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XRAYVISION DCV® User Guide

Abstract Abstract

This document contains work instructions related to utilizing the dental imaging application, XrayVision DCV®, version 3.4.0.27 and above.



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REVISION HISTORY

Revision Level	Revision Date	Description of Revision	Revision Author
DRAFT	5/11/2011	Draft	Kyle Parker
1.0		Initial Release	
1.1	3/18/2013	Content update. Updated all images to reflect 3.14.0.20 interface. Also added	Kyle Parker
1.2	4/28/2014	Content update. All new features through 3.14.0.27 added.	Kyle Parker

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THE USER INTERFACE

General Overview

The user interface within XrayVision DCV is designed to be as intuitive as possible to capture, view, and distribute images. The application is wizard-driven, and provides a series of buttons that walk through each function of the application.

DCV, or XrayVision DICOM Client Viewer, provides a simple interface for users to capture and save images to a DICOM server. DICOM is a medical imaging standard which attaches patient and image specific information to each image captured for a patient.

Interface

🖾 XrayVision DCV	
XayVision DCV Version 3 (3.4.0.27) Copyright © 2004-2010 Acterys. Inc. All rights reserved. Registered to: Kyle Parker Database Path: C: VicayVisionDCVDatabases Database Engine: Aeterys	
View Imaging View Imaging Wew maging Weithing the state has do a 20000 quey / Total the state has a dotted to a 20000 quey / Total the state has a dotted to a 20000 quey / Total the state has a dotted to	

- 1. **Capture Images:** This option allows users to capture new images for a patient, and store them back to a DICOM server. This option can also be used to add new patients to the DCV database.
- 2. View Images: View existing images for a patient based on a DICOM query.
- Advanced User Tools: Clicking on this button will reveal collection of features that allow the user to perform advanced functions in the DCV application. Some of the features within this menu include: Import Images, and Data Correction. Each of these tools is discussed under <u>Advanced User Tools</u>.

If Image Forwarding has been enabled, there may be a fourth button on the home screen, which appears under the View Images button. This option is normally used only for mobile workstations that are not always attached to their local network.

CAPTURE IMAGES

Interface

XrayVision DCV											
Capture a new i	mage or image series.										
Worklist Specifi	cation	*⊎×									
Patient ID:	Enter or scan the patient's ID		Cap	ture Images	1						
Last Name:	Enter or scan the patient's last name		-7	ges							
First Name:	Enter or scan the patient's first name		Continu information	ues on to image capture usi ition as the worklist informat	ng the specified ion without						
Birth Date / Gender:		-	queryr	ig from a worklist server.	J						
Modality / Progression:					*						
Patient ID Name	Gender Bithdate Accession Number	Modaity	Procedure ID	Procedure Description	Start Date Start Time	Station AE Title	Referring Doctor	Location 1	kotes Study Inst	ance UID	*
Continues or to workEst entry.	Using Selected Entry image capture using the selected DKOM									Go B	Fack

The Capture Images interface has

- 1. **Patient Information** In XrayVision DCV, patient information can be entered into the application in several different ways. These methods include:
 - **Manual Entry** Manual entry is the most basic way to enter patient information into the application. A user will have to type out each required field manually.
 - Auto-Match List The Auto-Match list contains a list of patients who have been seen previously. When three or more characters have been entered, the Auto-Match list will appear, displaying all patients whose information matches the information entered.
 - Scanning In some scenarios, such as military clinics and hospitals, it is possible to use patient ID barcodes to scan patients into XrayVision DCV. For more information about scanning, please contact Apteryx.
 - **Import Patient List** For clinics that process large amounts of patients at once, a patient list can be set up so that the patients can be automatically added to the automatch list, allowing for them to be easily found and selected.
 - **MRU List** The Most Recently Used (MRU) button allows users to quickly select a patient that has recently had images captured or images viewed in XrayVision DCV, preventing the operator from manually entering patient information.
- 2. **Capture Images –** The Capture Images button will begin the image capture process. The capture process may be started only after all required patient information has been entered.



Entering Patient Information

To manually create a new patient:

- 1. Select *Capture Images* from the home screen.
- 2. Enter all required patient information. Patient ID, Last Name, First Name, Birth Date and Gender are required all required by default.

Worklist Specification								
Patient ID:	123456789							
Last Name:	DOE	DOE						
First Name:	JOHN	JOHN						
Birth Date / Gender:	2014	04	24	M	•			
Modality / Progression:					-			

U To modify the required information settings, click *Advanced User Tools > Preferences > Data Entry > Worklist Mandatory Data Entry Fields*.

3. Click *Capture Images*, to begin the capture process.

Until a patient has X-rays taken, they will not appear in the Auto-Match list or Image Query results. For more information on the Auto-Match List, **PLEASE SEE**

Modality/Progression Selection

Modality / Progression is a non-mandatory worklist specification option. This dropdown list allows the user to preselect a specific modality or progressions that they plan to capture.

Modality: Modality refers to a specific type of X-ray, such as: Panoramic, Cephalometric, Intra-oral, etc.

Progression: A progression is a grouping of study related intra-oral images instead of a rigid arrangement of images. Progression views offer more relational information for each image in the study including their anatomic structure, tooth relationships, and relational positioning to one another.

SINGLE IMAGE CAPTURE

Capturing Single Images from a Sensor

- 1. Select Capture Images on the home screen.
- 2. Enter all required patient information.
- 3. From the 'Modality/Progression' dropdown list, select Intra-oral X-ray.

If available, users may also select an imaging device from the Modality/Progression dropdown list, allowing them to progress directly to image capture with the selected imaging extension. Imaging extensions may be added to this list in the Preferences portion of XrayVision DCV. Instructions to add capture extensions to this dropdown list may be found in the XrayVision DCV Preferences Manual.

Capture a new image or image series.										
Worklist Specific	ation	Mu 🗙								
Patient ID:	123456789									
Last Name:	DOE									
First Name:	JOHN									
Birth Date / Gender:	2014 04 24 🔝 M	•								
Modality / Progression:		-								
		<u>_</u>								
Patient ID Name	Cephalometric X-ray DX	Jality								
	Ventra-oral X-ray									
	Panoramic X-Ray									
	🎲 Image Importer									
	S FMX #18									
	C 2 Bite Wing Series									
	Pedo FMX IO									
	3 4 Bite Wing Series									

- 4. Click Capture Images.
- 5. Select the device that you wish to capture from.



Select Capture Device									
Select the device that you wish to capture from.									
Target Modality:									
Modality Compliant Image Capture	Options								
Imaging Extension	Description	Version	Supported Modalities	S					
♥ Sigital X-ray Image Capture	Double click on this item to see the imaging extensions that fall under this category			^					
Simulator Digital X-ray	Simulates captures from digital x-ray systems.	Version 10 (10.0.0.3)	PX; DX; I0; CR						
💩 📑 General Image Capture	Double click on this item to see the imaging extensions that fall under this category								
- KAIN Capture	Acquires images from TWAIN compliant devices.	Version 10 (10.0.0.1)	OT; HC; CR						
				-					
•	III		•						
Click or tap on the imaging extension that	t should be used to acquire the images.	Cance	el						
		Abort cap	turing of an image.						
		-		_ ,					

This screen appears only for workstations supporting multiple imaging devices.

6. The 'Single Image Capture or Progression Capture' window will then appear. To capture a single image, select the tooth or teeth to be captured. To begin Progression capture, simply click on the desired progression. Additional information about Progression Capture can be found in the <u>Progression Capture</u> section.

angle shage capture -one regression capture:	
Did you want to capture just	a single image or a progression?
	5 24 23 22 21 20 19 18 17
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Tooth Control Danges the danacestica of the work control	Cancel Cancel Pe cannot image wegation

Select a group of teeth by holding down the left-mouse button and dragging the cursor over each tooth in the group. Release the mouse button when complete. Selected teeth will be highlighted in grey.

U By default, the 'Single Image Capture -OR- Progression Capture' window displays adult tooth controls. To change to deciduous tooth control, click on the 'Tooth Control Options' button in the lower right corner to change the tooth display to Deciduous,

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- 7. The software will advance and prepare the sensor for x-ray exposure.
- 8. The sensor indicator will turn green when the sensor is ready to capture an image. A vocal cue will also be heard if the computer has a sound card and speakers.



- 9. Capture the x-ray.
- 10. Once the image has been captured, the application will return to the Image Collection Screen, which displays the captured image.





11. To save the image to the database, press the 'Save & Go Back' button. Until the 'Save & Go Back' button has been selected, the image can only be viewed from the workstation which the image was captured.

1 By default, the 'Modality/Progression' dropdown list is not a required field. If this field is left blank, users will see another prompt to select a Modality after selecting a hardware extension.

PROGRESSION CAPTURE

General Information

A progression is a grouping of study related intra-oral images, instead of a rigid arrangement of images found in traditional layout-style mounts. Progression views offer more relational information for each image in the study including their anatomic structure, tooth relationships, and relational positioning to one another.

Each progression in XrayVision DCV can be modified using the Progression Editor tool found in the application install directory or in the start menu under Start > All Programs > XrayVision DCV > Progression Editor. For more information on the Progression Editor utility, please see the Progression Editor User Guide.

Interface

The Progression Capture interface is designed to allow users to capture a series of images without clicking or additional actions after selecting the **Start Progression Capture** button.



- 1. Toolbar: The toolbar along contains all of the controls for progression capture.
 - Start Progression Capture The stop progression capture button begins the capture sequence. The sensor will automatically ready for each tile, allowing the user to move advance through the progression without clicking between tiles.
 - **Take/Retake Selected Entry** The take/retake selected entry option is used to capture one image at a time, without the software automatically advancing. This is also used in conjunction with the stop the capture sequence option when retaking an image containing a defect.
 - **Stop the Capture Sequence –** This option will de-activate an active sensor, allowing the capture sequence to be paused or stopped.

- Image Operations Within the Image Operations menu, there are several basic image modifications that can be performed. The operations in this menu include: Rotate 90* clockwise, Flip Vertically, Flip Horizontally, Invert, and Advanced Image Display. Unlike the working tools found in the <u>Image Enhancements</u> screen, these changes are saved.
- Edit Image Notes Edit image notes allows notes to be appended to an image. By default, the image notes field is populated with the tooth numbers contained in the image
- **Done** The done button will return the images back to the image collection screen, allowing them to be viewed in detail.
- 2. **Tooth Chart:** The tooth chart displays each shot in of the image so it can be seen anatomically. When a progression tile is selected, the associated shot from the chart above will be highlighted, indicating the current image to be captured.



3. **Tiles:** Each image contained within the progression will have a respective tile. The number in the center of each tile associates with the shots represented in the anatomical chart above. Additionally, the tooth numbers are displayed on each tile, reflecting the included teeth in the selected shot.

Capturing a Progression

To capture a Progression:

- 1. Select Capture Images on the home screen.
- 2. Enter all required patient information.
- 3. From the 'Modality / Progression' dropdown list, select the Progression you will be capturing.

Capture a new image or image series.									
Worklist Specification									
Patient ID:	123456789								
Last Name:	DOE								
First Name:	JOHN								
Birth Date / Gender: 2013 03 18 M									
Modality / Progression:	Modality / Progression: 😪 4 Bite Wing Series								
	Q Intra-oral X-ray	10 🔺							
Patient ID Name	🖞 🌒 Panoramic X-Ray	PX Jality							
	🛞 4 Bite Wing Series	10							
	🚱 2 Bite Wing Series	10							
	🚱 Continuous Endo Series	10							
	🚱 FMX #18								



4. Click **Capture Images** to move onto the capture screen.



5. The Progression Capture interface will appear, allowing a user to begin capturing images.



- 6. Click Start Progression Capture. This begins the capture sequence and automatically progresses through the progression without requiring any additional action from the user.
- 7. Once the entire progression has been captured, click **Done**.



8. The application will return to the Image Collection Screen, which displays the captured images. For more about this interface, see <u>Image Collection</u> interface.



9. To save the images to the database, press the 'Save & Go Back' button in the lower right-hand corner. Until the 'Done' button has been selected, the image can only be viewed from the workstation which the image was captured. The 'Save & Go Back' button must be clicked to save images to the DCV DICOM database.

Retaking an Image

If an image has a defect or otherwise needs to be retaken, the 'Take/Retake Selected Entry' button can be used to recapture the image. To retake an image:

- 1. Use the **Stop the Capture Sequence** button to pause progression capture.
- 2. Select the tile that will be retaken by single-clicking on the tile.
- 3. Reposition the sensor in the patient's mouth
- 4. Select Take/Retake Selected Entry

After a new image has been captured using the 'Take/Retake Selected Entry' button, the application will not progress to the next tile automatically. The next tile must be selected, and the 'Start Progression Capture' button must be used to initiate the automatic capture sequence again.

