

PHILIPS

iSite Enterprise 3.6 Overview



Learning Objectives

Use iSite Enterprise to:

- Search for patients
- Select and view exams
- Prepare images
- Save image configuration changes
- Use Folders and the Shortcut Bar

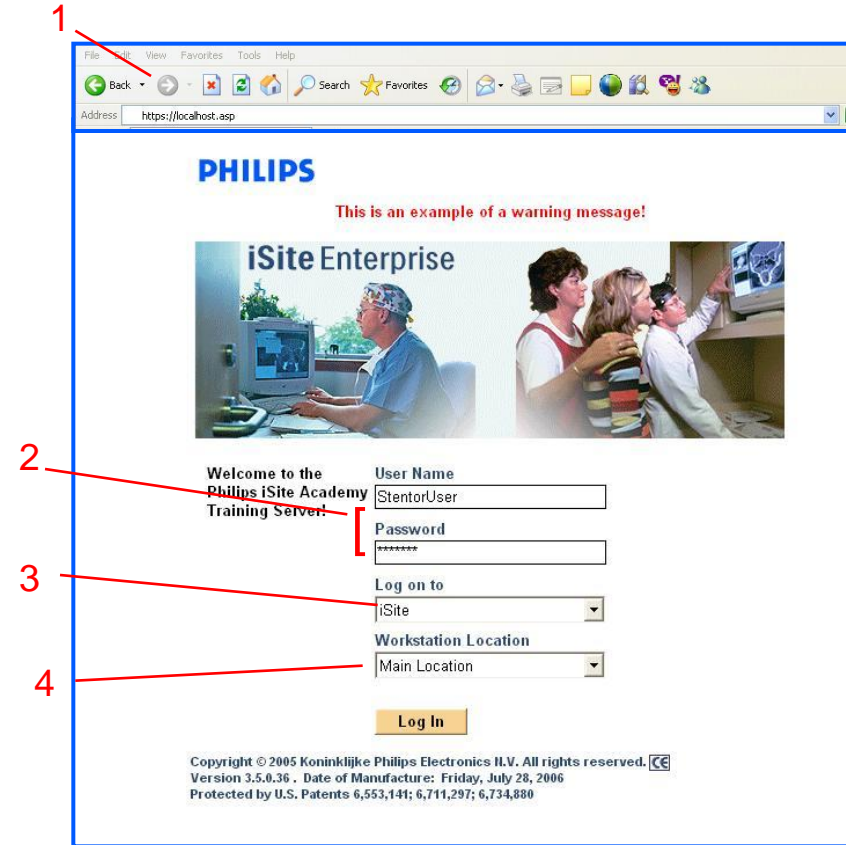
iSite Enterprise

- Overview: Web-based medical image distribution solution that delivers diagnostic-quality images to clinicians anytime, anywhere in the healthcare environment.
- Used by: Clinicians (Referring Physicians, Nurses, Surgeons, Techs)
- For: Viewing, analyzing, qualify images



