

Onyx-RAD™

ORES QC WORKSTATION

Quick-Start Tutorial

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Chapter 1

Introduction

A brief introduction to Onyx-RAD Orex QC Acquire Workstation.

1.1 Welcome to Onyx-RAD

The Onyx-RAD suite of Telemedicine PACS applications was developed specifically to handle the DICOM protocol, for both transmitting and viewing DICOM images and data elements. The applications were developed for networked PCs running Microsoft Windows 2000, and offer an interface that many users find to be quite intuitive after some initial learning.

The Onyx-RAD applications deal with all manner of DICOM images and modalities, including CT, Ultrasound, MR, X-ray, and many others. These images can be viewed, manipulated, annotated, transmitted to other facilities, printed, animated and stored using the Onyx-RAD suite.

The Onyx-RAD Orex QC Workstation is concerned exclusively with digital versions of x-ray film (computed radiography, or “CR”), acquired by means of an Orex CR scanner. Onyx-RAD Orex QC Workstation enables you to convert film from x-rays into a digital form, read the film (with a variety of diagnostic tools), and transmit studies to other colleagues using DICOM protocols.

1.2 DICOM compliant and FDA approved

The entire Onyx-RAD suite, including Onyx-RAD Orex QC workstation, is DICOM 3.0 compliant. This means that users are able to transmit and receive studies from other PACS systems which also “speak” DICOM. This compatibility strengthens the product and adds to its utility.

The entire Onyx-RAD suite, including Onyx-RAD Orex QC Workstation, has been submitted to and approved by the FDA

☼ PACS stands for “Picture Archiving and Communication Software

☼ Onyx-RAD Orex QC Workstation is just one application in the Onyx-RAD PACS Suite.

as a medical device, suited for and safe to use in a hospital, clinic, or other medical environment.

1.3 Onyx-RAD is Easy to Use

☼ This manual assumes a basic level of familiarity with Microsoft Windows. Terms like click, double-click, and right-click are assumed knowledge. Generally, unless “right-click” is specified, all “click” and “double-click” commands are performed with the left mouse button.

With *any* software package, there is an initial period of learning that must occur. Trial and error lead to familiarization and efficiency. First-time users of Microsoft Windows often become accustomed to it within a week or two of regular use.

Onyx-RAD builds on this by using menus, shortcuts, and operations which are similar to most other Windows programs, thus decreasing the learning curve and familiarization period. The Onyx-RAD applications make extensive use of toolbars, context menus, drag-and-drop functionality, menus, and shortcut keys, but does not require that the user take advantage of such features.

Routine operation of the Onyx-RAD Orex QC Workstation involves only a handful of clicks, as you will see. The more advanced features remain in the background, ready for action should you should choose to avail yourself of them.

1.4 How to Use This Manual

The manual offers a “quick start” tutorial to get a user up to speed and scanning film in less than ten minutes. The most common and essential functions are explained.

1.5 Contact Viztek for Support

For any questions not answered here, please contact Viztek, Inc. for technical support.

Office numbers:

1-800-366-5343

904-730-0446

Email:

support@viztek.net

Chapter 2

Quick Start

Please use the tutorial in this chapter to quickly achieve routine utilization of the Onyx-RAD Orex QC Workstation.

2.1 Overview

☼ DICOM (Digital Imaging and Communications in Medicine) is an industry standard specification for formatting and exchanging medical images and information.

Onyx-RAD Orex QC Workstation (a.k.a. “QC Workstation” for brevity) has been designed as an interface for the popular Orex CR film scanner. The Onyx-RAD PACS Diagnostic Viewer is the base, to which was added functionality specific to handling the newly digitized CR images. The Viewer retains its vast array of diagnostic reading tools, such as width & center windowing, zooming, panning, annotations, unsharp masking, and others. Additionally, the Viewer contains networking capabilities which allow the user to transmit and receive images to and from other colleagues.