- 5. Select the next tile for capture and use the **Start Progression Capture** button to initiate the automatic capture sequence.
- 6. The capture process will automatically continue until the progression is complete. Once the progression capture is complete, select **Done**



Viewing Retaken Images

When an image has been retaken during progression capture, an icon will appear on the image tile, indicating the number of images have been captured for that particular shot. This icon is seen on the tile below:



To view retakes or select a new primary image:

- 1. Click the multiple images icon, located in the lower right corner of the image tile.
- 2. The Image Selection screen will appear:



The primary image represented in the progression capture interface will be highlighted in yellow and can be changed by selecting a different image. All other images shown in the Image Selection screen are automatically classified as 'Retaken'.

- 3. Each retaken image is represented in this interface. The scrollbar along the bottom of the window allows each retaken image to be viewed.
- 4. Once an image has been selected as primary, click 'OK'.

QUERYING FOR IMAGES

Query Interface

Query for an image some Query Specification Text Name: But Na	XrayVision DCV					
Query Specification Parier ID	Query for an ima	age series				
Patera III: En an de pache la comparte de la compar	Query Specificat	ion 🐁	X	3		
	Patient ID:	Enter or scan the patient's ID	Que	ry For Images		
Firk Nam: To want the addres Name Bitch Odd To want the addres Name Nodaty: To want the addres Name Text: To want the addres Name Socies To Be Queeds: To want the addres Name Text: To want the addres Name Text: To want the addres Name Text: To want the addres Name Point To Name Gender Bittidder Other ID: Painer Connent:	Last Name:	Enter or scian the patient's last name				
All Carlos Carlo	First Name:	Enter or scan the patient's first name	Querie	s the selected data servers for patients		
Model Skyl Dér Teré: Starter To Be Quertet Pefert D Name Gender Binforder Starter Export Starter Export	Madaltar			ng the specified monnauon.		
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Source To Be Queried. Det a Source Notes Refer LD Name Gender Betridde Other Ds Patent Connents	Teeth:	<all teeth=""></all>	-			
	Sources To Be Queried:	Data Source Notes		2		4
Paliert D Name Gender Bithdale Other Ds Paliert Connents		Value - C:\VrayVisionD				
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Cobeck to the lat	selected from th	e list	n the Bot.		l	Go back to the main screen

There are four main sections of the Query for Images portion of DCV. These sections include: Patient Information, Image Information, and Result Controls.

1. **Patient Information –** Unlike the Capture Images portion of DCV, there is no required patient information to query for images. The more information provided in these fields, the more accurate the search results will be.

U. As a result of no required information fields, a blank search can be performed that will yield the entire patient database. **This is not recommended**, as it can take a significant amount of time, depending on the size of the patient database.

- Image Information Aside from patient information, there are several pieces of information that can be used to search for images. These can be used alone, or in conjunction with any other information entered for a search to yield a more accurate search result. These include:
 - a. **Modality –** This option allows for an individual Modality to be queried for. This can be used to search for all patients matching a given modality, or all images for a specified patient for a given modality.
 - b. Study Date Study date allows all images for a specified date range to be returned in a search. If images have been captured under the wrong patient, this function could be used to locate those images. The calendar icons allow dates to be quickly selected.
 - c. Sources to be Queried This option is utilized if there a site uses multiple databases. Any number of DICOM servers may be added to this list, including 3rd party PACS servers.



• It is recommended that only the local database is checked for daily operation. If a master database is left selected, the search time may take dramatically longer depending on the size of the database.

3. **Search Controls** – Once the search result return, there are several actions that can be taken:



- a. View Patient/Study/Series/Image Double clicking on any patient from the search results will expand their file, revealing studies, series, and images, respectively. The 'View' button will reflect the item selected in the search results. For instance, if a patient name is selected, the button will read 'View Patient'.
- b. **Burn/Export –** The Burn/Export allows the selected item to be exported or burned to a disk. Images are exported and burned in the DICOM image format, and can be viewed in the included DCV Quick View application.
- c. **Data Correction –** The data correction utility allows patient, study, series, and image information to be modified. For more information on the Data Correction utility, please see the Data Correction User Guide.
- 4. **Show Thumbnails –** This tool allows users to display a thumbnail of the Patient, Series, Study, or Image that is currently selected. Additionally, users can double-click on a thumbnail to open it in the Image Collection screen.

Query Results

Query results are displayed in the DICOM nesting structure, which displays search results by patient name. Each patient file can be expanded by double-clicking to reveal every study, series, and image associated with the selected patient, as seen below (highlighted in red).

Patient ID 🔨 🛛 Name			Gender			Birthdate Othe		r IDs 🔄 Patient I		Comments	
⊗- S *****1111 PATIENT^OTHEF		ER	0		2013/02/15	-		•			
Study Date 💌 Mod			lality	Accession Number Study ID			0	Referring Do			
💩 <u> 3</u> 2013/02/15 10:23:20 IC			10	201302151023		201302		151023	NONE		
Series Number 🔼 Date					Modality	Bod	ly Part	Relate	d Images 🛛 🗍		
<	😔 📂 1		2013	/02/1	15 10:2	3:20	0 10	JAV	/		
Image Instance Number 🔼			Туре	Туре		Acquisition Da		ate	Acquisition		
		1			ORIG			2013/02/15		10:23:28	

- 1. **Patient** Be default, search results are displayed as a listing of patients. ID number, Name, Gender, and DOB are all displayed.
- 2. Study A study contains all series and images for a patient during one visit.
- 3. **Series** Series contains one type of image captured during the patients visit. These types include Bite-Wing Series, Pano's, etc.
- 4. Image Double clicking on a series will reveal all images contained within that series.

U. Multiple patients, studies, series, and images may be selected from the search results using the control key.



Querying for Images

To query for images:

- 1. Click **View Images** from the home screen of DCV.
- 2. Enter search criteria. For additional information about search criteria, see the <u>Query</u> <u>Interface</u> section.
- 3. Click Query For Images
- 4. From the search results, select the desired items to be viewed.

🔶 👥	****	*1111	I TESI	I^TEST			1111/1	1711					
	Stuc	ly Da	te	Study T	ime	Mod	lality	Acce	ssion	Number	Study ID	I	Referri
	3011/01/18 14:58:14.0			10		201101181502		2011011	201101181502				
	Series Number 🔼				Date			Time		Modality			
	• (21				201	1/01/18	}		14:58:14.	0	10	
		Im	age Inst	ance Nur	nber 🔼	Тур	e			Acquisitio	n Date	Acquisi	ition Tim
		- 3	<mark>8</mark> 1			OR	IGINAL	PRIM/	ARY	2011/01/			9.0
۰	-	2010	/09/23	11:25:5	2.0	10		2010	09231	126	2010092	231126	NONE
	9	2010	/09/23	15:45:0	1.0	10		2010	09231	545	2010092	231545	NONE
- 😒	****	×1111	TEST	r^test	м		2011/1	1/11					
- 92	****	*1111	TEST	I^TEST	М		2222/1	1/11	-				
- 😒	****	×1111	TEST	T^TEST	0		1111/1	1/11					
L 🤮	****	×1111	TEST	T^TEST	м		1000/1	1/11					

5. Click View Patients.



6. The application will then open all of the images in the Image Collection Screen, allowing all selected image thumbnails to be viewed at once. For additional information regarding this screen, see the Image Collection Screen.

Burn / Export

From the image query results, any combination of patients, studies, series, or images can be selected to be burned to a disk. The button seen at the bottom of the Query Results interface will change with the item that is selected.

Burn / Export Patients

- 1. Click View Images from the home screen of DCV.
- 2. Enter search criteria. For additional information about search criteria, see the <u>Query</u> <u>Interface</u> section.
- 3. Click Query For Images.
- 4. From the search results, select the desired items to be burned to a disc.



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🔶 🛃	*****1111	TEST	I^TEST			1111/1	1/11					
	Study Date Study Time				Mod	Modality Accession Number			Study ID		Referr	
	3 2011/01/18 14:58:14.0			10		201101181502		201101	201101181502			
	Series N	lumbe	r 🔼		Da	te			Time		Modali	ty.
	😔 📁 1				201	1/01/18	3		14:58:14	l.O	10	
	Imag	ge Inst	ance Nur	nber 🔼	Тур	эе			Acquisiti	on Date	Acquis	ition Tin
	L 😳				OR	IGINAL\	PRIM	ARY	2011/01		15:02:1	
•	鬄 2010/0	9/23	11:25:5	2.0	10		2010	09231	1126	201009	231126	NONE
	😼 2010/0	9/23	15:45:0	1.0	10		2010	09231	545	201009	231545	NONE
- 😒	*****1111	TEST	^TEST	м		2011/1	1/11					
- 95	*****1111	TEST	TEST	М		2222/1	1711					
- 😒	*****1111	TEST	^TEST	0		1111/1	1/11	-		-		
	*****1111	TEST	TEST	м		1000/1	1/11					

5. Click Burn/Export Patient.



6. Choose the appropriate extension to initiate the Burn or Export function.

Show Thumbnails

The Show Thumbnails option allows users to view thumbnails for all images contained in the Patient, Series, Study, or Image that they have selected within the search results. Thumbnail view is ideal for organizations that are concerned with network bandwidth consumption, as well as those that access XrayVision DCV over a WAN. Thumbnail View allows users to quickly select the images that they would like to view, rather than selecting the entire patient and waiting for full resolution images to be downloaded. The thumbnails interface is seen below.



APTERYX custom software

Selecting Thumbnails for Viewing

- 1. Open XrayVision DCV.
- 2. Select View Images.



- 3. Perform an image query.
- 4. Click the 'Show Thumbnails' button.

Show Thumbnails

5. Left-click to highlight the studies that will be opened.



6. Click 'Display Selected Studies.

IMAGE COLLECTION SCREEN

Interface

The Image Collection Screen interface displays all images grouped anatomically, displayed in the traditional mount format. This is designed to give a quick overview of all patient images, and allow for basic functions like printing and image comparison. There are four main sections of this interface: Image Thumbnails, Toolbox, Ghost/Retake Bins, and DICOM Tag information.



1. Image Thumbnails: Each image thumbnail contains image information below the image. When viewing images one single patient, the taken date and teeth associated with the image will be the only information displayed below the image thumbnail, seen in the image tile below.



If images from multiple patients are currently displayed, each patient's Name, ID number, Age, and Gender are displayed along with the teeth associated with the image and the taken date, seen in the image tile below.





2. Toolbox: The toolbox contains several functions:



- Capture Additional Images: This feature allows for additional images to be captured for a patient without reentering patient information.
- **Image Enhancements:** The Image Enhancements button allows a single image to be selected for additional manipulation and modification. This button performs the same operation as double-clicking on any image tile, which opens the image into the <u>Image Enhancement</u> interface.
- **Print Images:** If there is a printer accessible to the workstation, any selection of images can be selected for printing. For additional information, see **Printing**
- **Compare Images:** Images can be viewed side by side and compared using the Compare Images button. This feature can be used to compare 2, 3, or 4 images at a time. For additional information, see **Compare Images**
- **View DICOM Tags:** XrayVision DCV is a DICOM based application, which attaches patient and image specific information, known as DICOM tags, to every image captured.



Image Operations

Image Operations Contains various viewing, saving, exporting and transfer options.	 Thumbnails Sets the number of rows and columns of thumbnails that should be displayed simultaneously. View Images As Allows you to change how the various images are displayed. 	•					
	Display Image Desktop Window Enables you to display the secondary image desktop window that can be used to drag-and-drop images for display.	-					
	View DICOM Tags Displays all of the DICOM information for the image.						
	Edit Image Information Permits modification of the DICOM information associated with the image.						
	Export DICOMDIR Exports a DICOMDIR of the selected images.	Export DICOMDIR Exports a DICOMDIR of the selected images.					
	Save / Export Image Saves the selected images to a file.						
	Save / Export All Images As A Single Image Images all of the images into a single layout and then saves the single image to a file						
	Apteryx Image CD/DVD Burner Used to burn image CDs or DVDs.	-					
	Contains the various application definitions that permit you to launch other applications based on the currently viewed image.	•					
Display phosted and retakes	Document Template Spawns a document that includes one or more of the current images.	•					

- i. **Thumbnails:** Thumbnails allows a user to adjust the number of thumbnails displayed simultaneously when viewing images as Thumbnails. When viewing images with the Anatomic grouping, this option allows users to toggle the number of series displayed in the interface.
- **ii.** View Images As: These options allow users to change how images are displayed in the application. Users can choose from Grouped Anatomically, Thumbnail display, or a Collection of Images.
- **iii. Display Image Desktop Window:** This feature is used on PCs with more than one display. The Image Desktop Window allows users to drag images to a secondary DCV window that can be placed on a different display for reference.
- iv. View DICOM Tags: This tool displays all DICOM information associated with the selected image.
- v. Edit Image Information: Edit image information allows the editing of DICOM information associated with a single image.
- vi. Save/Export Image: Save/Export Image allows an image to be saved outside of our software as a non-DICOM image.
- vii. Apteryx Image CD/DVD Burner: This function allows all selected images to be burned to a disk. If no images have been highlighted, they will all be burned to the disk.
- viii. Launched Application: This feature allows a third party application to be configured and invoked directly from the XrayVisionDCV application.
- ix. Document Templates: Document templates allow users to send selected images to premade document templates that can be modified to include practice information.

