Training & Setup Manual



www.2020imaging.net · 866.734.6234

Current Retrofit X-Ray w/ HG+ DR Panel Database v 2.3.3.x

Chiropractic specific Guide

Last Edited: October 22, 2013



1. Pre-Install site survey

a. Cabling

- 1. Note location of electrical outlets and network connections.
- 2. Site must have ethernet ports at the location of both the Desktop PC (Server) and Acquire PC (Laptop), or if using an all-in-one PC, one ethernet port available. They must be connected to the same network and have the ability to communicate with eachother.
 - Note: Network drop should be in the xray room for the laptop, it must be hardwired.
- 3. Site must have internet access (will be used to support system).

b. Power

1. Note where equipment is to be placed and lay out cable management.

c. X-Ray location

1. Talk with staff about placement of computer equipment.

d. Training list and times

☐ Confirm setup & location of server, laptop, and any carts needed for system
☐ Confirm training time/date, and people attending -2hrs set aside for training time (x-ray techs and doctors), with optional 1-2hrs practice time
☐ Confirm assistance time/date -depending on their schedule, 1-8hrs available time



2. System Components

a. Inspect Container

- 1. Check condition of boxes and notify 20/20 Imaging immediately if Carrier has not been made aware of damage.
- 2. Make sure all boxes have arrived and notify 20/20 of any problems.

b. Inventory	☐ Re-Installation discs
C-DR □ Panel (USB integrated) □ 15' USB Repeater (extension) Cable □ Power Supply □ A/C Cable	 □ 5 Blank CDs □ 2 External Hard Drives (backups) □ 1 Battery backup w/ surge prot. □ 1 Standard surge prot. □ 1/2 CAT 5 Ethernet Cables
☐ Calibration CD ☐ Calibration Plate	*On Full Lenth, Upright Installations, order the following: -Additional kit consisting of counter weights, brackets (2)
Retro-fit Cabinet ☐ Cabinet with Brackets & Screws	for counter weight cables, and bracket extensions (4) for wheels
☐ Anti-Scatter Grid (10:1 ratio – focusing distance must be specified at time of order)	-Anti-Scatter Grid should be ordered "NOT ENCASED"
PC (Server) Tower (/acquire if applicable) ☐ Tower	c. Recommended Tools
☐ Keyboard ☐ Mouse	☐ Drill and bits ☐ Level & Ruler
☐ Software package ☐ A/C Cable	□ Large Philips screwdriver (P3 size)□ Large Flathead screwdriver (P3 size)□ Wrenches
☐ Monitor w/ cables	☐ Tap & Die set☐ Extra counterweights
Laptop (Acquisition machine, if applicable) □ Laptop	



☐ A/C Cable w/ power supply

3. PC Setup (pre-calibration)

a. Install PC(s) (2PCs, or All-in-One)

1. Completed PC setup examples at location as directed by office.





b. Checking Components & Logon

- 1. Make sure PC & Monitor are both plugged in and turned on
- 2. Check DR Panel to make sure USB and power cable are both plugged in. Power should be lit green. If not, ensure power switch on A/C adapter is on, as well as plugged in.
- 3. Log onto Windows; user crudential provided with equipment, or call in to 20/20 Support for current user/password.
- 4. Log onto OpalRad/Spectacle (icon on Desktop) with your username and password provided *Default user account: user- admin password- 2020tech

c. Install C-DR Sensor

- 1. Unpack Sensor and set aside calibration CD and grid, you will use these to calibrate.
- 2. Remove Sensor from case and then plug in both cables (A/C Power & USB).
- 3. Attach Sensor power cable to an available surge protector, as well as the power port to the Sensor. Ensure the power switch on the A/C adapter is turned on.
- 4. Lay Panel flat on the floor, directly below the x-ray tube head. Calibration will be explained in the next section of the guide.





d. Setting up Acquisition

- 1. Remove Laptop and all components from box (if applicable).
- 2. Setup Acquisition PC within distance to the C-DR Sensor & X-Ray machine.



3. Plug USB Cable from Sensor to an available USB port on the Laptop/All-in-One PC.

e. Connecting Server & Acquire

If using two computers, they will communicate through the office's network; (1) Thru DNS (data source name) or (2) with the IP address of the Server *if set by IT statically.