☼ CR : computed radiography (x-ray)

2.2 Quick Tutorial

Following is a brief tutorial on scanning the x-ray film using the Orex CR scanner, viewing the digital images on your QC Workstation, and transmitting the study to another computer.

Step 1 : Turn on the Scanner

Ensure the Orex CR scanner is turned on. If it is not, please turn it on. (The power switch is located on the back of the scanner, and powering up may take from 20 seconds to 60 seconds. Some Orex CR scanners, especially the newer “auto cassette” models, may take a few seconds before they respond to the power switch being flipped on, so please be patient. This delay is due to the scanner running internal diagnostic tests.)

Step 2 : Start Workstation

Start the Onyx-RAD Orex QC Workstation application by double-clicking (with the left mouse button) the icon titled “Onyx-RAD Orex

QC Workstation.”

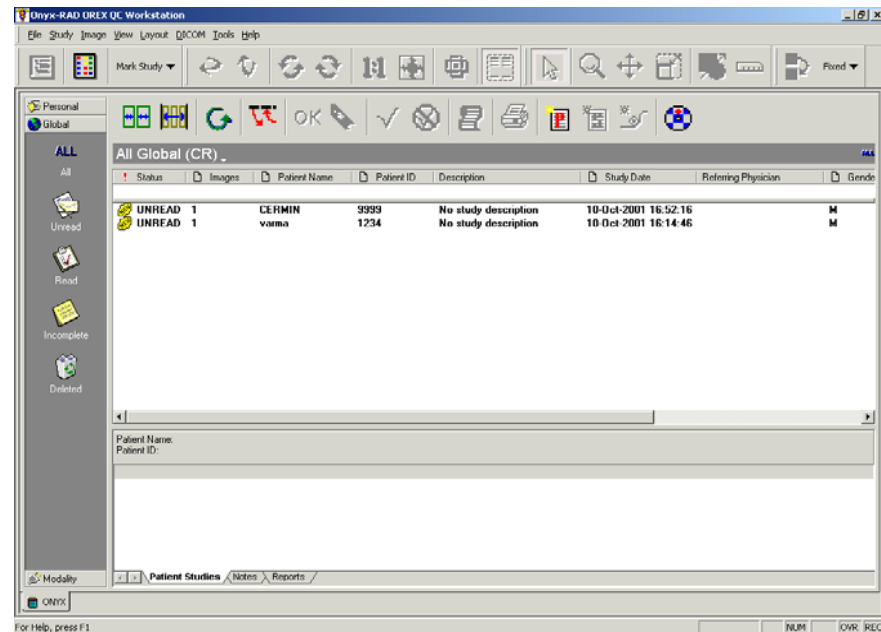
Step 3 : Log On (optional)

(optional) If your Workstation has not been set up to automatically log you in to the database for security reasons, you will need to do so manually. To do so, click on the “File” menu and choose “Log On”. Enter your user name and password in the dialog box that appears, and choose your database from the drop-down list.

Step 4 : “Study Listing” screen

Once you are logged in, you will see a screen similar to the screenshot below.

☀ This “Study Listing” screen is the main screen. You will always start and end up (after scanning, reading, or sending) on this screen.

