headings**

Studies may be sorted in forward or reverse order by selecting the desired heading. A second selection will toggle the sort order.

## Scan Menu

Once a study has been created or viewed, the Scan tab may be selected. The scan window is used to select the exam techniques and initiate the scan.

#### **Body part**

A pull-down menu of the available body parts. These may also be selected by selecting the corresponding area on the anatomical man. Depending on the body part that is selected, the values for KVP, mAs, and Gain will automatically default to preset values that can be manually changed.

#### View

Depending on the body part chosen, selection of any of the available views may automatically change the KVP, mAs, and Gain values.

#### Size

The approximate size of the patient. Depending on the body part chosen, selection of any of the available sizes can automatically change the KVP, mAs, and Gain values.

#### KVP

The peak voltage applied to an x-ray tube, expressed in kilovolts.

#### mAs

The electric charge in milliamps that flow through the x-ray tube per second. The KVP value times mAs equals power in Watts, or Joules per second.

#### Gain

The light absorbed by the phosphor plate in the cassette is amplified based on the gain setting.

#### Save

Saves any custom settings for fields KVP, mAs, and Gain.

#### Start DR

Activates the GPS digital panel to receive X-rays and form images. When finished, the image is post-processed and displayed in the QC Image window.

#### **Demo Scan**

Set by selecting CR Demo or DR Demo button in Manage/System Mode/Image Acquisition, it simulates a scan. A sample chest in CR Demo or a sample hip or knee in DR Demo x-ray image is post-processed and displayed.

#### **New Series**

Create a new series for segmenting scans by modality or body part into a separate folder.

#### Change Info

Change the Patient Information and Study Information fields for the current exam.

## **QC Image Menu**

#### **Image Orientation**

RL – Rotate Left. Rotates selected image 90 degrees to the left side.

**RR** – Rotate Right. Rotates selected image 90 degrees to the right side.

FV – Flip Vertically. Flips the selected image 180 degrees up/down.

FH – Flip Horizontally. Flips the selected image 180 degrees left/right.

#### Image Appearance

**W/L** – Window Leveling. Allows the adjustment of the contrast of the selected image. Select the image and move left or down to lighten and right or up to darken

**ROI W/L** – Region of Interest Window Leveling. Allows the adjustment of the contrast and brightness within a defined area of selected image.

**NEG** – displays a negative of the selected image.

**ZOOM** – enlarges selected image.

**PAN** – moves selected image.

#### Image Cropping

Create a magnified image of a selected area.

#### Add Markers

Allows the placement of Left, **R**ight designators, and customizable text strings using **Define**. Once placed, they may be removed by selecting and dragging off the image.

#### Image Processing

The selectable algorithm buttons which are based on the selected body part, reduce noise and artifacts and sharpen image structures, making them easier to view and promote a better diagnosis.

#### Delete Image

Removes a scanned image from the active image window.

#### Studies (left margin)

In Image Acquisition mode, all studies under the same ID number will be displayed at a time on the left side of the main view (note that Viewing Workstation mode shows all studies). Below Studies are Series, and Image information. The number for each is indicated. You may select these to display the desired images.

#### <u>Pano</u>

In the pano window, a panoramic image can be created using a live image stream.

#### For example:

Studies	
20060920, L/S	<- Study 1 (StudyDTTM/Modality)
(1) (1 images)	<- Series 1, 1 image
(2) (3 images)	<- Series 2, 3 images
(3) (5 images)	<- Series 3, 5 images

# **Hot Buttons**

#### Settable in Manage > Hot Buttons

#### **Default buttons:**

X – displays a 1x1 grid

X | Y – displays a 2x1 grid

**X / Y** – displays a 1x2 grid

AUTO W/L - restores window leveling to original setting

W/L - allows user to window level by adjusting brightness & contrast

**RESET** – restores all Image Orientation, Image Appearance, Measurements, and Annotations customizations to their original values.

**INFO** – overlays patient information on image.

 $\leftarrow$   $\rightarrow$  expands the window to full screen size

 $\rightarrow$   $\leftarrow$  restores the window to default screen size

**REPORT** – Brings up the Structured Report window which allows the entry of clinical notes. **Pano** – Brings up the pano window which allows a panoramic image to be created

#### Measurements:

**LINE** – allows the placement of a line between two points on an image and determines the resulting length in millimeters.

**ANG** – allows the placement of two lines on an image and determines the resulting angle in degrees.

Once placed, lines or angles may be individually removed by selecting their midpoints and dragging them off the image.