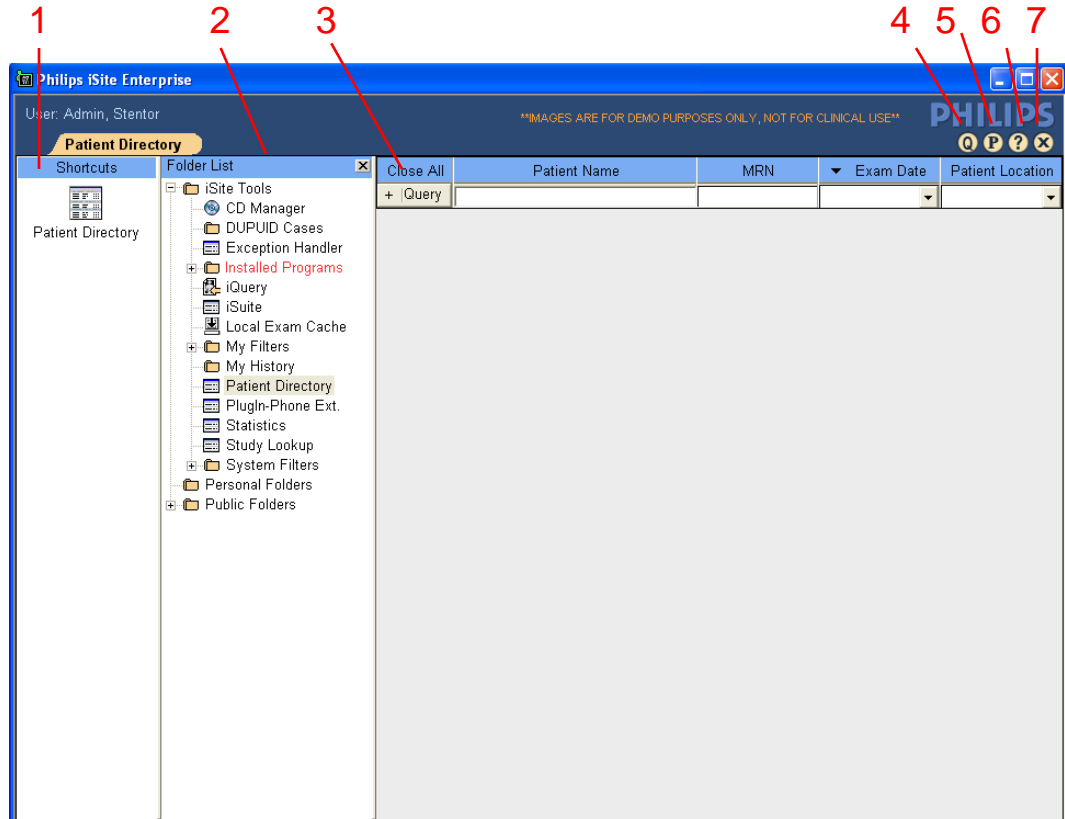
Logging in to iSite Enterprise

1. **iSite PACS URL:** URL for your institution
2. **User Name, Password:** Each authorized user will have their own username and password
3. **Log on to:** To change authentication sources (e.g., iSite PACS vs Windows authentication)
4. **Workstation Location:** To change workstation location (e.g. off-campus vs. main location)



iSite Enterprise Start-Up Window

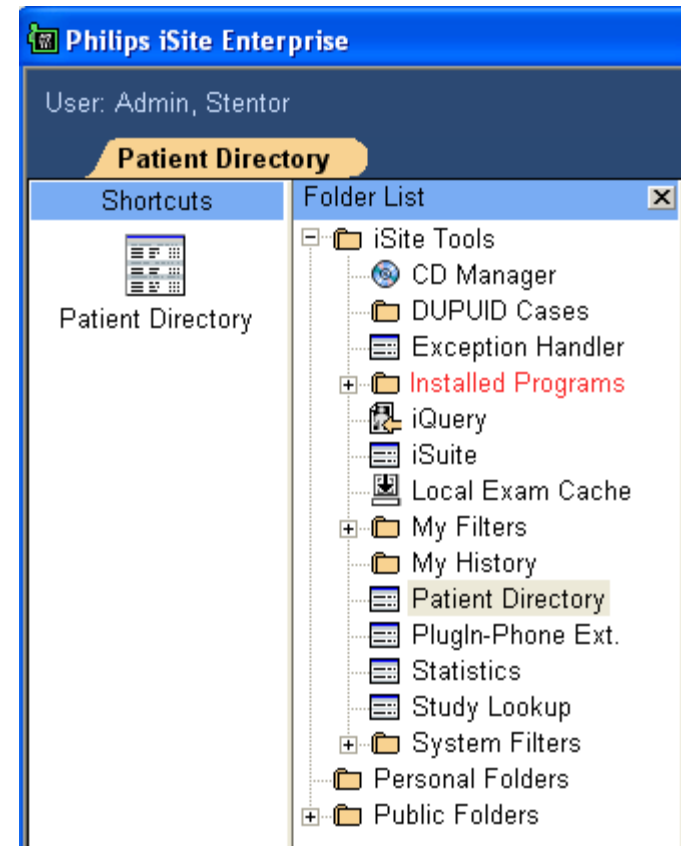
1. **Shortcuts Bar:** Customizable lists to frequently accessed folders, exams and filters
2. **Folder List:** List of all the folders, filters and tools in iSite Enterprise
3. **Patient Directory:** Patient, exam search engine and sort function
4. **iExport Queue:** Real-time display status of the exams that have been exported via the iExport feature.
5. **Preferences:** User, System and Machine Preference dialog boxes
6. **Help:** iSite Enterprise's user manual
7. **Logout Button:** Exit application and return to login window