- 3. Ghost/Retake Bins: The ghost and retake bins allow images to be 'hidden' from the image collection screen when viewing images. Users may select and drag any number of images to these bins simultaneously.
- **4. Image Information:** The image information section appears when a single image has been selected. The selectable tabs include information about the patient, image, series, and study.
- 5. Go Back/ Go Home: The Go Back button allows the user to go back to the previous window. Using the green arrow icon, the button can be toggled to a Go Home button, which will take a user directly back to the home screen of the application.



Capture Additional Images

The 'Capture Additional Images' option allows users to begin capturing images for the current patient without having to reenter patient information. After selecting **Capture Additional Images**, the application will then progress through steps 5-12 of the <u>Capture Process</u>.

This function can only be used for a single patient. If images from multiple patients are displayed, the Capture Additional Images feature is disallowed.

- 1. Capture New Study/Series: This option allows users to capture a new series.
- 2. Capture Additional Images Into This Series. This option allows users to users to capture additional images into the currently selected series.

This option must be enabled in the XrayVisionDCV preferences. If it has not been enabled, the application will progress directly into the capture process for a new series.

Capturing additional images into an existing series

- 1. Click View Images from the home screen of DCV.
- 2. Enter search criteria. For additional information about search criteria, see the <u>Query</u> <u>Interface</u> section.
- 3. Click Query For Images.
- 4. From the search results, highlight the desired patient and click View Patient.
- 5. Click 'Capture Additional'.
- 6. Click 'Capture Additional Images Into This Existing Series'.



- 7. Choose an Imaging Extension.
- 8. Choose a Modality.





9. Select a shot or progression that you'd like to capture.



10. Click Start Progression Capture to begin capturing new images.



During progression capture, any images from the existing series that match tiles in the newly selected template will be displayed during progression capture, as seen above. These existing images will be labeled as 'Existing Series Image' and cannot be modified, and are displayed for reference only.



11. When finished, click 'Done'.



- 12. The application will return to the Image Collection Screen, which displays the captured images. For more about this interface, see <u>Image Collection</u> interface.
- 13. To save the images to the database, press the 'Save & Go Back' button in the lower right-hand corner. Until the 'Done' button has been selected, the image can only be viewed from the workstation which the image was captured. The 'Save & Go Back' button must be clicked to save images to the DCV DICOM database.

Image Enhancements:

The Image Enhancements button allows a single image to be selected for additional manipulation and modification. This button performs the same operation as double-clicking on any image tile. For additional information regarding the Image Enhancement interface, see <u>Image Enhancement</u>



Print Images

Workstations with print capabilities have the ability to print single images and layouts from using the Print Images function. Images can be printed in several formats or layouts based on user specification.

DOE*JOHN / *****6789		
Patient DOE/JOHN / ***** 6788 - 000Y - M - 8	image(y) - Study: «Multiple Studies Selected»	
·	Printer:	
	Snagt 11	Setup Printer
	Multiple Print Format	
	Layout	Sets up now the printer will print the image.
Concern 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Langet Format	
A REAL PROPERTY OF	S 2 BWS and Pano with appotations	2 BWS and panp with a set of annotation boxes for each image
Concerning and the second second	T Auto populate layout	
	Digital Signature	
Statement State Statement	<no defined="" signatures=""></no>	
	Married	-
	Message.	
the second se	in you wan a message to appear on the panious, you should enter it here.	
statement wanted and statements of		
-1241		
4		
4		
	Select All	Print Cancel
		Print Tritte Lings & Die Delter under geschüte

- 1. **Image Thumbnails**: Thumbnails of all images associated with a patient will be displayed along the left portion of the Print Images window. These can be selected for printing using the checkbox found the corner of each thumbnail.
- 2. Setup Configuration: The printer and document type can be selected using the Printer, Multiple Print Format, and Layout Format dropdown lists.
 - **Printer**: Each printer and document application located on the machine will be listed here. Users may send a document to a printer or file location on their computer.
 - Multiple Print Format: This controls the type of document that will be used for printing. Images can be printed with 1-5 images per page, a contact sheet, or in layout format.
 - **Layout Format**: If 'Layout' is selected in the Print Format dropdown list, this option will become available. Using this option, users may select a traditional mount to place images into for printing. The layouts found in this can be seen below:

▶ 2 BWS and Pano with annotations	2 BWS and pano with a set of annotation boxes for each image
■ 2 BWS and Pano with annotations	2 BWS and pano with a set of annotation boxes for each image
2 sets of 4 BWX	
▲ 4 BWS and Pano with annotations	4 BWS and pano with a set of annotation boxes for each image
4 BWS in block format	4 BWS arranged in a block
4 BWS list with annotations	4 BWS with annotations in a list form
📓 4 general images in block format	4 general images arranged in a block
🔊 FMX 18	
🔊 Pano	

3. Message: The Message field allows notes and text to be appended to a printed document.



Printing a Layout

To print images in a layout:

1. Select 'Print' from the Image Collection screen.



2. The Print Images interface will appear. Select the images to be included for printing using the checkbox on the image tile.

Print Images		×
DOE^JOHN / 123456789 Patient: DOE^JOHN / 123456789 - M - 7 image(s) -	Study: <multiple selected="" studies=""></multiple>	
	* Printer:	
	Microsoft XPS Document Writer	Setup Printer
	Multiple Print Format	Sets up have the existence of exist
V from man	Layout	the image.
and the second second	Layout Format	
A REAL PROPERTY AND A REAL PROPERTY A REAL PROPERTY AND A REAL PROPERTY AND A REAL PRO	4 BWS and Pano with annotations	4 BWS and pano with a set of annotation boxes for each image 💌
and the second se	T Auto populate layout	
and the second se	Digital Signature	
	<no defined="" signatures=""></no>	
and the second se	Message:	
the second second	you want a message to appear on the printout, you should enter it here.	A
the second s		
The state of the second second second		
a start and a start and a		
states which is not state of the second states of t		
Statement in the local division in the local	8	
A REAL PROPERTY OF A REAL PROPER		
	Select All	Print Cancel
	Selects all of the image in the image into the image into the image in the image.	Pint the image to the Keturn without printing
		C Melneye.

3. Select your printer.

Printer:		
Microsoft XPS Document Writer		Sotup Printor
\\AI1\HP Color LaserJet 4600 PCL 6		Setup i filitter
\\AI1\HP LaserJet 4300 PCL 6		Sets up how the printer will print
Fax		the image.
Microsoft XPS Document Writer	N	
Send To OneNote 2010	1	
Snagit 11	ů.	
2 BWS and Pano with annotations	2 BWS and pano wi	vith a set of annotation boxes for each image
Auto populate lavout		

- 4. From the 'Multiple Print Format' dropdown list, choose Layout.
- 5. From the 'Layout Format' dropdown list, select your desired layout.





6. Select Print.

7. The Print Layout interface will appear, showing the layout format specified in Step 5. Leftclick and drag each image into the respective position in the layout.



U If no images have been added to the layout by dragging or using the Auto-Populate function, the print job will yield a blank page.

8. Click 'Print' to send the layout to the specified destination.



Compare Images

Images can be viewed side by side and compared using the Compare Images button. This feature can be used to compare 2, 3, or 4 images at a time.



1. Image Information

When comparing images, a set of image-specific information is displayed in the upper righthand corner of the image tile. This information includes: Modality, Acquisition Time/Date, and Teeth Association.

Image information can be hidden using the Hide Text button, located in the Toolbox.

2. Pop-out Toolbars

The Compare Images interface contains the same pop-out toolbars found in the Image Enhancement interface. These toolbars contains several enhancements, which include: zoom, gamma adjustment, brightness/contrast, and spot enhance. More information can be found in **Pop-out Toolbars and Enhancements**.

3. Toolbox

The toolbox contains three tools:

- **Hide Text** Hide Text will hide all image information displayed in the upper left-hand corner of the image tile.
- Link Views Link views allows a single enhancement action to be applied to all images displayed. All images can be simultaneously zoomed, enhanced, or filtered using the pop-out toolbar from any image.
- **Real-Time Filters –** Real-Time Filters are preset filter algorithms that can be applied to images. These filters, when applied, remain applied until they are turned off.



Compare Selected Images

Images can be viewed side by side and compared using the Compare Images button. This feature can be used to compare 2, 3, or 4 images at a time. To compare images:

- 1. Select 2, 3, or 4 images to compare by single-clicking on each image.
- 2. Click 'Compare Images'
- 3. The Compare Images interface will appear, displaying each selected image side by side.



Each image window contains a pop-out toolbar that can be used to perform basic enhancements to an image. The 'Link Views' button in the bottom right corner of the window allows a single enhancement to be applied to each image. For additional information about the pop-out toolbars, see: **Image Enhancement**

4. To close the Compare Images window, click **Done**.

Compare History

The history of a specific tooth or selection of teeth can be compared easily using the Compare History tool. This tool displays all teeth associated with a selected anatomical region automatically. To compare history:

- 1. Click View Images from the home screen of DCV.
- 2. Enter search criteria. For additional information about search criteria, see the <u>Query</u> <u>Interface</u> section.
- 3. Click Query For Images.
- 4. From the search results, highlight the desired patient and click **View Patient**.
- 5. Click Compare Images.



6. Click Compare History.



7. Using the anatomical chart provided, select a tooth or click and drag the mouse across a selection of teeth to be compared.





8. All images associated with the selected teeth are displayed.



- 9. Using the pop-out toolbars in the lower corners of each image tile. For more information about the tools included in the pop-out toolbars, see the <u>Pop-out Toolbars</u> section.
- 10. When finished, click **Done**.

Compare Bitewing Series

Compare Bitewing Series allows users to quickly compare entire sets of bitewings. To compare bitewings:

- 1. Click View Images from the home screen of DCV.
- 2. Enter search criteria. For additional information about search criteria, see the <u>Query</u> <u>Interface</u> section.
- 3. Click Query For Images.
- 4. From the search results, highlight the desired patient and click **View Patient**.
- 5. Click **Compare Images**.



- 0 X XrayVision DCV TEST^TEST / 111223333 Patient: TEST'TEST / 111223333 - M - 4 image(s) - Study: PA14. PA15, PA15, PA15, PA17, PA18, PA19 - 2014-04-17 15:48 - 10 modalit Captu Additi Print In 3 te Images P Comp are History ٠ Compare Bit Enables comparin wing ie, BWS are Teeth: 1, 2, 3, 30, 31, 32 Taken: 2014/04/28 l. (12) ا 🖓 🔨
- 6. Click Compare Bitewing Series.

7. All bitewing series are displayed for comparison.



- 8. Using the pop-out toolbars in the lower corners of each image tile. For more information about the tools included in the pop-out toolbars, see the <u>Pop-out Toolbars</u> section.
- 9. When finished, click **Done**.


Thumbnails

The thumbnail control sets the number of rows and columns that are displayed at once. As many as 8 columns x 6 rows or as few as a single image can be displayed. This change is made on a per-computer basis, allowing every computer with XrayVision DCV to specify different thumbnail settings. To change the thumbnail display settings:

- 1. Click Thumbnails.
- 2. The Thumbnail Rows and Columns window will appear, as seen below:



- 3. Without clicking, the mouse can be dragged over the chart, allowing the row and column combination to be selected for use.
- 4. After highlighting the desired dimensions, click the tile to finalize the selection.

U When images are organized using the anatomic grouping, adjusting the number of columns will control the number of series displayed along the bottom of the window.

View DICOM Tags

XrayVision DCV is a DICOM based application, which attaches patient and image specific information to every image captured, known as DICOM tags. The DICOM Tag button displays every piece of DICOM information associated with a single image.

DICOM tags contain image specific information about the image file, image, hardware, and patient information.