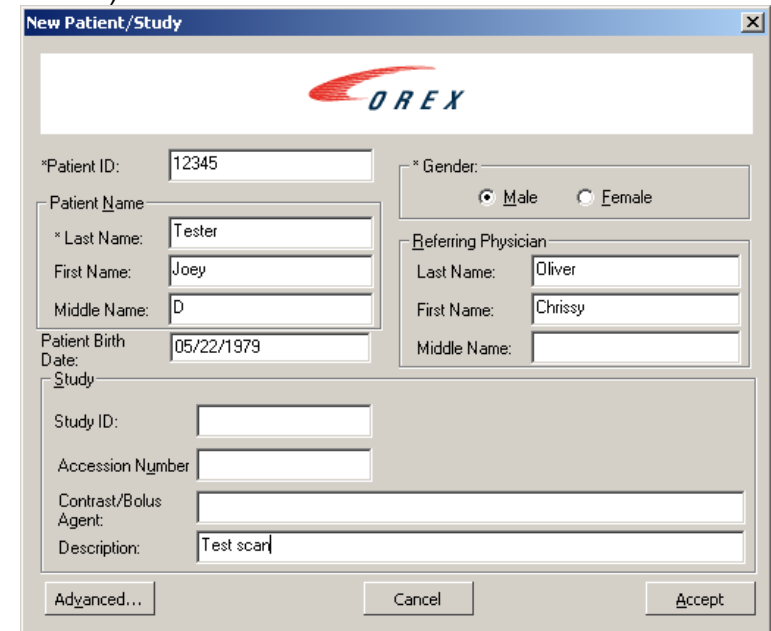


This screen is the “Study Listing” screen. All of the studies in your database are listed here and can be sorted by any of the fields, although the “Patient Name” field is most useful.

Step 5a : Scan film for a New Patient

To scan film for a new patient, click on the “New Patient” button.

The next dialog window that appears contains many empty fields,. Only the fields whose labels are marked with an asterisk (*) are required. (These fields are “Patient ID,” “Last Name,” and “Gender.”) Fill in at least these fields and click “Accept” to open the Orex CR scanner interface. (To fill in information fields, click [with the left mouse button] into the field you want to fill, then type the information.)



Step 5b : Scan film for a New Study

To scan film and add it to an existing patient (already in the database), first click on the patient's listing. The listing entry will highlight, and a button which was previously "greyed out" will become available, the "New Study" button. Click this button and enter the necessary data for the new study.

Step 6 : Orex Scanner Interface



The Orex scanner interface screen will now appear. The left side of this dialog has a patient outline. Click on the portion of the body which you are scanning film of, and optionally choose a more specific designation from the menu that appears.

Step 7 : Scan the Film

Now it's time to actually scan the film. Depending on your model of Orex CR scanner, insert either the phosphor plate or the cassette

The 'Start' button:



into the scanner. After a few moments, the 'Start' button on the dialog window will light up and enable you to click it, which you should now do.

Step 8 : After the Scan

Scanning will take some time, and during the process you can observe the progress window as it shows, in real-time, what has been scanned thus far. When the scan has completed, please wait a few moments for the communication between the computer and the CR scanner to complete. (You will see a small dialog window indicating "Processing Image..." during this time.)

If this scan was a new patient, you will notice the patient's entry on your listing screen (you may need to scroll down if your listing is very long.)

If this scan was an additional image to an existing study, you will notice the number of images for the study has been updated.

At this point, scanning is complete. You may wish to view the study to ensure the scanning process was successful.

Step 9a : View the Image

To view the image(s), find the patient's entry in the listing of studies. Click the entry once to highlight. Information about the study will appear near the bottom portion of the screen. Now double-click this highlighted entry to open the study and view the images. (If the study does not open, try double-clicking again. You may have double-clicked too quickly or too slowly for the computer to recognize the command.)

Verify that the images are present. To close the study and return to the listing screen, right-click (click the right mouse button) on an

image, and choose “Close Study” from the menu that appears.

Step 9b : Send the Exam to Another Doctor

☼ If you need to add additional recipients, please refer to Chapter 3 – Configuration.

If your QC Workstation has been set up to enable transmission of studies to other computers, you may wish to do so at this time. To accomplish this, find the patient’s entry in the listing of studies. Click the entry once to highlight it. Right-click (click the right mouse button) on the study and choose “Send to” from the menu that appears. A dialog window will appear with buttons for all the recipients set up in your system. Simply click the desired recipient and the study will be transmitted.