Shortcut Bar and Folder List

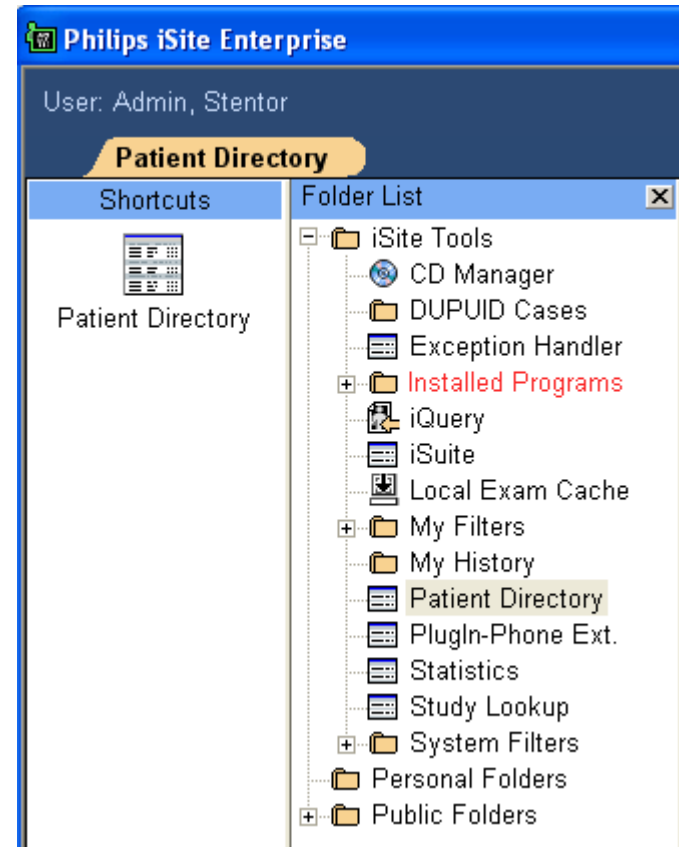
Access point to iSite Enterprise tools and folders

1. **Shortcut Menu:** To add, remove or rename items that have been moved into short-cut menus
2. **Patient Directory:** To locate patients and exams by searching on specific criteria (name, MRN, exam date, location, etc.)
3. **CD Manager:** Utility for copying exams and images from iSite to CD or DVD
4. **DUPUID:** Folder containing system-identified exams with Duplicate Study Unique Identifier (aka Demographic Mismatch)
5. **Exception Handler:** Folder containing system identified Exceptions
6. **iQuery:** Tool to query and retrieval studies from other DICOM devices (that is, existing archives)



Shortcut Bar and Folder List (cont.)

7. **Local Exam Cache:** Utility to save exams to local machine
8. **My Filters:** User-specific search filters (based on modality, body part, etc.)
9. **My History:** List of user's 100 most recently viewed exams
10. **Statistics:** Utility for information and statistics on system activity (patient/ exam viewed, system users, etc.)
11. **Study Look-up:** Search for a study using SUID
12. **Plug-ins:** Platform partners (for example, PowerScribe) available from iSite
13. **System Filters:** Filters that are shared by all users
14. **Personal and Public Folders:** Personal or public folders, up to 4 levels deep, 25 subfolder each level, 500 max (for example, rounds, teaching files, seminar, etc.)