Digital X-Ray Anatomy Imaged			
Name	Value	Code	VB
📀 🗋 Anatomic Region Sequence		0008:2218	SQ - Seq
🚽 📄 Image Laterality	B	0020:0062	CS · Cod
💩 🗋 Primary Anatomic Structure Sequence	· [0008:2228	SQ - Seq
Digital X-Ray Detector			
Name	Value	Code	VB
🚽 🔄 Detector Description	Simulator	0018:7006	LT - Long
🛛 — 🛄 Detector ID	SIMULATOR	0018:700A	SH - Shor
Detector Type	SIMULATED	0018:7004	CS · Code
Imager Pixel Spacing	0\0	0018:1164	DS - Deci
Digital X-Ray Image			
Name	Value	Code	VB
Burned In Annotation	NO	0028:0301	CS · Code
🕂 🗌 Image Type	ORIGINAL\PRIMARY	8000:8000	CS · Code
📄 🗌 Lossy Image Compression	00	0028:2110	CS - Code
🚽 🗌 🚽 🚽 🚽 🚽 🚽 🕹	2	0028:2112	DS - Deci
Patient Orientation	A\H	0020:0020	CS · Code
- 📄 Pixel Intensity Relationship	LIN	0028:1040	CS · Code
📄 — 📄 Pixel Intensity Relationship Sign	-1	0028:1041	SS - Sign
- 🗋 Presentation LUT Shape	IDENTITY	2050:0020	CS · Code
- Rescale Intercept	0	0028:1052	DS - Deci
Rescale Slope	1	0028:1053	DS - Deci
Rescale Type	US	0028:1054	LO - Long
- 🗋 Window Center	128	0028:1050	DS - Deci
🛛 🗠 🗋 Window Width	256	0028:1051	DS - Deci
Digital X-Ray Positioning			
Name	Value	Code	VR
Positioner Type	NONE	0018:1508	CS · Code
Digital X-Ray Series			51
Name	Value	Code	1 V/D

Image Operations

The Image Operations menu contains utilities that allow users to edit image information, export images, and burn images to a disk.

	the second se
	Edit Image Information Permits modification of the DICOM information associated with the image.
H E	Export DICOMDIR
	xports a DICOMDIR of the selected images.
HS	Save / Export Image
S	aves the selected images to a file.
HS	Save / Export All Images As A Single Image
- N	derges all of the images into a single layout and then saves the single image to a file.
	Apteryx Image CD/DVD Burner
0	sed to burn image CDs or DVDs.
	aunch Application
4	Contains the various application definitions that permit you to launch other
a	pplications based on the currently viewed image.

- Edit Image Information: Edit image information allows the editing of DICOM information associated with a single image.
- Save/Export Image: Save/Export Image allows an image to be saved outside of our software as a non-DICOM image.
- CD/DVD Burner: This function allows all selected images to be burned to a disk. If no images have been highlighted, they will all be burned to the disk.

Editing Image Information

1. Highlight the image thumbnail whose DICOM information is to be modified.

Only one image may be edited at once using the Edit Image Information tool. If multiple images have been selected, this tool will become unavailable. To correct multiple images simultaneously, please see <u>Appendix 2 – Data Correction</u>



2. Click Image Operations

3. Select Edit Image Information

- 4. The Edit Image Information interface, seen below, will appear, allowing the modification of Patient, Study, Series, and Image information. Additionally, the image orientation and tooth association can be changed.
- 5. Click 'OK' to save any changes made.

	Imag	ge UID: 1.	2.840.114384	48352372.763326.2	20140424.165544.2			-	
tient Information:			Con	ect From Database	Image:				
Patient ID:	123456	789			Area Arter Design	and the second		<u>81</u> , 6	\sim
Patient Last Name:	DOE				Barr - 13				
Patient First Name:	JOHN				Mr Colle	120			r a E
Patient Birth Date / Gender:	2014	04	24	M					F T
Patient Other IDs:						1200	1		
Patient Comments:								1	
Patient Branch of Service:				•		and the second	100		
Patient Species:				•	and the second	A	A. 8.		
Patient Breed:				-		100			
udy Information:					Image Information:				
Accession:	2014043	241655			Modality:	Ю		1	Intra-oral X-ray
Study Date:	2014	04	24		Acquisition Date:	2014	04	24	
Study ID:	2014043	241655			Instance Number:	1			
Referring Doctor:	NONE				Acquisition Number:				
	Panoram	mic <mark>X-Ra</mark> y,	Intra-oral X-ra	/	Image Comments:	PA 1, 2, 3, 30, 31, 32			
Study Description:	12840	.114384.4	8352372.7633	26.20140424. 🕂	Image Type:		nal ted	IX P □ R	rimary letaken
Study Description: Study UID:	1.2.040								
Study Description: Study UID: ries Information:	1.2.040					,			
Study Description: Study UID: ries Information: Series Number:	1				Image Teeth:				
Study Description: Study UID: ries Information: Jeries Number: Jeries Date:	1 2014	04	24		Image Teeth:		1.0.4		
Study Description: Study UID: ries Information: Geries Number: Series Date: Series Description:	1 2014 PA 1, 2,	04	24 32		Image Teeth:	000	101) () ()	በወወወ
Study Description: Study UID: ries Information: Series Number: Series Date: Series Description: Sedy Part Examined	1 2014 PA 1, 2, JAW	04 , 3, 30, 31,	24 32		Image Teeth:	<u>ð</u> Ø Ø) 8 8	19666
Study Description: Study UID: res Information: Series Number: Series Date: Series Description: Sody Part Examined Series UID:	1 2014 PA 1, 2, JAW 1.2.840.	04 , 3, 30, 31, .114384.48	24 32 8352372.7633	▼ 26.20140424. ↓	Image Teeth:	Ą Ą Ą			2 13 14 15 16 Left

Save / Export Image

Images can be exported and saved outside of XrayVision DCV using the Save / Export Image utility. Exporting images is commonly used when emailing images, or if the user would like to save labels and enhancements placed on an image outside of our application for reference. Users can choose to save/export images as individual images using the **Save/Export Image** option, or as a combined single image using the **Save/Export All Images as a Single Image utility.**

Several image file types can be selected within the Export Images interface: jpeg, tiff, bmp, and DICOM.

Warning: DICOM files should never be emailed! Every DICOM file contains the associated patient's first name, last name, date of birth, and social security / ID number. Given the insecure



nature of email, only jpeg, bmp, and tiff should be used in favor of DICOM, as they do not contain any patient information.

Because jpeg, bmp, and tiff do not contain DICOM information, there are several filename base specifications which can place non-sensitive patient information in the filename so it can be recognized outside XrayVision DCV.

Exporting Images

- 1. Highlight the image thumbnail(s) to be exported.
- 2. Click Image Operations
- 3. Select Save / Export Image
- 4. From the Export Images interface, seen below, users can specify the target directory, file type, as well as file name.

Export Images		X
Export Image Specify the exporting options below and then click	k on the OK button	
 appeary the expensing options below and bion each 	Contro Ortodaon.	
Target Directory:		
C:\Users\kyle parker\Desktop		
mage File Format:	Compresson:	
DICOM Image DIC *.dic -	No Compression	•
Overwrite Or Append Action:		
Append Images To The Sequence		
ilename Base Specification:		
Patient Name And ID Filename Base		•
Filename Base:		
Sample: 'Doe_John_1234'		
Export XML image information files		
Export the selected section of the image		
Resize the images to fit in the following dimensions	972 x 682	reduction factor: 100.00 %
	Original Size: 972 x 68 New Size: 972 x 682 p	2 pixels 647.36 KB ixels 647.36 KB
Now export of:	Ghosted Images	
	Original Images The	at Have Been Derived
	Retaken Images	
	Standard images	
Note: Mutliple images will automatically be exported as a se	equence. The target filename	s will automatically be
appended with a sequence number.		UK Cancel

1 Note: Users can choose to ignore Ghosted, Retaken, and Derived images during export using the 'Allow Export Of' section.

5. Click **OK** to export the selected image(s).



Exporting Images as a Combined Single Image

Images can also be exported as a combined single image, rather than individual images.

- 1. Highlight the image thumbnail(s) to be exported.
- 2. Click Image Operations.
- 3. Click Save/Export All Images As A Single Image.



- 4. Using the Layout Format dropdown, select the desired template for export.
- 5. Left-click and drag images into their respective tiles.



6. When finished, click **Save**.



7. The Export Images interface appears. Users can specify the target directory, file type, as well as file name.

Export Image Specify the exporting options below and then cli	ick on the OK button.		
Target Directory:			
C:\Users\kyle.parker\Desktop			
Image File Format:	Compresson:		
DICOM Image DIC *.dic -	No Compression		
Overwrite Or Append Action:			
Append Images To The Sequence		•]	
Filename Base Specification:			
Patient Name And ID Filename Base		•	
Filename Base:			
Sample: 'Doe_John_1234'			
Export XML image information files Export the selected section of the image			
Resize the images to fit in the following dimensions	972 x 682	reduction factor: 100.00 %	•
	Original Size: 972 x 6 New Size: 972 x 682	82 pixels 647.36 KB pixels 647.36 KB	
Allow export of:	Ghosted Images Original Images Frequencies Gradient Constraints Gradien	hat Have Been Derived	
Note: Mutliple images will automatically be exported as a appended with a sequence number	sequence. The target filenar	es will automatically be OK Can	cel

U Note: Users can choose to ignore Ghosted, Retaken, and Derived images during export using the 'Allow Export Of' section.

8. Click **OK** to export the combined single image.

Ghost/Retake Bins

The deletion of images is disabled by default to protect data integrity and prevent data loss. The ghost and retake bins allow images to be 'hidden' from the image collection screen, simulating the image being deleted.



• **Ghost Bin:** The ghost bin is used for images that are non-essential. Progress shots during an Endo procedure are an example of images contained in the Ghost Bin.

• **Retake Bin:** Retaken images are used for images that have been retaken as a result of a defect, such as a cone cut.

Adding/Removing Images to the Ghost and Retake Bins

- 1. Select the image that will be added to the Ghost or Retake bin
- 2. Left-click and drag the image down onto the desired bin icon

If an image has already been added to the ghost or retake bin, dragging it back onto the respective bin will remove the ghost or retake classification and un-hide the image.

3. Verify that the image has been added to the bin by checking the 'Display ghosted and retakes' checkbox.

When an image has been added to the ghost or retake bin, the respective text will appear in the image information below the thumbnail image.

Image Information Tabs

When a single image thumbnail has been selected, a series of tabs will appear along the lower portion of the application.

These tabs are a condensed version of the DICOM Tags screen, containing the essential DICOM tag information: Patient, Study, Series, and Image information such as Name, Date of Birth, ID number, taken date, etc.. Additionally, there is a miscellaneous tab that includes image file information, including the file type, operator user, and workstation that the image was captured on.

Clicking on the blue tabs will cycle through each set of information.

E					Name	Value	
a 🗟	ge	S	Ş	E I	Patient DOB	1960/10/10	2
a a	na	eń	3	Ę.	Patient Gender	M	Nis I
ËĘ	=	s	S	ä	Patient ID	*****1111	-
<u> </u>		.	B		Patient Name	SMITH^JOHN	0
							4

IMAGE ENHANCEMENT

Interface



The Image Enhancement interface allows for the modification, enhancement, and manipulation of a single image. To protect data integrity, the deletion of images is prohibited by default in XrayVision DCV. Many of the tools found in the Image Enhancement interface are working tools only, and their changes are not saved to the image.

Because enhancements and modifications, known as Labels in DCV, are not saved to an image, there are several options contained in the toolbox drop-down menus whose names are followed by 'with Labels'. This denotation indicates that the image can be printed, copied to clipboard, or saved outside the application with the enhancements and labels placed on an image, for reference purposes.

The Image Enhancement interface contains three main sections:

- 1. **Toolbox:** The toolbox is situated along the top of the Image Enhancement interface, and contains several drop-down menus, including:
 - **Print:** The print dropdown contains two options: Print and Print with Labels. These options allow the user to send the image currently being viewed to a Windows recognized printer (if present), with or without labels. For additional information and workflow steps to print images, see <u>Print Images</u>.
 - **Options:** The options menu contains information and file based tools that allow a user to copy an image to clipboard, save/export images, edit image information, view DICOM tags, as well as burn images. Additional information regarding the tools found in the options menu can be found in <u>Options</u>.
 - Flip: The flip drop-down contains tools that allow the user to temporarily flip an image horizontally or vertically. These are working tools whose changes will not be saved unless the current user has the permission to do so.