2.3 Summary (the short, short version)

1. Power up the Orex CR scanner (it may already be turned on.)
2. Start Onyx-RAD Orex QC Workstation.
3. Log on to the database (if necessary.)
4. Observe the Study Listing screen.
5. Either click the “New Patient” button, or highlight an existing study and click the “New Study” button.
6. Choose the body region being scanned.
7. Insert the plate or cassette, click “Scan.”
8. Wait for completion. Observe study listing screen again.
9. Optionally open and view the study, and/or transmit the study to another colleague.

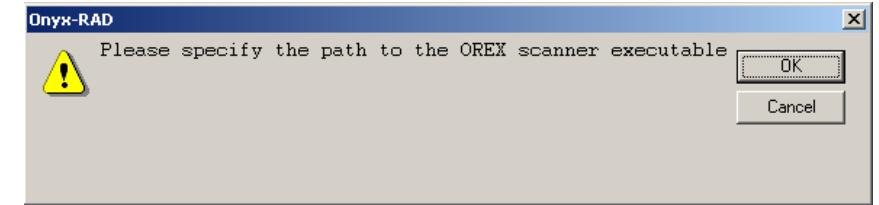
Chapter 3

Configuration

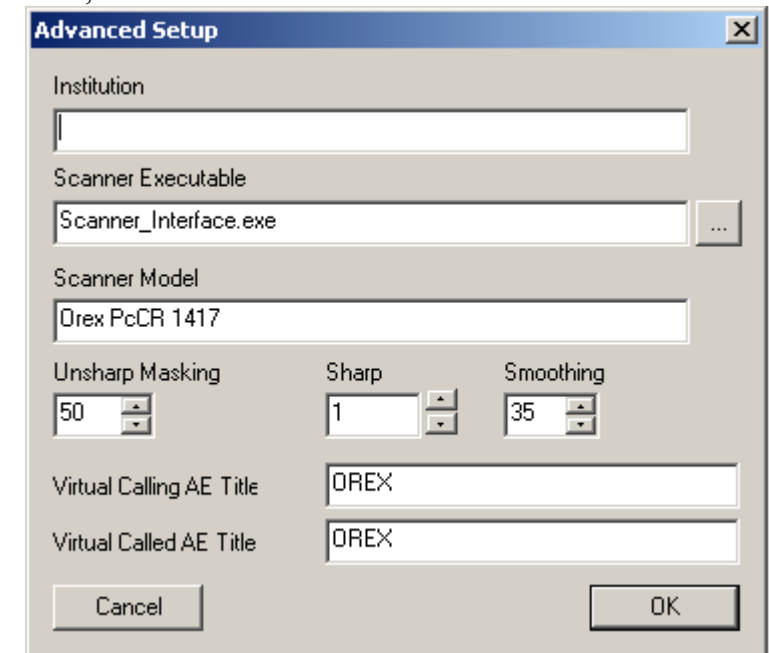
This chapter covers basic configuration tasks for your Onyx-RAD Acquire Workstation, such as setting up the scanner executable path and sending DICOM out.

3.1 “Scanner Executable path”

The first time you attempt to scan you may see a dialog asking you to enter the default scanner executable path.



Click OK, and the next window looks like this:



This window allows you to set up your Orex Scanner.

- For Institution Name, enter your institution’s name as you

- would like it to appear in the DICOM tags.
- Scanner_Executable : you can use the “...” button to browse for the scanner_executable.exe file, usually located in c:\winnt folder.
 - All other parameters do not require changing; click OK.

Chapter 4

Sending out DICOM

This chapter covers the initial configuration necessary to transmit your acquired images, via the DICOM standard protocol, to an external recipient. Manual (“push”) and automatic (“routing”) methods are covered.

4.1 Introduction

A common use for Onyx-RAD Orex Acquire workstations is to acquire CR images and then send them to a 3rd party PACS or DICOM recipient. Some simple setup is required in order for your workstation to perform this task. Firstly you must define the AE Titles to which you will send, then set up the Onyx-RAD software to either manually send (“push” exams via Queue Manager) or automatically send (“route” exams via Router) your images.