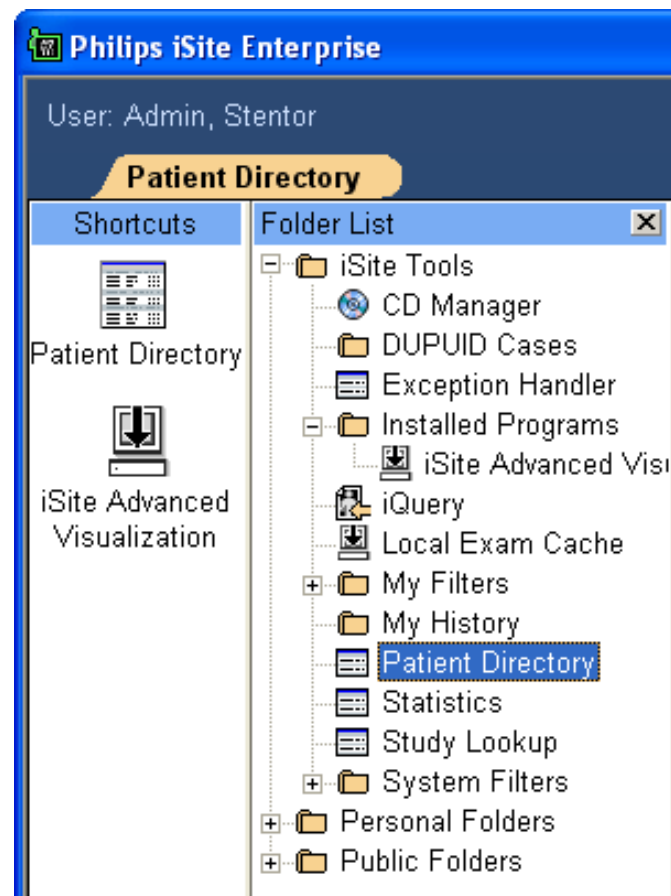


Shortcut Bar and Folder List (cont.)

15. **Advanced Visualization Tools:** integrated, interactive, real-time volumetric reading tools (MIP, MPR, 3D). Installation required.

- MPR/MIP
 - Interactive orthogonal, oblique and double-oblique cuts
 - Curved MPR with intelligent task guidance
 - Interactive slab thickness adjustments
 - Triangulation (linked cursors)
 - Measurement tools

- 3D Display
 - High resolution shaded volume rendering technique
 - Standard views and interactive rotations
 - Interactive opacity threshold adjustment
 - Interactive slab thickness adjustment (quick segmentation)
 - Predefined 3D classification gallery



Patient Query

Patient Search

left-click on (+) for expanded query

1

Default Query

Close All	Patient Name	MRN	Exam Date	Patient Location
+ Query				

left-click to list exams





2

Expanded Query

Close All	Patient Name	MRN	Exam Date	Patient Location
↓ Query	Adams			
Accession Number: Modality: Referring Physician: Organization:				
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
↓	ADAMS, JULIE	D7856	11/29/2006 19:2...	
<input type="checkbox"/>	CT - Chest; Acc: 4295009; Referrin...		11/29/2006 19:2...	
<input checked="" type="checkbox"/>	CR - Chest; Acc: 4294000; Referr...		11/29/2006 16:3...	

- Default Patient Query:** Search on Patient Name, MRN, Exam Date, Patient Location
- Expanded Patient Query:** Search on default plus Acc #, Modality, Referring Physician and Organization