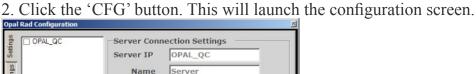


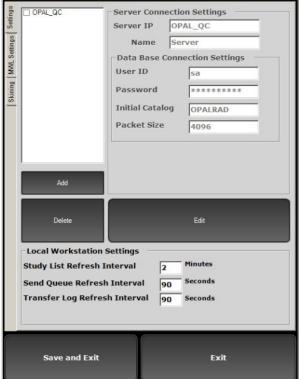
By default, the Acquisition is setup to DNS recognition.

*It is HIGHLY RECOMMENDED to have a Static IP address set on the X-Ray Server.

Some networks will not or are not configured to allow DNS recognition. If this is the case, you will need to have the office IT person or network administrator set a static IP address on the Server PC. After this is done, you will need to go into the 'Opal Rad Configuration' screen on the Acquisition PC (as well as all the viewers that will be set up) and do the steps below:

1. Launch OpalRad/Spectacle login screen.





3. Click 'Edit'. Click in the upper left hand corner, this will read the current IP setup of the server (will most likley read 'OPAL_QC').

- 4. To the right of 'Server IP', insert the IP address of the server.
- 5. The 'Edit button you clicked on will now read 'Update'. Click 'Update' button.
- 6. Click 'Save and Exit' at the bottom left (only click Exit if you do not want to save your changes).

f. X-Ray Images backup

- 1. Backup will already be setup. To ensure it is, open the 'SyncBack' utility
- 2. Plug in ONE USB cable from the two external backup hard drives, leaving the other cable away with the other extra CD's and manuals. This will ensure only one external hard drive backup gets plugged in at a time, so the backup runs correctly.
- 3. The second day of the installation, ensure it backed up. If you are only installing one day, you can manaully run the backup, and check it upon completion by clicking the 'Backup' button

*IMPORTANT NOTE: Inform the practice to be sure they do NOT change the 2020tech user account username or password, as the backup will not run if the account is modified.



4. Calibration

a. Opening UAI (acquisition)

You can open the UAI Acquire software two ways; from the StudyList, or manually from the start menu. A benefit to opening it up manually is if you do not yet have connectivity to the Server PC, and would like to get the system calibration and tested on the acquisition side.

From Studylist: As normal, log into OpalRad/Spectacle. Click 'Create new Study' button. Enter test patient demographics and click 'Acquire'.

Manually: Click the Windows Start button. Type C:\Opal\bin\OpalUAIStandalone.exe and hit Enter. Click the Launch button at the bottom. You can now calibrate, test, etc. However keep in mind no images you take will save by opening the UAI this way.

b. Update UAI Version

1. Check the UAI Software version, and update if necessary



To see what the latest version is, visit:

www.2020imaging.net/support/latest.php download the latest 'UAI'

- 2. *Ensure UAI software is closed, as well as all Opal software (Studylist, Viewer) before install
- 3. Install Latest UAI version software

c. Initialize DR Panel (if acquire button is not available)

- 1. Open UAI (methods listed above)
- Click 'Options' to open Configuration
 *If prompted for password, use adc4me

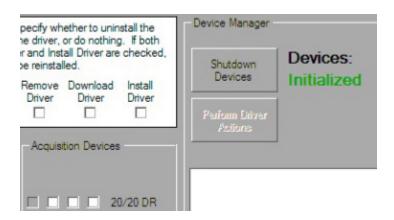




- 3. Select 'Device Configurations' tab
- 4. Click on 'DEFAULT' to highlight
- 5. Scroll down in the Acquisition Device area
- 6. Click the 'Auto-Detect' button, and click 'Apply' on the lower right



- 6a. Also verify; Bit Depth=12, Gain=14/16
- 7. Click the '>> Launch <<' button near the bottom left to open Device Manager dialogue box >> Launch <<
- 8. Click 'Shutdown Devices' button. Button changes to 'Initialize Devices'. Click 'Initialize Devices'. *DO NOT click Perform Driver Actions button!



- 9. DR Panel will now be initialized and ready.
- 10. Close Options

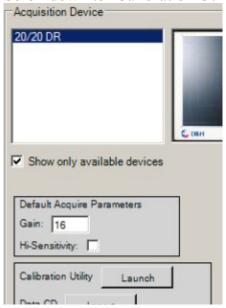
d. Manual Calibration (required)

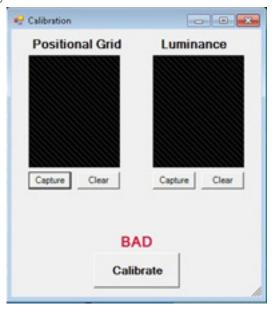
Note: If you are RECALIBRATING for a current customer, be sure to backup the DEFAULT folder, located at C:\opal\data. Make a copy, and rename it to DEFAULT OLD.