4.2 Set Up AE Titles

The DICOM standard dictates that senders and receivers must define for themselves (and answer to) an AE (Application Entity) Title. To send DICOM exams to your intended recipient you will need some basic information:

- Recipient’s AE Title
- Recipient’s network (IP) address or hostname
- Recipient’s port number

As for your own workstation’s AE Title, you can define this to be whatever you like, though something similar to “ONYXRAD” is suggested.

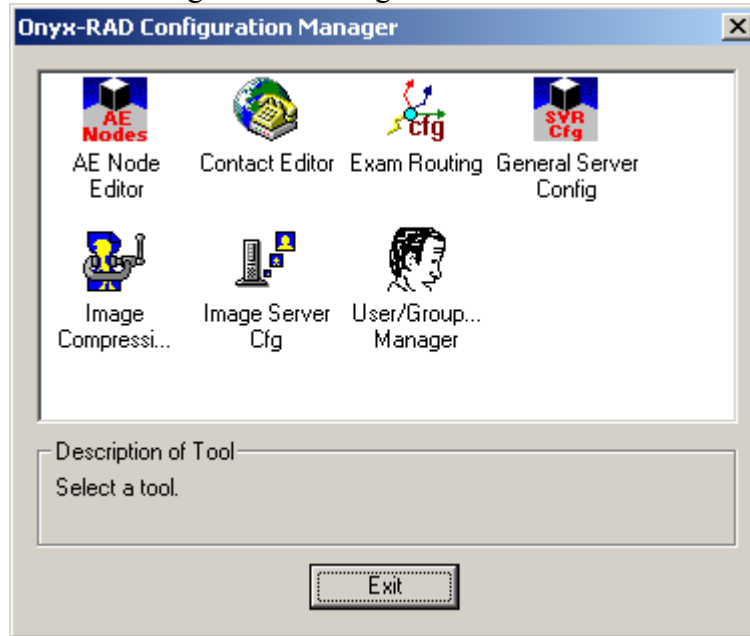
First, start Onyx-RAD Configuration Manager. Click Start, then Programs, then Onyx-RAD, then Configuration Manager. (If this is not in the menu, open a command prompt [Start, Run, “cmd”, click OK], then enter the following:

```
cd \onyx-rad\bin  
cfgmgr
```

Configuration Manager will require you to log on to your database; the username and password are the same values you use to log on to

the Viewer.

The Configuration Manager should resemble this:



Double Click the AE Node Editor icon.

Set up the AE Node as follows:

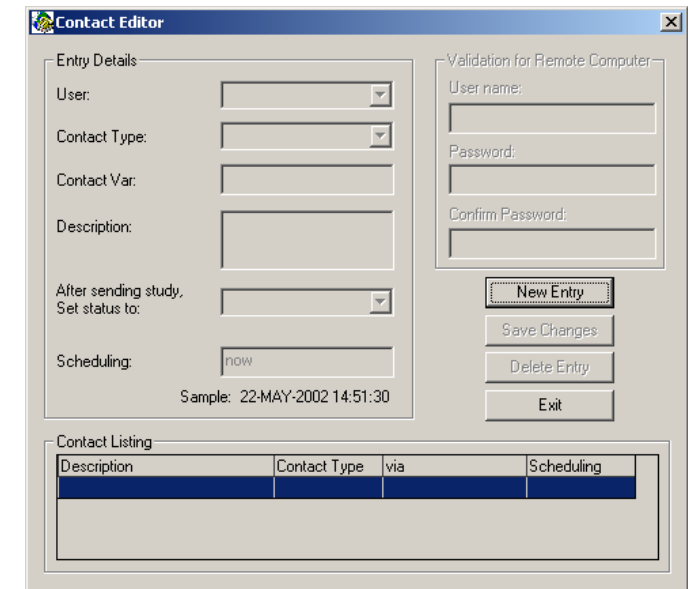
- Destination / Calling AE Title : enter the AE Title of your intended recipient
- Source / Called AE Title : enter your AE Title here (you may use “ONYXRAD”, for example.)
- Host IP/Address : enter the network address of your recipient.
- Port : enter the port number on which the recipient will listen for DICOM transmissions
- Image Server : select “Default Image Server”
- Archive Server : select “Default Archive Server”

- Group : select “Users”
- The options grid at the bottom (contains the “Auto Validate” option, for example) is not relevant to this outgoing entry.