3. **Patient/ Exam List Symbols:**

	Marked Read
	Report available
	Locked exam
	Exception

iSite Enterprise



Workbook and Workstation Exercises

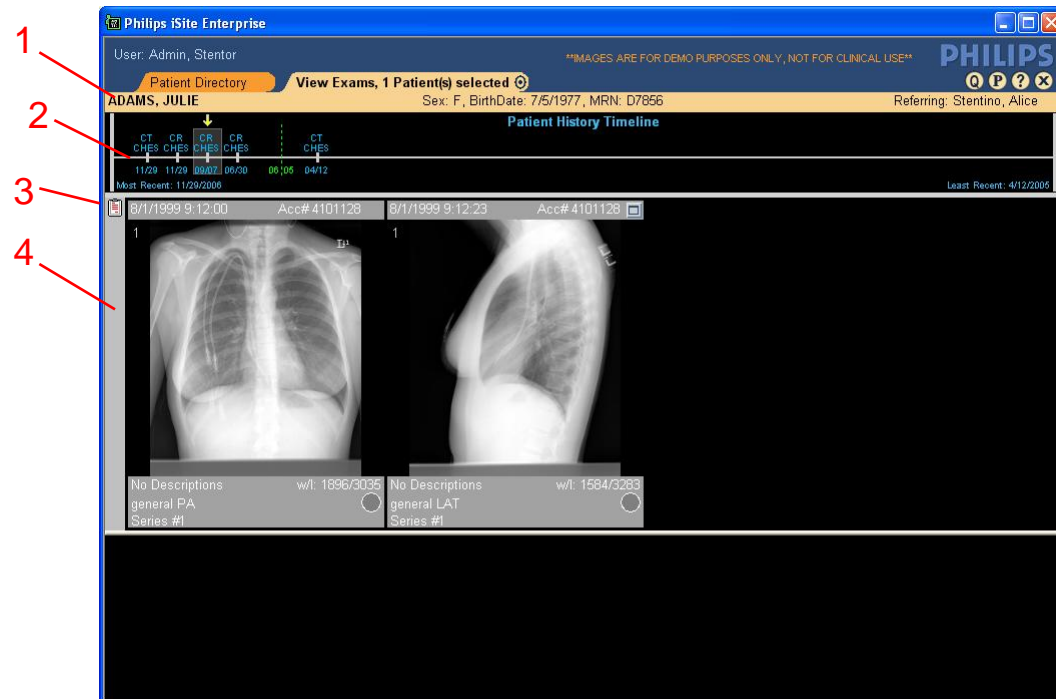
- Reference your workbook for instructions
- Ten minutes

Viewing Images

Exam Canvas Page

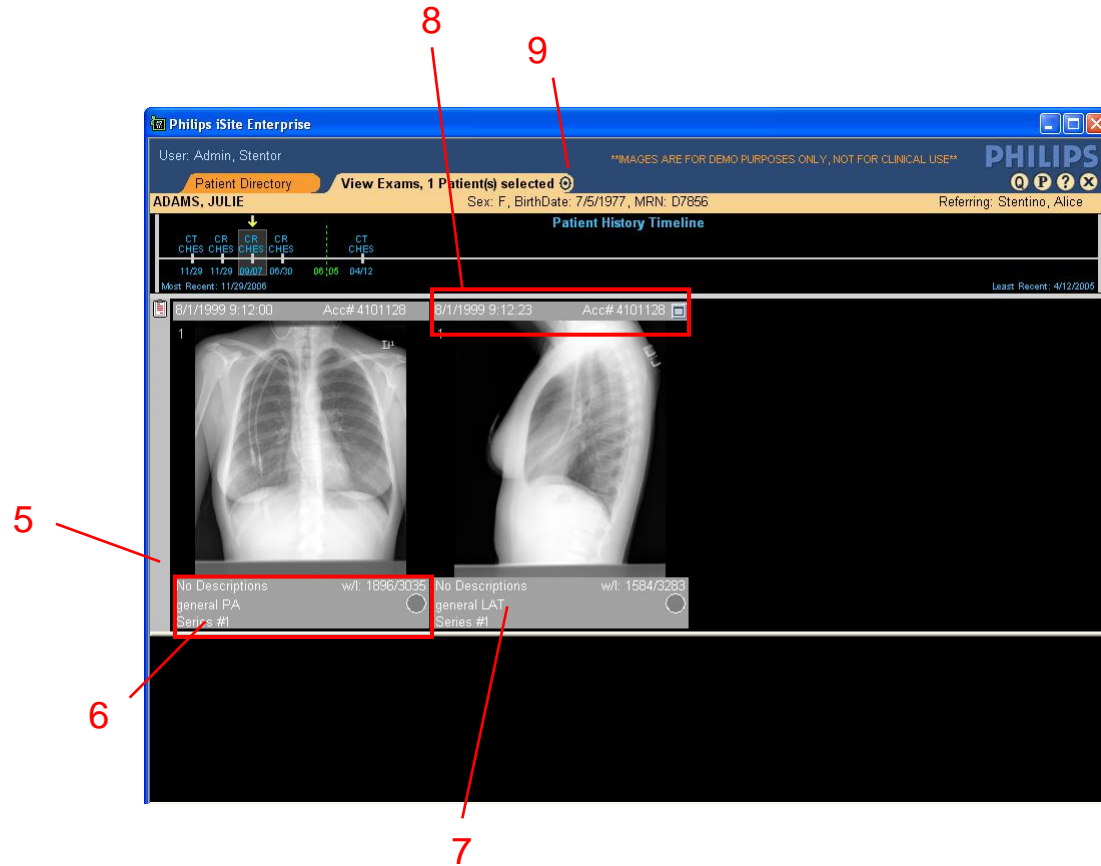
Access point to patient's exams and studies

1. **Patient Demographics:** Patient's name, DOB, sex, MRN, Referring Physician
2. **Patient Timeline:** History of and navigation menu to all of a patient's studies in iSite PACS
3. **Exam notes:** When icon is present, indicates diagnostic report is available for the exam
4. **Shelf bar:** Access point to exam specific menu and information



Exam Canvas Page (cont.)