#### **Annotations:**

**FREE STYLE** – allows the placement of freehand drawing to an image.

**CLEAR** – removes all freehand drawing from selected image.

#### <u>Series</u>

**NEXT** – displays the next series of images in selected study

**PREV** – displays the previous series of images in selected study

#### <u>Image</u>

NEXT – displays the next group of images in selected series

**PREV** – displays the previous group of images in selected series

## Optional Buttons (Can be found in Manage > Hot Buttons)

ZOOM – enlarges an image (drag cursor from top left to bottom right of screen)
 PAN – moves the viewing window to a different region of the image you a looking at
 SAVE JPEG – saves a JPEG version of the current image on the active window
 LOCATE ON DISK – locates the current image on the local drive (acquisition folder)
 MAGNIFYING GLASS – tool for magnifying specified area of image
 NEG – displays a negative version of the image (black/white are switched)
 STITCH IMAGES – stitches two desired images together
 W/L PRESET – opens menu for saving and calling saved window-leveling values
 HISTOGRAM – graph showing data distribution of current image

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**CINE** – play a series of images cinematically

**ROTATE** – rotate image to any angle around its center point

**GRAB FRAME** – grab frames from the targeted device

**SURGEON'S CHECKLIST** – offers easy to use scale calibration, distance and angle measurements for orthopedic surgeons

**ORTHO PLAN** – create virtual components to estimate the best fit for orthopedic surgery

**DELETE LAST** – delete the latest annotation user made on the image

SAVE SCREEN – capture the current screen and save it under the current study

#### Thumbnail Images

Small .jpg images called thumbnails are located at the bottom and may be selected for display in the main window(s). Note that for the MR modality images, only one thumbnail will be displayed.

**Key Image** – in order to identify important images, thumbnails can be marked as key images by pressing "k" on the keyboard, a yellow frame will appear around the selected thumbnail. Press "k" again to unmark the thumbnail.

# **Complete Study**

This button stores the currently viewed study and all its images, markers, lines, angles and freestyle annotations, to the active destinations specified in the Manage/Destinations window.

## Print Menu

In the **Printers** section, a checkbox will appear for each printer that was previously added including the Windows default printer. For information on adding or removing DICOM printers, see **Manage** > **DICOM Printers** 

Print – prints the displayed image to the printer(s) checked under Printers heading.

**Preview** – applies only to the Windows default printer. Displays how the image will appear when printed.

**True Size** – when checked will print the actual size of the image (DICOM printing only) True Size when unchecked will fit the image to the film size (DICOM printing only)

Layout – Allows multiple images to be printed on one film (DICOM printing only)

Print Series – Prints every image in the selected Series.

Print Study – Prints every image in all Series.

# Burn CD Menu

Studies may be burned to a CD and inserted into a different GPS or a PC for viewing. A defeatured version of either the Radlink (default) or e-Film viewer is stored on the CD along with the study information.

To select the viewer, go to Manage/Preference and set the Viewer on CD field.

## Manage Menu

#### **Battery Percentage**

Radlink Pro Imaging software will have panel battery percentage displaying at the top right corner under DR Perkin Elmer system mode.

#### <u>Logout</u>

This button closes the Radlink Pro Imaging software window.

<u>System Mode</u> – allows the selection of Image Acquisition or Viewing Workstation. Image Acquisition - contains most of the features of Viewing Workstation plus the ability to create studies, receive images from the GPS systems, and perform additional image enhancements not available in the Viewing Workstation mode.

**DR Perkin Elmer** – PerkinElmer flat panel X-Ray detector that performs real-time digital x-ray imaging, mode to operate Radlink DR Pro & GPS.

**DR Vieworks** – Vieworks flat panel digital radiography system, mode to operate Radlink DR Pro & GPS.

**CR Pro** – Mode to operate Radlink CR Pro unit.

Laser Pro – Mode to operate Radlink Laser Pro unit.

**Frame Grabber** – Mode to grab images from targeted device by using epiphan VGA Frame Grabber.

DR Thales – Thales flat panel detector, mode to operate Radlink DR Pro & GPS.

**DR Demo** – Simulate DR scans, a sample hip or knee post processed x-ray image will be displayed for demonstration.

**CR Demo** – Simulate CR scans, a sample chest post processed x-ray image will be displayed for demonstration.

Save Settings – saves the System Mode setting.

## PACS/RIS (Picture Archiving Communication Systems/Radiology Information Systems)

The server repository for images (PACS) or patient tracking and scheduling (RIS) is selectable in Worklist.

The following fields are displayed under the PACS Server Setting window:

**IP** - the physical network node address of the PACS server.

DICOM Port - the logical port of the PACS server.

AET - Application Entity Title is the user chosen name of the PACS host

WEB Port -default outbound Web request port

**Compression** - save viewed images from a Radlink PACS to: C:\Documents and Settings\CR Pro User\ViewPro\images in compressed formats: None, Lossless, Lossy High Quality, Lossy Medium Quality, and Lossy Low Quality.

• The same settings (except Compression) are available under **Modality Worklist Setting Save Settings** – saves the PACS information.

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#### Destinations

These settings allow you to specify the destination(s) that will receive the images you've scanned when you select Complete Study.

Save Settings – saves the Destinations settings.