- 1. At the X-Ray and DR panel: x-ray tube should be centered above the center of the panel and parallel from top to the front of Sensor, and entire Sensor should be covered by light field. Bulls eye should be in center of panel guide. *NOTE: DO NOT try to calibrate with panel in the cabinet/bucky. It MUST be up and down with Sensor on the floor.
- 2. At Acquisition PC: Open UAI acquisition (methods listed above)
- 3. Click 'Options' to open Configuration
- 4. Select the 'Device Configurations' tab
- 5. Under 'Configuration Pool', click 'DEFAULT'. Options will appear under 'Acquisition Device'



6. Scroll down to 'Calibration Utility' and click the 'Launch' button

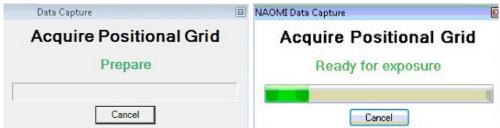




7. At the X-Ray Generator, change the technique to: 60kv, 5mAs, 60-72SID (inches) or furthest possible. *If you receive an exposure too low error, raise kv in small increments & retry. If you receive an exposure too high error, lower kv in small increments & retry. You want the highest possible passing image.

Note: You can select 'Verbose Mode' (version .22 and later) to view the actual calibration and get more information in case it is failing for any reason. If you recieve a message to 'move calibration grid', that usually means to raise/lower technique.

8. Back on the Acquisition PC, Click 'Capture' under 'Luminance'. Take the exposure on the X-Ray





9. Place Position Calibration Grid on Sensor –make sure it is flat against Sensor.





- 10. At the X-Ray Generator, change the technique to: 45kv, 5mAs, 40SID (inches) or closest possible with full coverage. *If you receive an exposure too low error, raise kv in small increments & retry. If you receive an exposure too high error, lower kv in small increments & retry. You want the lowest possible passing image.
- 11. Back on the Acquisition PC, Click 'Capture' under 'Positional Grid'. Take the exposure on the X-Ray unit.
- 12. Click the 'Calibrate' button, double check to verify calibration is successful.



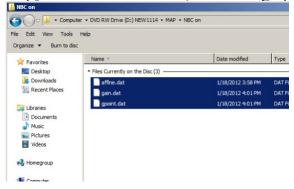
13. Take a test show with a Phantom if possible or test device, using each view to ensure quality. X-Ray technique recommendations can be found on 2020imaging.net/support/ under the Dealer section.

e. CD Calibration (copy files only)

NOTE: It is required to copy the files from the Calibration CD into C:\MASTER (NOT C:\

opal\data) on the acquisition PC for future use. Using the CD calibration is not advised unless otherwise specifically directed by a 20/20 technician.

- 1. Insert CD provided with Sensor into Acquisition PC.
- 2. Open 'Computer' from the desktop.
- 3. Open the CD-ROM drive (D:)
- 4. Open the 'MAP' folder, then 'NBC On' folder' (if exsists)
- 5. Copy all three files listed (Alt to bring up menu, Edit > Select All, Edit > Copy)



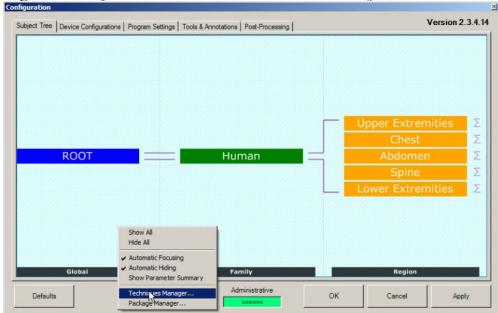
- 6. Click on 'Computer' near the top in the address bar
- 7. Open the C: drive
- 8. Browse to 'opal' folder, then 'data', then create a new folder named 'DEFAULT_CD'
- 9. Paste the three files in this folder (Edit > Paste).
- 10. This is used as a backup/original calibration in the future, in case the files are needed.

f. Chiropractic Specific Views

Chiropractic specific views should already be set in the UAI. If they are not (set up as Podiatry instead), you can change the views to chiropractic.