- 5. **Exam Rack:** Set of images that make up the exam
- 6. **Image/ Series Information:** Image specific information (for example; description, number of images, slice thickness, etc.)
- 7. **Thumbnail:** Thumbnail view of image
- 8. **Image/ Series date and time:** Exam accession number, Date and Time image was acquired
- 9. **Close Exam:** Exit from exam and return to Patient Directory



Control Strip

Patient Directory View Exams 2 Patient(s) selected (Q)

SEELS, ALBERTO, B

ADAMS, JULIE, (F), DOB: 07/05/1977, PID: D7856, Accession: 4101128

✓ SEELS, ALBERTO, B, (M), DOB: 04/22/1926, PID: D8988, Accession: 5175493

Close All Patients

Referring: VAN DEN HOVEN, Provider

CR	CR	CT	CT	CR	CT	CT	CT
CHES	CHES	CHES	CHES	CHES	CHES	CHES	CHES
11/29	11/06	10/20	09/14	08/17	06/26	04/17	02/18

Most Recent: 11/29/2006

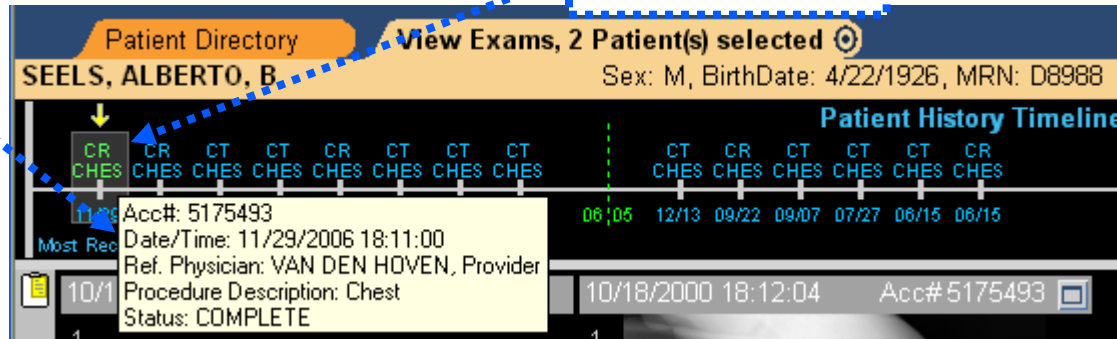
Least Recent: 6/15/2005

3. Select bulls eye icon to close current exam

1. Return to Patient Directory

2. Right-click to navigate between exams

Patient History Timeline



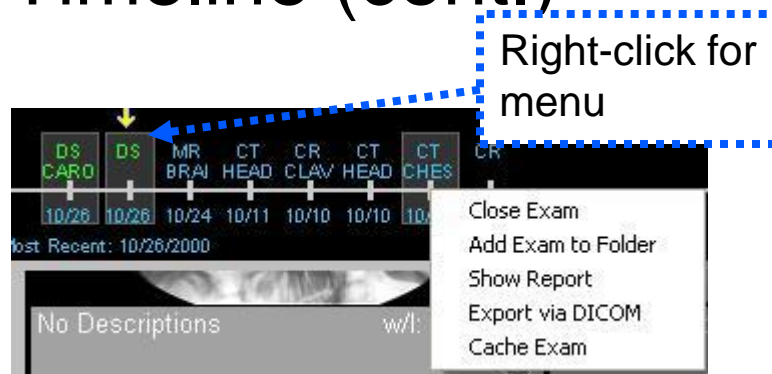
Hover mouse to view exam information

Left-click to open exam

- History of and navigation menu to patient's exams in iSite PACS
- Colors and symbols in timeline