### Send Status

Send Status is used to verify that a study has been successfully stored to the active destinations listed in the **Destinations** tab within Manage in the Radlink Pro Imaging software.

**Cancel** – after sending a study to a destination, if it is listed in the 'Executing' state, the transmission can be cancelled by highlighting the study and selecting Cancel. If a study is in any other state such as Pending, it cannot be cancelled.

**Send** – if a study is displayed in either Cancelled, Error or Unknown states, highlighting the study and selecting Send will attempt to re-send the study to the destinations.

#### **DICOM** Printers

Specifies the printer parameters and allows printers to be added and removed.

**Test Status** – provides feedback on the availability of the specified printer. Add printer – allows addition of a DICOM printer **Remove printer** – removes the highlighted printer. Film Size – allows the selection of the following film sizes: 14INX17IN, 14INX14IN, 11INX14IN, 10INX14IN, 10INX12IN, 8INX10IN. Save Settings - saves the DICOM printer information. Performance

The defaults under the heading System Performance Setting are: Memory Buffer HWM (MB) = 500 Memory Buffer LWM (MB) = 250 Disk HWM (%) = 90Disk LWM (%) = 50Delete Studies Older Than (Days) = user defined Application Disk Drive = C

HWM stands for high watermark LWM stands for low watermark

When studies are viewed for the first time they are copied to the local disk drive along with their thumbnails so that subsequent views will be more efficient in terms of the display time. The above parameters apply to these local files.

For example, if the memory allocation exceeds 500MB, the system will automatically try to release local memory to reach the lower watermark setting of 250MB. The same applies to the Disk watermarks. Files are removed if they occupy 90% of the disk, which is defaulted to the C drive, until they occupy 50% of the disk capacity.

Studies can also be automatically cleared from the local hard drive after a specified number of days by populating the Delete Studies Older Than field.

Local Database Rebuild – the studies.xml file (local database) can be rebuilt automatically by clicking this button. This file may need to be rebuilt in the case of if being deleted or corrupted.

## Worklist Fields

The Select Worklist Fields section specifies the column headings that will appear in the Select Study window.

**Beep** option under this section will let user hear a beeping sound as the new study arrives in the study list.

The Select Server section determines whether the PACS or Modality Worklist settings (see Manage > PACS/RIS) will be used in the Select Study window.

## **Preferences**

**Select Language** – select English, French, or Chinese (simplified), or Spanish user interface. **DICOM Receiver Setting (optional- purchased separately)** – The IP and DICOM Port values can be used to allows the reception of DICOM images from any networked DICOM storage device such as another Viewing workstation or GPS.

**Viewer on CD** - Specifies the default viewer that will be used when Burn CD is performed. **Enable Study List Scrollbars** – useful when there many studies for a patient that overflow the window list.

**Enable On-Screen Keyboard** – used for touch screen displays. Whenever a text field is selected, a keyboard is displayed. Uncheck for non-touch screen displays.

Auto Crop Stitched Images - removes a portion of the image surrounding the stitched area and makes the resulting image appear more seamless.

**Refresh Local Studies –** displays images from the PACS (if present) rather than from local drive.

**Save settings before exiting –** automatically performs Save Settings when the software is exited.

**Default Author on Report** – used to set the default doctor name in a report so that you don't have to manually re-enter it each time.

**Date Format** – allows the selection of date formats MM/dd/yyyy (month, day, year), yyyy/MM/dd (year, month, day), and dd/MM/yyyy (day, month, year). The date format selection will appear on the display for Select Study, QC Image, and Print menus.

## CR Setup

Calibrate – see Calibration section in Chapter 2

Erase Plate (button) – erases a cassette based on the number of iterations.

**Iterations** – the number of times a cassette will be erased when Erase Plate is selected. **Reset Plate** – if stuck, retracts the plate back into cassette.

Save QC Images - saves the pre-processed or raw images to local hard drive.

**Erase Plate (checkbox)** – if unchecked, will not erase plate after a scan. Useful for demonstration purposes.

**Bit Depth** – used when connecting CR Pro to high-definition monitor.

**Flip Chest AP/PA Images** – when checked, will automatically flip an image horizontally if body part is chest and view is AP/PA. Useful when x-ray is taken with patient's back to plate.

## **Required Fields**

When checked, these patient and study information fields must be completed when creating a New Patient.

#### Setting up Pre-Fetch Agent

The Pre-Fetch Agent feature allows you to specify which images to automatically download to your local hard drive. This will save the time of downloading the images from a Radlink PACS to your local drive in order to view them.

#### <u>Help</u>

The Help section contains selectable hypertext links to Radlink's website, email, address, and software updates.

#### Save Settings

After making any changes to the Manage menus, be sure to click the **Save Settings** button. This will record and implement your settings if the system is restarted.

# This completes the Radlink GPS Software Guide for Human Imaging – Version 3.8

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