- *You must be connected to the internet on the Acquire PC
- 1. Open UAI.
- 2. Click 'Options'

3. Right click anywhere in the blue area under the 'Subject Tree' tab.



- 4. Select 'Package Manager' option. Let the list of packages load for a minute.
- 5. Find '2020ChiroCML...' under 'Online Packages'. Select it and click the '< Download' button
- 6. Close Package Manager, and click 'OK' in the Configuration' box.



You are now set for Chiropractic views

5. Mounting

a. Considerations

Variations in bolt patterns?

More counterweights needed?

Attachments - head clamps, positioning guides, etc.?

Examples:









b. Examples

14 x 17" Standard Cabinet Installation



Upper Cervical Installation





Full Lenth Upright Installation





c. Mounting Steps

*Ensure Calibration is completed BEFORE Mounting hardware!

- 1. Remove existing cabinet, if applicable
- 2. Bolt 20/20 cabinet to upright assembly
- 3. Place sensor in cabinet
- 4. Secure anti-scatter x-ray grid in front of sensor
- 5. Counterbalance fully assembled unit



6. Install Clients

a. Install viewing stations

- 1. Right click on the desktop. Select 'New' > 'Shortcut'
- 2. Type the location of the item: http://OPAL QC/ (or http://(ip address)/)
- 3. Click 'Next'
- 4. Type a name for this Shortcut: (name it as you wish to identify the X-Ray software) ie. 'View X-Rays'

NOTE: The shortcut must open with Internet Explorer. Double click the shortcut created to ensure it does. If it does not, continue to next step, otherwise skip to set 00.

Ensure shortcut opens with IE

- a. Set Internet Explorer as default browser or
- b. Change url file type to open with IE

b. Setup user(s)

- 1. While in Client Worklist (on either the Server or Acquire PC); While logged into OpalRad/Specacle, click the **Admin** tab at the top.
- 2. Select Add Users



3. Add all information that is required (highlighted in red).

*Note: Concurrent by default is (1), meaning the user may only be logged in on one machine



^{*}Both of these options despend on which Windows operating system you are on

at a time. This may be changed up to (5), allowing the user to be logged onto multiple machines at once.

- 4. Login Timeout; you can set the session to terminate after a certain amount of time. The default is 20min
- 5. Click **Save**, and **Finished**. Done.



7. Worklist & Image Viewer

a. Client Worklist (acquiring from)

* This window is your "study list," which contains a list of all of your patients



1. **Shooting a new Patient**

-To start a new X-Ray on a patient... click "Create New Study"



2. Always start with a unique "Patient ID". Follow with the First Name, Last Name, Gender, and DOB.

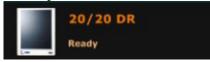
Note: Whether it be a new or exsisting patient, always use the 'Create New Study' option. Only use the 'Add New Image' button if an additional or corrected x-ray is requested from the doctor.

b. C-DR Acquisition Software

* This software allows you to take X-Rays



- * You are now in the Acquisition software, where you will shoot X-Rays
- 1. First check to ensure that the PD-R is initiated by checking at the very top, you will see "Ready" or "Not Connected"



- 2. Select a view on the left. Start with 'Region', working your way down. Note: For each view, the 'View' (Left/Right) will default or remember the last selection, so ensure the tech knows to always double check the L/R selection.
- 3. When you are ready to shoot the X-Ray, click on the bottom left... "Acquire"



- 4. When you see a white strip across the screen "READY FOR EXPOSURE," you are ready to shoot the X-Ray (shoot a test X-Ray). By default, you have 120 seconds to take an exposure
- 5. Now you will see a green bar at the bottom of the screen (filters running). In the meantime,

it is important the tech is positioning the patient for the next view, to not waste time. By the time they are done positioning for the next view, it will most likely be done or near done and ready to Acquire another view.

- 6. When the green bar dissapears, your digital X-Ray image has been processed.
- 7. Ensure the quality of the x-ray image is acceptable, and click the check box, if it is not, and a retake is necessary, click the X to discard the image. You will be prompted for a reason why.