Green	No diagnostic report
Blue	Diagnostic report available
" "	Image available
"X"	No images
"A"	Exams on 3 rd party digital archive—not on iSite PACS server

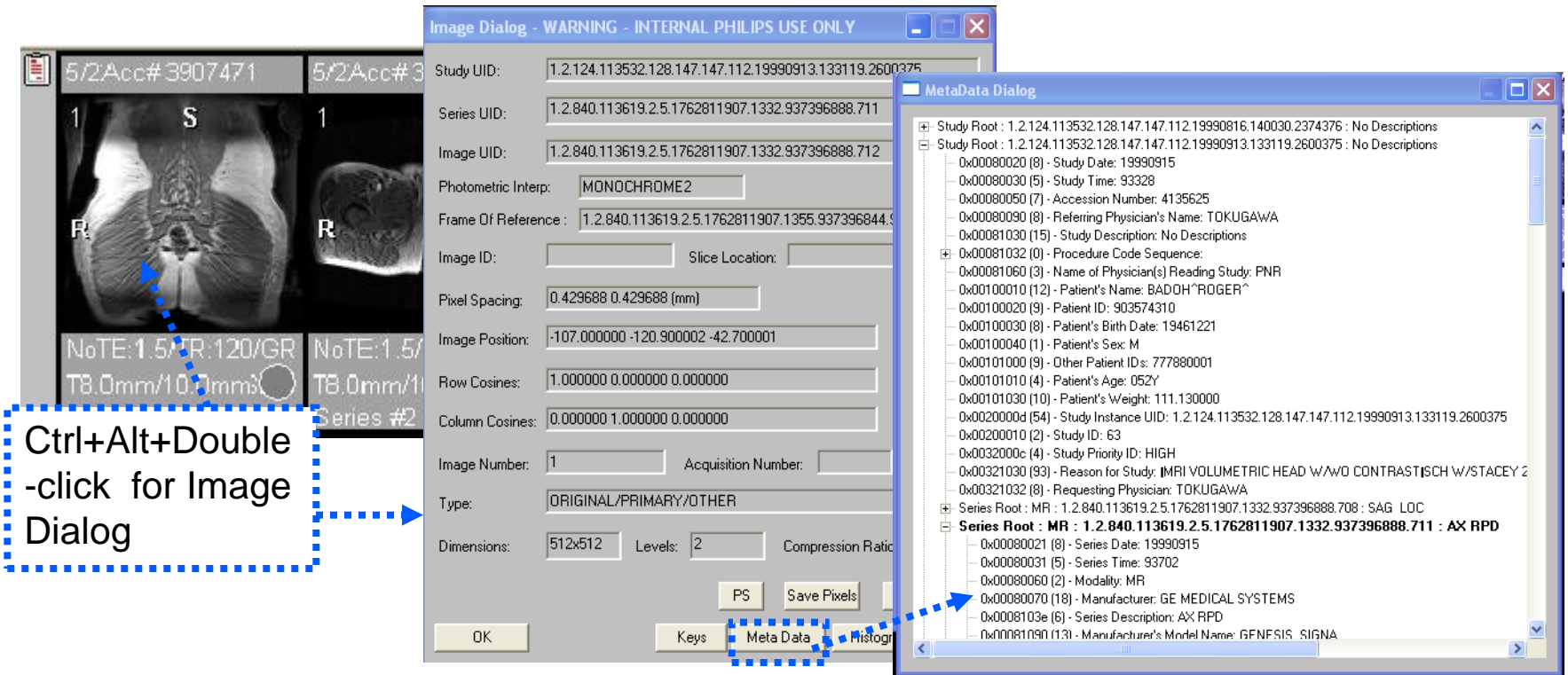
Patient History Timeline (cont.)