- Rotate: The Rotate drop-down allows the user to rotate images 90 degrees clockwise, 90 degrees counterclockwise, 180 degrees clockwise, or a custom rotation specified by the user.
- Enhance: The enhance menu contains several enhancements that can be applied to an image to aid the diagnostic process. Additional information about the enhancements found in this menu can be found in Enhancements
- Labels: The labels menu contains several tools and graphics that can be applied to an image. Some of these tools and graphics include text, measurements, as well as implants. Additional information can be found under Labels
- **Undo/Redo:** Changes applied to an image can be undone or redone one by one using the Undo and Redo tools contained within this menu. Additionally, all changes can be removed at once, using the Original option.
- Real-Time Filters: Real-time filters are post-capture filters that can be left on so images are automatically displayed with the filter applied. Additional information can be found under <u>Real-Time Filters</u>
- Pop-out Toolbars: The pop-out toolbars contain the most commonly used tools for modifying images. Information and descriptions of each of these tools can be found under <u>Pop-out Toolbars</u>.
- 3. Image Information Tabs: These tabs provide a condensed version of the DICOM Tags screen, containing the essential DICOM tag information: Patient, Study, Series, and Image information such as Name, Date of Birth, ID number, taken date, etc.

Options

Copying Images

Images can be copied with or without labels, directly out of XrayVision DCV using the Copy to Clipboard (with Labels) utility. Users can copy an image directly from XrayVision DCV to an email client like Microsoft Outlook, or into a Microsoft Word document so it can be sent to a patient or insurance provider, or for presentation purposes.

Images can be pasted by simultaneously pressing **Ctrl** and **V**, or by right clicking in the document that the image will be pasted into, and selecting 'Paste'.

Save As/Export Images

Images can be exported and saved outside of XrayVision DCV using the Save / Export Image utility. Exporting images is commonly used when emailing images, or if the user would like to save labels and enhancements placed on an image outside of our application for reference.

Additionally, because images modifications cannot be saved within XrayVision DCV by default, users can use this tool to export an image with all modifications and labels to use for reference later.

Several image file types can be selected within the Export Images interface: jpeg, tiff, bmp, and DICOM.

Warning: DICOM files should never sent via unencrypted email! Each DICOM image file contains the associated patient's first name, last name, date of birth, and social security / ID number. Given the insecure nature of email, only jpeg, bmp, and tiff should be used in favor of DICOM, as they do not contain any patient information.

Because jpeg, bmp, and tiff do not contain DICOM information, there are several filename base specifications which can places non-sensitive patient information in the filename so it can be recognized outside XrayVision DCV.



Exporting Images

- 1. Highlight the image thumbnail(s) to be exported.
- 2. Click **Options**
- 3. Select Save / Export Image
- 4. From the Export Images interface, seen below, users can specify the target directory, file type, as well as file name.

Specify the exporting options below and then click	on the OK button.	
Farget Directory:		
C:\Users\kyle.parker\Desktop		
mage File Format:	Compresson:	
DICOM Image DIC *.dic •	No Compression	•
Duranthe On Annual Antines		
Append Images To The Sequence		•
ilename Base Specification:		
Patient Name And ID Filename Base		•
Filename Base:		
Sample: 'Doe_John_1234'		
Export XML image information files		
Export the selected section of the image		
	972 x 682	reduction factor: 100.00 %
 Resize the images to fit in the following dimensions 	0.111-1 0 072 002	pixels 647.36 KB
 Resize the images to fit in the following dimensions 	New Size: 972 x 682 pixe	els 647.36 KB
Resize the images to fit in the following dimensions Vlow export of:	Original Size: 972 x 682 pixel New Size: 972 x 682 pixel Original Images Original Images Retaken Images Standard Images	Have Been Derived

1 Note: Users can choose to ignore Ghosted, Retaken, and Derived images during export using the 'Allow Export Of' section.

5. Click **OK** to export the selected image(s).

Save Images

When enabled, the Save Image option allows users to manually modified images. If the user does not choose to save, all changes will be automatically discarded.

To save modified images:

- 1. Open a patient image.
- 2. Perform all desired modifications to the image.





- 3. Click **Options**.
- 4. Click Save Image.

	shance Labels	Undo/Redo	<no filter="" real-time=""></no>
Copy To Clipboard Copies the image to the clipboard.	and the second second	A CONTRACTOR OF	
Copy To Clipboard With Labels Copies the image and labels to the clipboard.			
Save Image Saves the image back to the database			
Save As / Export Image		1.154	
Save As / Export Image With Labels Saves the image and labels to a file.			
Create New Image From Selection Creates a new image based on the selected section of the image.			
View DICOM Tags Displays all of the DICOM information for the image.			
Edit Image Information Permits modification of the DICOM information associated with the image.			A DESCRIPTION OF THE OWNER OF THE
Apteryx Image CD/DVD Burner Used to burn image CDs or DVDs.			
Contains the various application definitions that permit you to launch other applications based on the currently viewed image.		10 million	
Spawns a document that includes one or more of the current images.	•		
12.01	mm		
States-			
and the second	all a	for game	States and States
The second se	the states		the state of the
			E (
Name Value			

5. All changes are saved.

1 When this option is disabled, users will be prompted to save or discard their changes before moving on to another image or clicking **Go Back**.



Create Images from Selection

This feature allows a new image to be created and saved in the database, containing any labels and modifications performed on an image.

To create a new image from selection:

- 1. Expand the right-hand pop-out toolbar.
- 2. Select the Color Palette icon.



3. Select Area Select.



4. Click and drag the crosshairs to select the area to be used as the derived image.



- 5. Click **Options.**
- 6. Select Create New Image From Selection.



7. The derived image will appear as a new thumbnail, seen below.



Document Templates

XrayVision DCV provides a library of document templates (e.g. referral letters, treatment plans, clinical reports, image cards, etc.) that a user can select to automatically spawn a document in Microsoft® Word. Each template is embedded with coding that inserts an open patient's image(s) and select patient information (Name, ID number, SS Number, etc.) into a new document.

Macros must be enabled in MS Word in order to for the Visual Basic codes embedded within the document templates to be executed. Apteryx, Inc. recommends setting the macro security level to Medium. The medium security setting permits a user to allow or disallow macros when working with documents. Refer to Microsoft's help documentation for further instructions.

To spawn a document template:

- 1. Click View Images from the home screen of DCV.
- 2. Enter search criteria. For additional information about search criteria, see the <u>Query</u> <u>Interface</u> section.
- 3. Click Query For Images.
- 4. From the search results, highlight the desired patient and click View Patient.
- 5. Click to highlight each image to be included in the document.





- 6. Click Image Operations.
- 7. Click **Document Template**.
- 8. Select the desired document template.



9. Microsoft Word will launch with the selected images populated in the template.

April 29, 2014 Clinical Report TEST, TEST SS: 11111111 ID: 11111111	[Click here to enteryour office name] [Click here to enteryour cano] (Click here to enteryour software of a mutched [Click here to enteryour entails and a mutched [Click here to enteryour entail address]
Inge #1	
Type clinical information here.	

- 10. Enter any additional information required in the provided field.
- 11. Save the document to the location of your choosing.

Document templates are customizable, allowing for practice information, logos, and additional information to be added. For additional information about customizing document templates, please refer to the XrayVision DCV Preferences user manual.



Enhancements

APTERYX

Enhancements are filters that can be applied to an image with a single click. These filters can be applied multiple times, providing an increased degree of enhancement.

- 1. Equalize The equalize tool enhances an image by redistributing contrast intensities across so the values are more equal. This provides a more evenly contrasted image, revealing bone density changes clearly.
- 2. **Normalize** The normalize tool enhances an image by stretching the lightest shade of grey to white, and the darkest shade of grey to black, and distributes every shade between them appropriately across the grey scale. This tool reveals data that may not be visible as a result of under or overexposure, for example.
- 3. **Image Filters:** The image filters menu contains the same tools as the <u>Real-Time Filters</u> <u>tab</u>.
- 4. **Noise Reduction:** There are two types of noise reduction tools available; Fast Noise Reduction and Noise Reduction. For normal intra-oral images, there is only a 3-4 second difference between full Noise Reduction and Fast Noise Reduction.

0	Invert Inverts the image.
¥0	Automatic Brightness/Contrast Automatically adjusts the brightness/contrast of the image.
*D	Equalize Equalizes the brightness/contrast of the image.
₩	Normalize Normalizes the brightness/contrast of the image.
1	Smooth Smooths the image.
-	Sharpen Sharpens the image.
	Edge Enhance Enhances the edges in the image.
-	Fast Noise Reduction Quickly removes noise from the image. This version is not as comprehensive as the standard noise removeal.
_	Noise Reduction Removes noise from the image.
<u></u>	Automatic Enhancements Allows you to select the best looking image from a set of automatic and custom image filters applied to the image. Additionally, these filter appear as auto-filters than can be enabled when viewing images.
B	Image Filters The algorithms listed in this list will continually be applied to images once they are activated until you disabled them.



Labels

The labels dropdown menu contains a series of tools which can be placed on an image by selecting the tool and then clicking anywhere on the image.

Finder State And Angle A	
/ Pen	
Enables the placement of a pen labels on the image.	
Measure	
Enables the placement of a measurement label on the	e image.
Enables the placement of an arrow label on the image	a.
- Ellinse	
Enables the placement of an ellipse label on the image	je.
- Rectangle	
Enables the placement of a rectangle label on the im.	age.
Taut	
Enables the placement of a text label on the image.	
Time And Data	
Enables the placement of a time-and-date label on th	e image.
A A Second States	
Advanced Labels Additional labels, markers and annotations.	
4	
7 Save Label Properties	
🦉 Sets the current label properties as the default.	
? Calibration Ontions	
Allows access to various calibration functions.	
🖉 Remove Labels	
Allows the removal of one or more labels from the ima	ge.
The second se	
Hide Labels	
Drevente the labels from being disclosed	

- Measurement Tool: If the image has been calibrated, the measurement tool allows for anatomies an image to be measured. For instructions on this tool, see <u>Measuring an</u> <u>Image</u>.
- 2. **Save Label Properties**: This option allows default settings to be saved for each label. The settings include: Color, font, size, fill color, etc.
- 3. **Calibration Options:** In XrayVision DCV, sensor images may be calibrated, allowing accurate measurements and implants to be placed on an image.
- 4. **Implants:** If an image has been calibrated, a true scale implant can be placed on the image. The implant option is located under the Advanced Labels tab. Additional information can be found under Implants.

Calibration Options

These measurements are based off a calibration factor, specific to the dimensions of an image returned. As a result, images returned from size 0,1, and 2 sensors can each be assigned a specific calibration factor, based off of the image dimension returned from that sensor.

When calibrated, the information in the Calibration tab found in the Image Information Tabs will appear with a green background, indicating that the image has been calibrated and measurements can be performed. If the image has not yet been calibrated, the information will appear with a red background.



Calibrating an Image

Before measurements or implants can be placed on an image, it first needs to be calibrated. This can be done in two ways; Based on the width of the window if the dimensions are known, or based on an object of known distance, such as a ball bearing.

To calibrate an image:

- 1. Click Labels
- 2. Click Calibrate Options
- 3. Click Calibrate Image

Labels Undo/Redo	<no filter="" real-time=""></no>
Interact With Labels Enables the interaction with labels using the mouse.	
Pen Enables the placement of a pen labels on the image.	
Measure Enables the placement of a measurement label on the image.	
Finables the placement of an arrow label on the image.	
Enables the placement of an ellipse label on the image.	
Enables the placement of a rectangle label on the image.	and the second se
Enables the placement of a text label on the image.	
Finables the placement of a time-and-date label on the image.	
Advanced Labels Additional labels, markers and annotations.	•
Save Label Properties Sets the current label properties as the default.	
Calibration Options Allows access to various calibration functions.	Calibrate Image Provide for measurement calibrations in the image.
Allows the removal of one or more labels from the image.	Calibration Factor Management Accesses the features for managing the various calibration factors associated with image.
Hide Labels Prevents the labels from being displayed	

- 4. Click once and drag the crosshairs across the object of know distance or image dimension.
- 5. Double-click to finish the measurement.
- 6. Enter the distance in millimeters.

Calibrate Measurements	×
Reported Distance	Actual Distance
1057.497 mm	36
ОК	Cancel

- 7. Click **OK** to save the calibration.
- 8. The Calibration tab in the Image Information tabs along the bottom will now appear green, seen below:





Implants

If an image has been calibrated, a true scale implant may be laid over an image. This implant may be moved, rotated, and placed to over a socket replicate a post-op image. We currently support the full implant families from 3i, Almitech, Blue Sky Bio, and Zimmer.

To add an implant:

- 1. Click Labels
- 2. Click Advanced Labels
- 3. Click Implants

Labels Dundo/Redo	<no filter="" real-time=""></no>
Interact With Labels Enables the interaction with labels using the mouse.	
Pen Enables the placement of a pen labels on the image.	
Measure Enables the placement of a measurement label on the image.	
Arrow Enables the placement of an arrow label on the image.	
• Ellipse Enables the placement of an ellipse label on the image.	
Enables the placement of a rectangle label on the image.	A CONTRACTOR OF THE OWNER OF THE
Text Enables the placement of a text label on the image.	Constraint.
Time And Date Enables the placement of a time-and-date label on the image.	
Advanced Labels Additional labels, markers and annotations.	Angle Enables the placement of an angle label on the image.
Save Label Properties Sets the current label properties as the default.	Bisecting Line Enables the placement of a bisecting line label on the image.
Calibration Options Allows access to various calibration functions.	Four Point Bisection Enables the placement of a four-point bisection label on the image.
Remove Labels	Enables the placement of a relative angle label on the image.
Allows the removal of one or more labels from the image.	Enables the placement of a straight line label on the image.
Prevents the labels from being displayed	Implants Enables the placement of an implant label on the image.