*Note: When the Check button is clicked, it begins transfering that image to the Server. This provides for a fast transfer time to the Server so they can put pulled up quicker upon completion on a viewing workstation

- 8. The image will be automatically cropped (autoshutter feature). This clears unnesessary illexposure, and provides for a better looking image preview.
 - In the case it does not auto crop correctly (cut into the image), you will have to train the techs to make a manual adjustment. To do so, drag either the corner of the crop box, or the side, moving it to where the image should be. After that is done, ENSURE the 'Apply' button on the bottom left is clicked. It will reprocess the x-ray with the correct portion, and eliminate future autoshutter failures (the systems learns from the tech where it SHOULD be auto cropping)
- 9. You are ready to shoot another X-Ray (repeat from step 2), or exit (go to next step)
- 10. When you are finished shooting your patient, and ready for someone else, click the 'Exit' button at the bottom right. This will submit your new X-Rays of that patient and exit the acquisition software, bringing you back to the study list

e. Client Worklist (opening Image Viewer)



1. Viewing a current Patient

*IMPORTANT: After shooting a patient, and you need to look up the images right away, they might not show up until you click "Refresh"

Refresh

- 2. To look up a patient, type some criteria in the top white search box above list of studies, such as Patient ID, Name, Study Date/Time, etc. and press Enter. That will filter everything except your search criteria
- 3. Click once on a patient you wish to view (at the bottom, you will also see a list of the patient's past studies to choose from). Click "open" on the bottom left on the study you wish to open
 - *Be sure not to click Open more than once as the Image Viewer is loading, and sometimes takes longer than usual. The Image Viewer, if clicked more than one time may freeze, and a re-boot will be necessary.

d. Image Viewer

* You are now in the viewing software.



[Image/Annotations/Study Control Bar]



- * The top row contains your options to make changes to, set your view, and draw annotations
- 1. Explain Image controls (Reset Image to original, Invert, Rotate, Flip, Scale 1:1 or Fit, Magnifying Glass, Zoom, Hand Tool)
- 2. Explain Annotations (Pencil is Edit Mode, Arrow, Simple Measure, Angle, Cobb Angle, Markers, Text, Shutter/Crop Box, Hanging Protocol: saves state of viewing)
- 3. Study Control (Mark as "Read," & "Close Study") Note: Scroll over each button to view what it is if forgotten

[Layout Bar]

* You have the option to view 1 to 9 images at a time, depending on your chosen layout. Click on any one to compare images

[Selecting Studies/Images]

* You are able to select any image to view by either; double clicking on it, dragging it into the main viewer window, or at the bottom of the screen selecting "Prev/Next Series"





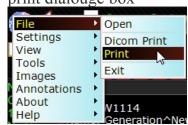
[Other Important Features]

PRINTING:

1. You may print an image by right clicking on the image, and selecting "Add image to print Queue."



2. Click the "Main Menu" button at the top left, then select 'File' and 'Print' to bring up the print dialouge box



3. Select your print settings, and click the Print button when finished Note: Printing will always print to the default printer



IMAGE ADJUSTMENT (Auto W/L ROI):

- 1. Click the W/L tool in the toolbar at the top
- 2. Click and drag a box on the image around the region of interest, image contrast will change on the fly

IMAGE ADJUSTMENT (Manual):

1. While in the Image Viewer, to change window leveling within the viewer, use the right mouse button, click and hold, and drag up/down, left/right, until the desired quality is accomplished.

[EXTRAS]

- 1. There are more tools, annotations, and options in the very top menu. Whatever is needed can be used
- 2. When you right click anywhere in the image, there are extra options available to the user

[Finished with viewing patient images]

1. When you are finished working on a patient, simply click the X on the very top right to close

Note: The viewer software will, by default, save image changes and annotations when you exit. This may be changed to not autosave by default on exit.

- 1. While in the Image Viewer, click Settings, Edit, select the User Options tab.
- 2. There you will see two checkboxes, one for each option to autosave



e. Study List (explained further)

[New/Existing Patient]

1. Click "Create New Study"



Create New Study

Note: You must enter a unique "Patient ID", as well as a first and last name, gender, date of birth. You also have the option to select (or add for the first time) a **Refering Physician** and **Institution Name**. These two will tie in with burning a CD as well as printing.

2. You are now in the Acquisition Software, and are ready to take X-Rays.

[Add New Image button]

Add New Image

1. This button will allow to add another X-Ray to a currently selected study, in the case that an X-Ray did not come out good enough, was taken wrong, etc. This is only used when the patient is still in the office. A new "Acquire" is always used when the patient comes in a seperate time.

[Compare Studies]

Compare

- 1. This button is only available when two studies under the same patient are selected. After selecting a patient's study, if they have other available studies, they will be listed below. Select another previous study, and you will see the Compare button become available.
- 2. Click the compare button. This will open the viewing software, and both studies will be available on the left column to view.
- 3. Click on the patients second available study on the left, the other available study's image will be hidden. You can then click back onto the second study, and so on.