Click “Save.” If all required fields have values, your new AE Node will appear in the listing. Click “Exit.”

4.3 Set up Contact Entry

Back in Configuration Manager now, double-click the Contact Editor icon. The Onyx-RAD Contact Editor screen should be similar to this:



1. Click “New Entry”
2. For User, choose your desired user (default is the user “ONYX”)

3. Contact Type : for DICOM the method is CSTORE.
4. Dest AE Node: choose the AE Title you created in AE Node Editor.
5. Description: The text you enter here will appear on the button that your technologist sees when (s)he clicks “Send to...”
6. After sending study, set status to: The most common values for this are “NONE” (don’t change the exam’s status) or “DELETED” (set the exam to be deleted after it sends successfully.)
7. Scheduling: “now” is the most common value, or you can set a specific date and time.
8. Click “Save”.

Your new contact will appear in the list. Click Exit.

4.4 Manual “Push” Setup

The Onyx-RAD program that handles manually pushed exams is Queue Manager. You must ensure this program is installed as a Windows service and is currently running.

Ensure that Onyx-RAD Queue Manager is installed and running. The easiest way to check this is to look for the Queue Manager icon in your system tray.

If the Queue Manager icon is not present, check the Windows Services to be sure it is installed. Click the Windows Start button (usually lower-left corner of the screen), then choose Settings, then Control Panel. In the Control Panel window, double-click “Administrator Tools”, then double-click “Services.”

The list of Services is sorted alphabetically, so scroll down the list

and look for Onyx-RAD Queue Manager (it may be named slightly different, e.g. Onyx-RAD TeleRAD Queue Manager.) Once you have found the Queue Manager listing, right-click it and choose “Start.”

You should also see “Onyx-RAD Corba Names in the list, and this should be started as well.

If you do not see Onyx-RAD Queue Manager in the Services, you need to install it. Close the Services window, then open a command prompt by clicking Start, then Run, then type in *cmd* and press Enter.

In the command prompt, enter the following:

```
cd \onyx-rad\bin
onyxqueuemanager -i ONYX
```

(If you did not see Onyx-RAD Corba Names either, you will need to install this as well with

```
onyxcorbanames -i ONYX
```

)

Close the command prompt by typing *exit* and pressing Enter. Then return to the Services window and start Onyx-RAD Corba Names followed by starting Onyx-RAD Queue Manager.

Setup for manually pushed exams is complete. Exit Configuration Manager.

4.4 Automatic “Routing” Setup

The Routing icon in Configuration Manager is not yet active, so you must run Service Manager in order to set up auto-routing.

Click Start, Programs, Onyx-RAD, Service Manager. Log on when asked to do so.

1. Click File, Routing.
2. Double-click the “AE Node Communication” line to expand it.
3. You will see two entries: “DEFAULT → DEFAULT” and an entry corresponding to the AE Node you created.
4. Click the entry titled DEFAULT→DEFAULT. (Do *not* click the one that contains your entry.)
5. Right-click this entry and choose “New”.
6. A contact editor window will appear and all the parameters should be correct. Dest AE Node will be your recipient’s AE Title, address, port, and scheduling should all be correct. Click “OK”.
7. You can expand the DEFAULT→DEFAULT entry now and see the new CSTORE routing entry.
8. Click “OK” to exit the Routing window.
9. Exit Service Manager by clicking File, Exit.

Auto-Routing setup is complete.