4. Using the crosshair cursor, click the screen to open the Implants interface.





Select Imp	lant	×
	Select the implant to add to the image:	
Manufati	urer: 3	•
Family:	OSSEOTITE NT	•
8	FNT3210 Dimensions: 3.3 mm diameter by 10.0 mm long Product Family: OSSEOTITE NT Product Code: FNT3210 Notes: FULL OSSEOTITE NT MICROMINIMPLANT 3.25MM x 10MM	
V	FNT3211 Dimensions: 3.3 mm diameter by 11.5 mm long Product Family: OSSEOTITE NT Product Code: FNT3211 Notes: FULL OSSEOTITE NT MICROMINIMPLANT 3.25MM x 11.5MM	
Į	FNT3213 Dimensions: 3.3 mm diameter by 13.0 mm long Product Family: OSSEOTITE NT Product Code: FNT3213 Notes: FULL OSSEOTITE NT MICROMINIMPLANT 3.25MM x 13MM	
l I	FNT3215 Dimensions: 3.3 mm diameter by 15.0 mm long Product Family: OSSEOTITE NT Product Code: FNT3215 Notes: FULL OSSEOTITE NT MICROMINIMPLANT 3.25MM x 15MM	
	FNT 3285 Dimensions: 3.3 mm diameter by 8.5 mm long Product Family: OSSEOTITE NT Product Code: FNT3285 Notes: FULL OSSEOTITE NT MICROMINIMPLANT 3.25MM x 8.5MM	
	FNT410 Dimensions: 4.0 mm diameter by 10.0 mm long Dimensions: 4.0 mm diameter by 10.0 mm long	-
	Update List	
Magnific 100%	ation Factor:	Cancel

- 5. Add your implant to the image by clicking on the graphic representation in the list.
- 6. Using the grey boxes, the implant can be rotated and moved around the image, as seen below:



Implant properties may be modified by double-clicking on the implant. These properties allow the color, fill color, and pen size to be modified.



Pop-out Toolbars

The Image Enhancement interface contains two pop-out toolbars, contained in the lower right and left-hand corners of the image viewing area. These toolbars can be expanded by single-clicking to reveal the following two toolbars:

Left Toolbar:

- 1. **Pointer Tool**: The pointer tool will remove any currently selected tool from the cursor.
- 2. **Measurement Tool**: If the image has been calibrated, the measurement tool allows for anatomies an image to be measured. For instructions on this tool, see <u>Measuring an Image</u>.
 - ?
- 3. One-time Calibration: A one-time calibration can be applied to an image if an object of known measure has been placed in the image, such as a ball bearing or endo file, allowing the image to be calibrated off of the object. This calibration will be applied only to the current image only, This one-time calibration is performed just like the CALIBRATE IMAGE function.
- 4. **Pen Tool**: The pen tool allows the user to draw on the image. To remove this tool from the cursor, simply click the Pointer Tool.

Right Toolbar:

R

- 1. Spot Zoom: The Spot Zoom tool allows users to zoom in or out from a point using the right and left click buttons on the mouse. This tool will zoom in on wherever the cursor is hovering above, allowing for specific points to be selected and zoomed in on.
- 2. **Static Zoom:** The Static Zoom tools will zoom in or out of an image with each click on the button.



3. **Fit Screen:** The Fit Screen returns an image back to the window dimensions, allowing the full image to be viewed.

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	-
	- 6

 Presentation Mode: Presentation Mode allows an image to be viewed full-screen. This mode also removes all colors from the screen, allowing the image to be viewed in true black and white.



5. Brightness/Contrast: Brightness and contrast are combined into a single tool, allowing them to be simultaneously adjusted. Brightness is adjusted by clicking and dragging upwards or downwards on the image. Similarly, contrast can be adjusted by clicking and dragging left or right on the image. These tools have been combined so that they can be used to complement each other.



6. **Gamma:** Gamma adjustment uses the same adjustment methodology as Brightness/Contrast tool seen above. Clicking and dragging the mouse horizontally along the image will increase or decrease the Gamma adjustment.



Gamma performs a similar function to Brightness/Contrast in that it will lighten or darken an image. Gamma adjustment differs in that it is dynamic, where Brightness/Contrast is static. Gamma maintains all of the relational information between different hues in the image, so that information is never lost, regardless of the extremity of the adjustment.

7. Magnifying Glass: The magnifying glass can be used to magnify a specified area on the displayed image. The settings for this glass can be adjusted by double-clicking on the image. These settings allow the glass size and the degree of magnification to be adjusted, which ranges from 2X to 5X zoom.



8. **Spot Enhance:** The Spot Enhance tool places the normalize tool in a glass, which can be dragged around an image. The size of the glass can be changed by double-clicking on the image.

£7 J.

9. Screen Scroll: The Screen Scroll tool allows users to click and drag the image while zoomed in, allowing other portions of the image to be viewed.

Measuring an Image

The measurement tool can be accessed from the left-hand pop-out toolbar, or from the Labels dropdown menu.

- 1. Click the Measure icon in the pop-out toolbar, or in the Labels menu.
- 2. Left-click once to place the initial anchor point and begin measurement
- 3. Double-clicking will end the measurement, which displays the distance in millimeters.

U Single-clicking while measuring will place additional anchor points on the image. This feature allows curvature, such as a canal, to be measured accurately. After double-clicking to complete the measurement, incremental measurements will appear for each segment between anchor points.

Real-Time Filters

Real-time filters are post-capture filters that can be left on so images are automatically displayed with the filter applied. By default, the Apteryx Real-Time Filters will be available. Depending on the imaging hardware in use at your clinic, hardware-specific real-time filters may also be available.

Applying a Real-Time Filter

- 1. Click the Real-Time Filter tab.
- 2. Select a real-time filter.





3. When a real-time filter is applied, the tab will appear blue.

🔽 RTF: Apteryx General Enhancement

The same process is used to remove a Real-Time Filter; Expanding the Real-Time Filter tab and clicking on the green highlighted filter will remove the filtering from the image.

Modify Image Filter Options

Some Real-Time filters are customizable, allowing different combinations to be applied at once. To modify these filters:

- 1. Click the **Real-Time Filter** tab.
- 2. Select Image Filter Options
- 3. Select the **Real-Time Filter** to be customized
- 4. The options interface will appear, allowing any customizations to be made.

nalize		
otive Normalize	Factor 1	to 5
an Blur	Mask 5×5	
is Blur	Mask: 5x5 v	
pen	Mask 21×21 Factor: 75	
narp Mask	Mask 17x17 v Factor:	
denoise	Factor 4 1	to 1
ver Deblur	Sigma , , , , , , , , , , , , , , , , , , ,	l to "
	Noise	
elet Denoise	Factor 5 0	to 1
r Teeth / Default	Anterior Teeth	
less	0 Brightness 0	_
st		
	100 Gamma 10	0
a	Contrast	0

5. After all changes have been made, click OK

ADVANCED USER TOOLS

Located in the lower left-hand corner of the XrayVision DCV home screen, the Advanced User Tools menu contains a collection of tools and utilities which can be customized by the user. By default, the following options are displayed:

- 1. **Import Images:** Import Images allows DICOM images to be added to the XrayVision DCV database. Any amount of DICOM image files may be added simultaneously.
- 2. Data Correction: The Data Correction tool is the only point in the software where image information for multiple images may be edited simultaneously. For instructions and information regarding Data Correction, see <u>Appendix 1 Data Correction</u>.
- **3. Report Generator**: This tool allows a report to be customized and generated, which outlines the DICOM information of a given database. For instructions and information regarding the Report Generator, see <u>Appendix 2 Report Generator</u>.
- 4. Manage Auto-Match List: This tool allows users to manage the auto-match dropdown list that appears when users enter patient information in the Capture and Query interfaces. Users may delete specific entries, as well as purge old entries by age.
- 5. Manage MRU Patient List: This tool allows users to manage entries in the MRU patient list, found in the Capture and Query interfaces.
- 6. Display Monitor Test Pattern: This utility helps users to properly adjust the brightness/contrast settings for their display.
- **7. Preferences:** Preferences contains all settings, options, and permissions for XrayVision DCV, and is password -protected.

Import Images

The Import Images tool allows DICOM images to be added to the DCV database in bulk. Common file formats, such as jpeg, bmp, and tiff, cannot be added to the DCV database using this tool.

To import common file format images, the Image Importer extension is needed, and is used just like normal image capture.

DICOM File Image Import

The Import Images tool, found in Advanced User Tools, is used to import DICOM images in bulk.

If the Import Images tool does not appear in Advanced User Tools, it must be enabled in Preferences. To enable this option, please contact your IT staff or Apteryx Technical Support.

Importing Images

- 1. Click Advanced User Tools
- 2. Click Import Images



	Capture Images Captures new images for a patient based on a modally worklat and atoves them to a DICOM server.
	Import Patient List Permits you to import patients from an external patient list.
	Enables you to import Images into the database.
	Permits you to correct data associated with one or more images.
	Report Generator Launches the report generator with the currently selected database.
	Manage Auto-Match List Enables you to manage the auto-match patient list.
	Manage MRU Patient List Enables you to manage the most recently-used patient list.
Advanced User Tools Advanced user tools including: preferences; import utilities: image	Enables you to daplay the monitor test pattern Enables you to daplay the monitor test pattern that will permit you to calibrate your display.
forwarding options; database selection	Display Image Desktop Window Enables you to display the secondary image desktop window that can be used to

3. Select the folder containing DICOM images to be imported.

Copy Images To) Database
	Select the directory containing the images that are to be imported to the local database.
Þ	Path: CMisroNyle pate/Opsitor) Col C Recurse the sub-directories Col
	OK Cancel

- 4. Click OK.
- 5. The application will then report the number of images that were imported into the application. If no images are found, it will report that no images were imported.

Common File Image Importer

Common file formats, such as Jpeg, TIFF, and BMP, can be added to the DCV database using the Image Importer extension.

Importing Images

- 1. Select **Capture Images** on the home screen.
- 2. Enter all required patient information.
- 3. Under Modality/Progression, select Image Importer.

If the Import Images option is not present, the upgrader





Capture a new image or image series.							
Worklist Specific	Worklist Specification						
Patient ID:	12345678	9					
Last Name:	DOE						
First Name:	JOHN						
Birth Date / Gender:	2014	04	24		Μ		•
Modality / Progression:							-
Patient ID Name 1	Cepl	halometr I-oral X- Ioramic) Je Impor	ric X-ray ray K-Ray tter	, L	5	DX IO PX	Jality

May 6, 2014

- 4. Click 'Capture Images'
- 5. The Image Importer interface will appear:

Capt	ure		
*	Import Opens the file dialog to allow you to select what images are to be imported.		
**	Thumbnails Sets the number of rows and columns of thumbnails that should be displayed simultaneously.		
	Organize Via Layout Allows you to drag-and-drop 10 images into a layout to automatically set their tooth numbers.	,	
A	Image Operations Functions for rotating, flipping and inverting the selected image.		
Ø	DICOM Operations Functions for changing DICOM aspects of images.		
	Set Default Modality Options for setting the default modality that will be assigned to new images.		
TOTAL	Dates Various options for setting the dates and times of images.		
Û	Delete Selected Images Discards the currently selected images.	-	
	Drag-And-Drop Targets	Default Modality: OT	
		Done Returns the acquired images	el
	OTOTAL INAGE	back to the invoking Cancels the analysis of the Cancels the Cance	e current acquisition.

- 6. Choose 'Import'
- 7. A Windows Explorer window will appear, allowing images to be selected.

Multiple images can be imported simultaneously by holding the Shift key.

8. Drag each image to its appropriate Modality, using the Drag-and-Drop targets located in the lower left-hand corner of the Importer interface.



Capture		
Import Opens the file dialog to allow you to select what images are to be imported.		
Thumbnails Sets the number of rows and columns of thumbnails that should be displayed simultaneously.		
Organize Via Layout Alows you to drag-and-drop IO images into a layout to automatically set their tooth numbers.	Modality: OT Taken: 2014/04/25	
Image Operations Functions for rotating, flipping and inverting the selected image.		
DICOM Operations Functions for changing DICOM aspects of images.		
Set Default Modality Options for setting the default modality that will be assigned to new images.		
Various options for setting the dates and times of images.		
Delete Selected Images Discards the currently selected images.		
11.15		
Drag-And-Drop Targets	Default Modality: OT	
TITALORAL PANORAL DENA	Done	cel
XC. OT	Returns the acquired images back to the invoking annlication	s the current acquisition.