[CD Burn]

CD Burn

- 1. This allows you to burn on a standard CD-R disc, a study or multiple studies. Select a study you would like to burn. Click "CD Burn"
- 2. By default, the study selected is checked to burn, however, a list off any applicable studies of the selected patient will be available as well in the burn dialouge box. You must check (on the left) each extra study you would like to include.
- * Be sure the check box "with viewer" is checked, as sometimes it may not be.

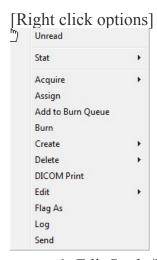


3. Click "Start Burning"

Note: This will write on the CD the DICOM images in full quality. It will also include a Lite verison of the Image Viewer. Windows XP, Vista, and 7 are compatible with an avilable CD-ROM drive.



1. This will clear any filtered search results (Shows all patients/studies).



- 1. Edit Study/Patient. These options allow you to edit existing information. After you are finished editing, simply click "Save", then "Close"
- a. Edit > Edit Patient: Allows changed to the Patient's file on a global scale, meaning, if the patient has multiple studies, it will change all of the studies, since they are all attached to the main patient's file
- b. Edit > Edit Study: Allows changing of the study's information such as Referring Physican and Institution name. You can also change the patient ID to change which patient the set of x-rays or the study belongs to.
 - 2. Delete Study. This allows to delete the selected study. It is temporary until you purge. To purge (permanatly delete) the deleted studies: Click **Study** at the top of the Client Worklist, select **Purge**. Click the **checkbox** of the studies to delete, then click **Purge Study**.

[Log Off]



Log Off

IMPORTANT: When exiting the software, this button must always be used, rather than clicking the red x at the top right. The software will still keep you logged on leading to license issues if the Log Off button is not utilized.

[Help]

Help

1. This button will open up the Viztek resources website. Here you will find numerous guides and manuals. Specifically look for Opal related guides, and print them out at the office's discretion.



8. Rules to Remember

20/20 Imaging C-DR Morning Startup Checklist

- 1. Ensure the X-Ray Server (desktop) is powered on.
- 2. Powering on Equipment (in this order):
 - Power on P-DR Panel, to do so, turn switch to "I" on the A/C Adapter (ensure it is plugged in also)
 - Power on X-Ray Acquire (laptop)
 - Power on X-Ray Machine at any time
- 3. Log into "Opal-Rad/Spectacle Study List" software with designated username/password
- 4. Click the "Create New Study" button near the bottom.
 - If the patient demographics box appears, the system is communicating correctly and ready to take X-Rays.
- If you receive a message box; "No acquire panel available", double check the above, if you still receive the message, call 20/20 Imaging support for assistance (866) 734-6234.

20/20 Imaging P-DR Rules to Remember

v2.3.3.X (updated Dec 2012)

Collimating

- * Collimate to the area of clinical interest, the useful beam needs to be limited to this area.
- * Collimate evenly and symmetrically.

Acquiring X-Rays

- * Optimum X-ray settings are determined at the time of installation, a guide with each view and settings it is to be radiated at is noted. If your X-Rays do not look correct in any way please call support for help (866) 734-6234.
- * Image adjustment is available in the viewer by the doctor after they have been submitted.
- * Adjust the auto cropping lines if necessary to eliminate the back ground clutter, once done, click 'Apply'.
- * Double check to ensure each view you have selecting is correct, including if it is a L/R view, if you selected the wrong view, pick the correct view on the left, and click 'Apply'.

StudyList

* When closing the OpalRad software, always log off by clicking on the Log Off icon. This assures your session is terminated.



* Upon first boot up of any PC, when opening a study to view x-rays after double clicking on study to open, be patient as Viewing software will take generally 2-5 seconds to initially load, and sometimes as much as 5-15 seconds on older machines.

General

- * Check the image backup as much as possible on the server (desktop), if you do not know how to do this call support for help (866) 734-6234.
- * Do not shut down the X-Ray Server at night or on the weekends, however, be sure to restart it at least once a week.
- * At the end of the day: Turn off the X-Ray unit, turn off the P-DR panel A/C adapter, shut down the Acquire (laptop).

** More Information & Dealer Resources **

Visit: www.2020imaging.net/support and be sure to click on 'Self-Help Guides' & 'Dealer's Page' on the left of the page for the latest guides and resources!