9. Click 'Done' to import all selected images.

Data Correction

DCV Data Correction is a function that allows users to correct patient information associated with DICOM images. This tool is used if patient information has been entered incorrectly, causing the patient to be displayed incorrectly in DCV.

For additional information on Data Correction, please see Appendix 3 – Data Correction.

Display Monitor Test Pattern

Display Monitor Test Pattern is a tool used to properly adjust the brightness and contrast settings on a computer monitor. Clicking on this utility will display a series of segmented spectrums, from black to white, each of which should be visible if the brightness and contrast settings have been properly adjusted.

Each distinction should be visible, as seen below, if the monitor has been properly adjusted. If the shades are skewed to one side of the spectrum, making some of the cells indistinguishable, the brightness and contrast is then adjusted to compensate. Properly adjusted display settings provide an ideal environment in which to diagnose radiographs.





This is a monitor calibration tool that is used to optimize the grayscale display of each individual monitor. Change the brightness, contrast and gamma settings on your monitor and/or video card until the maximum number of delta The 9% deltas should be much easier to discern than the 1% delta and the grayscale ramp should be a continuous and consi	changes are visible below. stent transition from black i	to white.				
Standard Grayscale Step Ramps - You should see 29 and 50 distinct cells respectively.						
Standard Grayscale Ramp - This should be a smooth black-to-white transition.						
5% Color Delta Ramps - Each distinct cell contains a +5% and .5% gray square that should clearly appear in each cell.						
the second se						
2% Color Delta Ramps - Each distinct cell contains a +2% and -2% gray square that should appear in each cell.			_	_		
				100		
1% Color Delta Ramps - Each distinct cell contains a +1% and -1% gray square that should be barely discernable in each cell.			_	_	_	
					-	
Standard Color Ramp - This should be a smooth color transition.						
	a @ 2008 Antanyy Inc.					
c.opyng When γοι arc push the ≪ESC> key, lett mo	tone calibrating your monit buse button, or right mouse	tor button to exit				

Preferences

Preferences is a password-protected area of XrayVision DCV which contains all settings, options, and permissions within XrayVision DCV. Please see your IT staff, or contact Apteryx for help.

APPENDIX 1 – DATA CORRECTION

Basic Functionality

DCV Data Correction is a function that allows users to correct patient information associated with DICOM images. This tool is used if patient information has been entered incorrectly, causing the patient to be displayed incorrectly in DCV.

The more information that is entered in the search fields, the more accurate the search results will be, and the faster the search results will return. If little or no information is entered when searching, the search will take significantly longer and will return a much wider range of patients.

There are several places where the Data Correction feature is located in XrayVision DCV. This tool can be found under Advanced User Tools, in the Query Results screen, as well as in Permission and Data Correction tab of the Preferences. These differ from the data correction available through the Edit Patient Information option found when viewing an image because they allow for multiple images to be corrected at once, rather than on an image by image

Query for Images

When performing a normal image search using the 'View Images' button on the home screen, wildcards are automatically applied to each search field. This is different from the Data Correction feature found in the Advanced User Tools, where you have to use an asterisk to apply a wildcard to a search field. A wildcard allows partial names or IDs to be used in the search fields, which retrieves all patients that match those characters. As seen below, if the letters Jo are entered in the first name field, the search will return every patient whose name starts with the letters 'Jo'.

Query for an im	ano sorio	c				
	iage serie	5				
Query Specifica	tion			"RU	X	
Patient ID:	Enter or sca	n the patient	's ID		n Con	env For Images
Last Name:	DO					ery i or images
First Name:	Enter or sca	n the patient	's first name			
Birth Date / Gender:	YYYY	MM DD		-	Queri	es the selected data servers for patients ning the specified information.
Modality:				-	E	
Study Date:	YYYY/MM/	DD	to YYYY/MM/	/DD		
Teeth:	<all teeth=""></all>					
Sources To Be Queried:	Data Sourc	e	Notes			
	Local I	Database>	" Path = 'C:'	VrayVisionD		
					-	
Patient ID 🔼	Name	Gender	Birthdate	Other IDs	Patient Comments	
- 😪 123456789	DOE^JANE	F	2014/04/24	-	-	
🗕 🗕 🕵 123456789	DOE^JOHN	м	2014/04/24	-		

XrayVision DCV

A search based on a study date can also be performed, which finds all images captured over a specified date range. If images have been captured under the incorrect patient, this date range search can be used to locate and correct those images using the Data Correction icon seen below.



The Data Correction icon, located below the search results, allows patient information for the selected patients to be corrected directly from the search results. The Data Correction is found in the toolbox of the Image Query screen, seen in the image below.



Correcting Data in the Image Query Window

- 1. Open XrayVision DCV.
- 2. Click 'View Images'.



- 3. Perform an image query.
- 4. Highlight patient(s) that will be modified.

Query for an im	age series	E.						
Query Specifica	tion			MRU	×			
Patient ID:	Enter or scan	the patient's	ID			env For Images		
Last Name:	Enter or scan	the patient's	last name		Query r or images			
First Name:	Enter or scan	the patient's	first name		9			
Birth Date / Gender:	mm MI	M DD		•	Quen	es the selected data servers for patients hing the specified information.		
Modality:				•	E			
Study Date:	YYYY/MM/DI		o YYYY/MM/E					
Teeth:	<all teeth=""></all>							
Sources To Be Queried:	Data Source	8	Notes					
	🔽 <local da<="" td=""><td>atabase></td><td>" Path = ℃:V</td><td>Kray Vision D</td><td></td><td></td></local>	atabase>	" Path = ℃:V	Kray Vision D				
Patient ID	Name	Gender	Birthdate	Other IDs	Patient Comments			
- 😪 111223333	SMITH^JOHN	м	2014/01/01	•	-			
— 👥 123456789	DOE^JANE	F	2014/04/24	1				
🖵 👥 123456789	DOE^JOHN	М	2014/04/24					

U Multiple patients may be selected and modified simultaneously. If duplicate entries exist for a single patient, selecting multiple patients from the list allows users to merge multiple patient entries into a single entry.

- 5. Click the Data Correction icon.
- 6. The Edit Image Information window appears.



tient Information:			Co	rrect From Dat	abase	Image:			_	
Patient ID:	123456	789	Current							
Patient Last Name:	DOE									
Patient First Name:	JOHN									
Patient Birth Date /	2014	04	24	M	•					1
Patient Other IDs:	-									
Patient Comments:	-									
Patient Branch of Service:					•					
Patient Species:					-					
Patient Breed:					*					
udy Information:						Image Information:				
	201404	250024					DY		Cenha	Iometric X-ray
Accession:	201404	230324				Modality:	UA		oopne	nonnouno / ruy
vecession: Study Date:	201404	04	25			Modality: Acquisition Date:	2014	04	25	
accession: Study Date: Study ID:	2014042 2014 2014042	04 250924	25			Modality: Acquisition Date: Instance Number:	2014	04	25	
accession: itudy Date: itudy ID: Referning Doctor:	2014042 2014 2014042 NONE	04	25			Modality: Acquisition Date: Instance Number: Acquisition Number:	2014	04	25	
accession: Study Date: Study ID: Stefening Doctor: Study Description:	2014042 2014 2014042 NONE	04 250924 metric X-ra	25 V			Modality: Acquisition Date: Instance Number: Acquisition Number: Image Comments:	2014 1 DX	04	25	
vocession; Study Date; Study ID; Referring Doctor; itudy Description; itudy UID;	201404, 2014 201404, NONE Cephalo 1.2.840,	04 250924 metric X-ra 114384.48	25 y 3352372.763	326.20140425		Modality: Acquisition Date: Instance Number: Acquisition Number: Image Comments: Image Type:	2014 1 DX	04 al	25	mary
vocession; Study Date; Study ID; Referring Doctor; Study Description; Study UID;	2014042 2014 2014042 NONE Cephalo	04 250924 metric X-ra 114384.48	25 y 3352372.763	326.20140425	میں اور	Modality: Acquisition Date: Instance Number: Acquisition Number: Image Comments: Image Type:	2014 1 DX Ghost	04 al ed	25	many taken
vocession: Study Date: Study ID: Referring Doctor: Study Description: Study UID:	2014042 2014 2014042 NONE Cephalo	04 250924 metric X-ra 114384.48	25 y 3352372.763	326.20140425	5. e ^r ₂	Modality: Acquisition Date: Instance Number: Acquisition Number: Image Comments: Image Type:	2014 1 DX F Origin	04 al ed	25	mary
vocession: Study Date: Study ID: Referring Doctor: Study Description: Study UID: rise Information: Genies Number:	201404. 2014 2014042 NONE Cephalo 1.2.840.	04 250924 metric X-ra 114384.48	25 y 3352372.763	326.20140425		Modality: Acquisition Date: Instance Number: Acquisition Number: Image Comments: Image Type: Image Teeth:	2014 1 DX IX Origin	04 al ed	25	mary taken
vocession: Study Date: Study ID: Referring Doctor: Study Description: Study UID: rise Information: Series Number: Series Date:	201404. 2014 201404. NONE Cephalo 1.2.840.	04 250924 metric X-ra 114384.48	25 y 33352372.763 25	326.20140425	میں اور	Modality: Acquisition Date: Instance Number: Acquisition Number: Image Comments: Image Type: Image Teeth:	2014 1 DX T Origin	04 al ed	25 IX Pr I Re	many taken
socession: Study Date: Study ID: Referring Doctor: Study UID: rise Information: Series Number: Series Date: Series Date: Series Description:	201404. 2014 2014042 NONE Cephalo 1.2.840	04 250924 metric X-ra 114384.48 04	25 y x352372.763 25	326.20140425	<u>م</u>	Modality: Acquisition Date: Instance Number: Acquisition Number: Image Comments: Image Type: Image Teeth:	2014 1 DX F Ongin Ghost	04 al ed	25	mary etaken
Accession: Study Date: Study ID: Referring Doctor: Study Description: Study UID: rise Information: deries Number: Series Date: Series Description: Body Part Examined	201404. 2014 2014042 NONE Cephalo 1.2.840	04 250924 metric X-ra 114384.48 04	25 yy 25 25	326.20140429		Modality: Acquisition Date: Instance Number: Acquisition Number: Image Comments: Image Type: Image Teeth:	2014 1 DX F Orgin Ghost			mary taken

- 7. Make all necessary changes.
- 8. Click 'OK' to save your changes.



Data Correction

📑 Image D	ata Correct	ion										• ×
Query	Specific	ation								×		
Patient ID	:						uery For	Images)	
Patient La	st Name:											
Patient Fir	st Name:					~ _	ueries the sele	cted data servers for p.	atients matchin	g the specified		
Gender:			тттт јмм	סטן			formation.)	
Note: Query	fields are no	t automatio	ally wildcarded.									
Patient ID	Name	Gender	Birthdate	Study Date	Modality	Accession Number	Study ID	Referring Doctor	Other IDs	Patient Comments	Study Description	Study Instar
<												*
	20113CL	has not be	en selected from	n the list.		ompines the selected ite udy.	eci icernis mainto the air	me series or			Closes this	tialog.

Data can also be corrected using the Data Correction utility found in Advanced User Tools and in Preferences. This utility operates like a normal image search in DCV; any combination of patient information can be used to search for images.

Correcting data using the Data Correction utility differs from a normal image search because wildcards are not automatically applied the search fields. To wildcard these search fields manually, an asterisk can be placed at the beginning or end of the patient's ID, or at the end of their first or last name.



Selecting Patient Studies

Patient ID: Patient Last Name: SMITH				Query For Images							
Patient First Nam Patient Birth Date	e: e/ Y	YYY M	M DD		_	Queries informat	the selected data servers ion.	for patients matchi	ng the specified		
Gender: Study UID:			1							_	
Note: Query fields ar	e not automatica	lly wildcarde	ed.								
Patient ID	Name	Gender	Birthdate	Study Date	Study Time	Modality	Accession Number	Study ID	Referring Doctor	Other IDs	Patier
Г 😼 11111111	SMITH^JOHN	0	1960/10/10	2011/02/01	15:43:12.0	10	201102011543	201102011543	NONE	5	
- 😼 111111111	SMITH^JOHN	0	1960/10/10	2011/02/01	15:33:05.0	10	201102011533	201102011533	NONE	<u>.</u>	
- 😼 111111111	SMITH^JOHN	м	1990/01/12	2011/02/01	15:31:21.0	10	201102011531	201102011531	NONE		4
	SMITH^JOHN	м	1960/10/10	2011/02/01	15:30:18.0	10	201102011530	201102011530	NONE		

Search results are listed as studies, rather than entire patient files, because studies most commonly contain mistakes with patient information. Multiple studies can be selected by using the Shift or Control keys; Shift allows for the selection of a range of studies, while Control will allow users to select multiple studies individually. Individual images may also be selected for correction by double-clicking on a study to expand of the listed studies to reveal each series and image contained in the study.

The image below demonstrates both functions; the top three studies were selected using the shift key to highlight consecutive images. Individual studies, rather than consecutive studies, can be selected by holding the control key and clicking on each study.

Image Data Cor	rection	_	-	-	-		-			
Query Spec	ification									×
Patient ID: Patient Last Nam	ie: TE	EST				Query	/ For Images			
Patient First Nam Patient Birth Date Gender: Study UID:	e: e / M	лүү ММ				Queries t informati	he selected data servers on.	for patients matchir	ng the specified	
Note: Query fields ar	e not automatical	ly wildcarded	Local La		Let LT:	Lu in	1.4			
Patient ID	TEET^TEET	M	Birthdate	Study Date	11-25-52 0	Modality	Accession Number	201009221126	Hererring Doctor	Uther IL
	TESTATEST		1111/11/11	2010/03/23	15:04:44.0		201101181505	201003231120	NONE	
- 🔂 11111111	TEST^TEST		1111/11/11	2011/01/18	14:58:14.0		201101181502	201101181502	NONE	
- 🗊 11111111	TEST^TEST	м	1000/11/11	2010/09/23	15:46:48.0	10	201009231547	201009231547	NONE	
- 😺 11111111	TEST^TEST	М	1111/11/11	2010/09/23	15:45:01.0	10	201009231545	201009231545	NONE	
- 😼 123456788	TEST^JOSIAH	м	2011/03/18	2011/03/18	11:16:34.0	10	201103181116	201103181116	NONE	-
- 😺 123456789	TEST^JOE	М	2011/03/18	2011/02/01	15:43:12.0	10	201102011543	201102011543	NONE	
223456789	TEST^JOHN	м	2011/03/18	2011/03/18	11:15:57.0	10	201103181116	201103181116	NONE	-

Correcting Data

When the desired studies or images have been selected, click the 'Correct' button at the bottom of the screen, which will open the Edit Image Information screen, seen below.

dit Image Information	-	_		_			-		
Edit Image Informa	ation: Aultin Study UID: <m Series UID: <m Image UID: <m< th=""><th>ole Patients Se ultiple Studies Iultiple Series Iultiple Images</th><th>elected> Selected> Selected> Selected></th><th></th><th></th><th></th><th></th><th>🖌 ок</th><th></th></m<></m </m 	ole Patients Se ultiple Studies Iultiple Series Iultiple Images	elected> Selected> Selected> Selected>					🖌 ок	
Patient Information:		Corre	ect From Data	abase	Image:				
Patient ID:	11111111								
Patient Last Name:	SMITH								
Patient First Name:	JOHN								
Patient Birth Date /	1960 10	10	0	•					3
Patient Other IDs:		,							_
Patient Comments:									
Patient Species:				•					
Patient Breed:				Ŧ					
Study Information:					Image Information:				
Accession:	201102011543				Modality:	10			Intra
Study Date:	2011 02	01			Acquisition Date:	2011	02	01	_
Study ID:	201102011543				Instance Number:	2	,	,	
Referring Doctor:	NONE				Acquisition Number:				
Study Description:	Intra-oral X-ray				Image Comments:	PA14, I	PA15, PA1	6, PA17, PA	418, PA
Study UID:	1.2.840.114384.66	146057.2011	0201.154312		Image Type:	I Origi	nal	X F	Primary

When editing multiple patients and studies, the only information fields that will remain available are the patient-specific information; Image-specific information can be edited on a single image basis only as it is specific to a single image.

Patient information can be corrected in two ways; Manual entry of the correct information, or by using the green 'Correct From Database' button. This button will display a list of every patient in the database, and allow you to select the patient with the correct information to be assigned to the selected studies or images. Once the correct information has been entered or selected, simply click the 'OK' button to apply the changes.

After any change is made, the ID field will display '<Item Changed>', indicating that the changes have been applied.



APPENDIX 2 – REPORT GENERATOR

Interface

DCV Report Generator is a database utility designed for advanced users to compile a report based on the information contained within their database. This utility can be found by clicking on the 'Advanced User Tools' button on the home screen of XrayVision DCV. The information included in these reports is dictated by the criteria selected by the user, seen in the image below:

DCV Report Generator		
DCV Report Generator Version Copyright © 2004-08 Apteryx, I	1 (1.2.0.7) Inc. All rights reserved.	🥑 Select Database
Database Path: C:\Program Fil Database Engine: Apteryx	es	
Report Type:		Send Report To:
All Records	•	🗵 Printer
Date Range Start: 3/	19/2013	VAI1/HP LaserJet 4300 PCL 6
Data Banga End	10/2012	🕅 File
Date hange chu. 37	13/2013	C:\Users\kyle.parker\Desktop\DatabaseReport.TXT
Data To Report:		
Print Information For:	All image types	
List Patients By:	Patient ID Number	
Separate IO modality into bitev	vings and PAs	
K Modality counts	🕱 Image counts by	Year and Month Print image thumbnail sheet
IX Doctor image counts IX Station image counts	☐ Series counts by	Year and Month
E Location image counts	Study counts by	Year and Month
Sensor capture counts	Modality counts by	Year and Month
🗖 Study UID image counts	Keyword counts by	Year and Month
Series UID image counts	Searches study, ser	ies and image comments and A
 IX Study description image count Series description image count 	ts search image comm	ients.
Image: Study description image count Series description image counts Image: Series description image: Series description image counts	s descriptions, rasi c te search image comm	Generate Reports

Data controls

Multiple Databases

In XrayVision DCV, it is possible to maintain two separate databases. If multiple database support is currently enabled, users may switch between databases using the 'Select Database' button, so that reports for each database may be separately generated. Although multiple databases can be



supported simultaneously within DCV, the Report Generator can only generate a report for one database at a time. After clicking 'Select Database', the following window will appear:

	These options specify various aspects of dat setting unless directe	the path to the desired database directory and tabase interaction. You should not change this d to do so by technical support or your network administrator.							
	Database Path:								
	C:\Program Files\Apteryx\XrayVision E	pcvl 🔁							
	F Enable database caching	This option requires more memory but can significantly reduce latency accessing a heavily chaning or networked database. Changing this setting will not take effect until the application is restarted.							
	Wildcard Support:								
	Simple (fastest lookups)	•							
9	What database engine should be Apteryx Database	e used?							
	SQL Database Options And Information								
	Version 1 (1.0.0.9)	SQL Options Access the SQL database extension options							
		📝 DK Cancel							

This path will be pre-populated with the Databases folder located in the director in which the DCV Report Generator executable is located. If your database is located in a remote location, this tool can be used to navigate to the correct database path.

Date Range

Reports can be generated about an entire database at once, or for a given date range, which can be selected under the Report Type section. By default, this option is set to 'All Records', which will create a report for the entire database. If a specific date range is required, this selection can be changed to 'Date Range', and the Date Range fields can be used to specify a time period.

Save and Print

The DCV Report Generator can handle reports in two ways; reports can be sent directly to a printer, or they can be saved as a text file. If there is a printer attached to your computer, it will appear in the dropdown list once the checkbox next to 'Printer' has been checked.

Reports may also be saved as a text file for review and storage. Once the 'File' option has been checked, a file destination path may be selected by using the folder icon to the right of the path field. After clicking on the folder icon, a 'Save As' screen will appear, allowing a location on the local computer or network to be selected for storage of the report. This feature is commonly used for documentation and record keeping purposes, where users would like to have a digital copy of each report that has been generated for a clinic or database.



Note: When 'Printer' has been selected, the user may choose to print a thumbnail sheet that can contain 3-7 images per sheet. This option is left deselected by default due to the paper requirement to print a thumbnail for every image contained in a large database.

Report Information

The DCV Report Generator allows users to customize the report to provide any combination of information in the report. An unlimited amount of options may be used simultaneously for a single report. Likewise, all of these options may be left blank, which will provide a very basic report that contains image counts for primary, ghosted, and retaken images, as well as a total image count. The number of criteria selected for the report will dictate the length of time required for the report to generate.

Image Information

There are several image-specific options that can be enabled to provide detailed information about the image. These options include: Modality, Doctor, Station, Location, Operator, and Sensor capture counts. Additionally, when using Modality count, Intraoral can be further broken down so that listings Bitewing and Periapical differentiated.

- **Modality:** The Modality Count option allows for the image counts to be further broken down by modality, such as Intraoral, Panoramic, Cephalometric, etc.
- **Doctor count:** Doctor Count provides the number of images captured for patients assigned to the Referring Doctor.
- **Station count**: Short for Workstation, Station Count records the name of the computer on which the image was captured.
- **Operator count:** Operator count reports the user that is logged into the computer at the time of capture.
- Location count: Location count reports the clinic or office where the image was captured.
- **Sensor capture:** Sensor capture provides a count of how many images, per piece of hardware, has been captured.

To limit the time required for a report to be generated, the **Fast Data Accumulation** option may be selected. Fast Data Accumulation excludes station, location, operator, and sensor capture counts from the report.


Patient Information

Patient specific criteria may be found in the bottom portion of the 'Data To Report' section. This information includes: Age, Sex, Patient Summary Count, Patient Itemized Count, Study, and Series counts. Each of these options is patient specific and is organized by ID number, except for Age and Sex counts, which cover all patients.

- Age: Patient age count option provides an entry for every age, and the amount of patients who are that age.
- Sex: Patient sex count provides a total count of all Male, Female, and Other patients.
- **Patient summary:** Patient summary count provides a listing of all patients, arranged by ID number, and the number of images associated with that patient.
- **Patient itemized:** Patient itemized count provides a listing of all patients, arranged by ID number, of all images associated with that patient, organized by modality.
- **Patient Study:** Patient study count provides a list of all patients, organized by ID number, and the types of studies captured for that patient.
- **Patient Series:** Patient series count provides a list of each patient, organized by ID number, and every type of series captured for that patient.

Study/Series Information

Unlike the patient-specific Study and Series counts previously mentioned, the Study and Series UID and Description counts are database specific, and are not organized by patient. These counts provide numerical values for the database as a whole.

- **Study UID image:** Study UID image count provides a listing of each study, organized numerically, and the number of images within that study.
- **Series UID image:** Series UID image count provides a listing of each series, organized numerically, and the number of images within that series.
- **Study description:** Study description count provides a count for each type of study captured in DCV. These are listed as any combination of modalities captured in a series, i.e.: Intra-Oral X-ray, Panoramic X-Ray.
- Series description: Series description count provides a count for each type of series captured in DCV. These include 4 Bite Wing Series, Panoramic Capture, etc.

Time Specifications

Database information can be organized by time period by Year, Year and Month, or Year, Month and Day. Image, Series, Study, Modality, and Keyword counts can all be arranged by these different time specifications. This information will be displayed as the following:

I otal Images Yearly Report	
2011:	7
Total Series Yearly/Monthly Report	
2011: April 2011:	4 4
Total Studies Yearly/Monthly/Daily Report	
2011: April 2011:	3 3

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20 April 2011:121 April 2011:2

In this report, the Images count is organized by Year, the Series count is displayed by Year/Month and the Study count is displayed by Year/Month/Day.

Database Information

In addition to Patient information reporting, the DCV Report Generator also has the ability to report on database specific information. These options include:

 Image Revisions Report – The Image Revision operation generates a report of all revisions performed in XrayVisionDCV. The report results are operator and operation specific, and is displayed as follows:

General Information

Database Path:C:\Program Files\Apteryx\XrayVisionDCVTotal Image Count:96Invalid Image File Count:0Primary Image Count:63Retake Image Count:1Ghosted Image Count:32

Image Revisions Report

```
0010:0040 - Patient Sex: 2
kyle.parker: 2
0020:000D - Study Instance UID: 2
kyle.parker: 2
OP(FlipH): 3
kyle.parker: 3
OP(Invert): 2
kyle.parker: 2
OP(Orient): 1
kyle.parker: 1
```

• **Database Diagnostic Report** – The Database Diagnostic Report includes data integrity information about the database. This option will report on discrepancies of image counts in the database file compared to the number of DICOM images in the Images folder.

Generate Report

To generate a report based on your specified search criteria:

- 1. Click 'Generate Reports' button
- 2. A blue status bar will appear along the lower portion of the window, indicating the progress of the report.
- 3. Once it has finished, the report will be sent to the specified location on the computer and/or to the printer.

*** END OF DOCUMENT ***

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