Timeline Sub-menu:

- **Open Exam:** Open exam and return to main Patient Directory
- **Close Exam:** Close exam and return to main Patient Directory
- **Add Exam to Folder:** Copy exam to a folder in folder tree
- **Show Report:** View diagnostic report
- **Export via DICOM:** Send to DICOM device or CD/DVD burner
- **Cache Exam:** Download exam to your local machine

Image Dialog Window



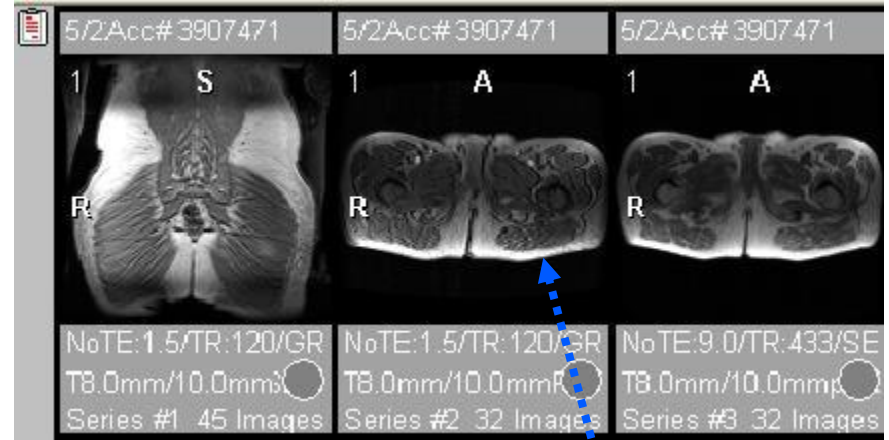
Features of Image Dialog box:

- **Image Metadata:** Used to view DICOM tags for an image

Note: Metadata is used in Screen Overlays, Series Matching Rules, DICOM Sources and more

Navigation within the Exam Rack

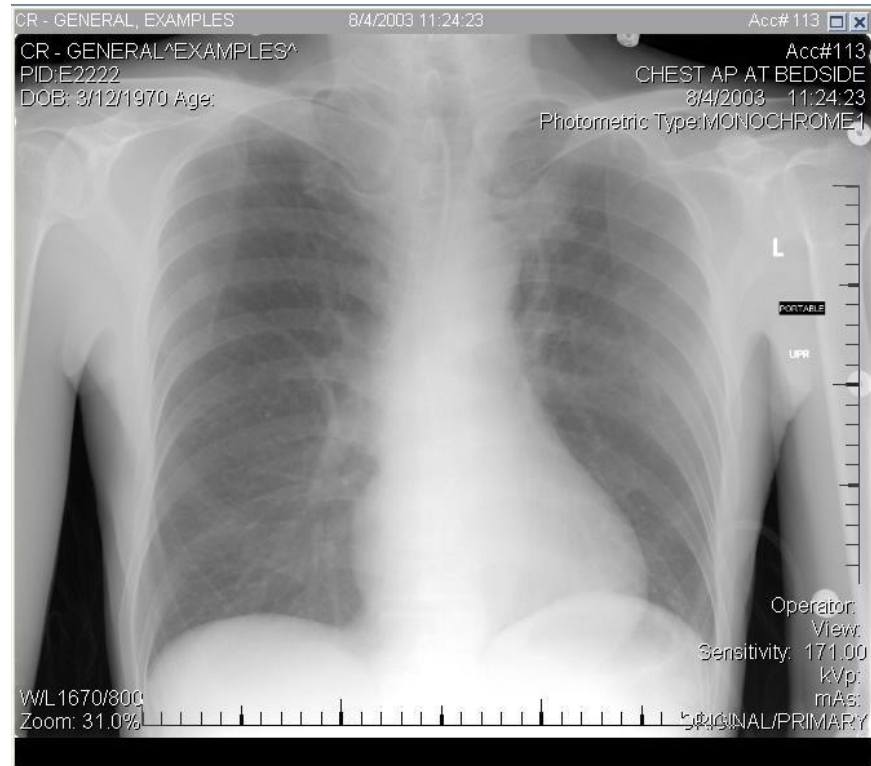
- Exam Rack: the set of images in an study
- Reorder series by dragging and dropping on grey image header or footer
- Navigating through stacked series
 1. Mouse wheel
 2. Select "C" on keyboard
 3. Context menu



Double-click
to open in
window

Screen Overlay

- Used to configure the metadata overlays on the image from the modalities
- Different Screen Overlays for each modality type
- F6 key toggles screen overlay on/off
- Editable via System Preferences



iSite Enterprise

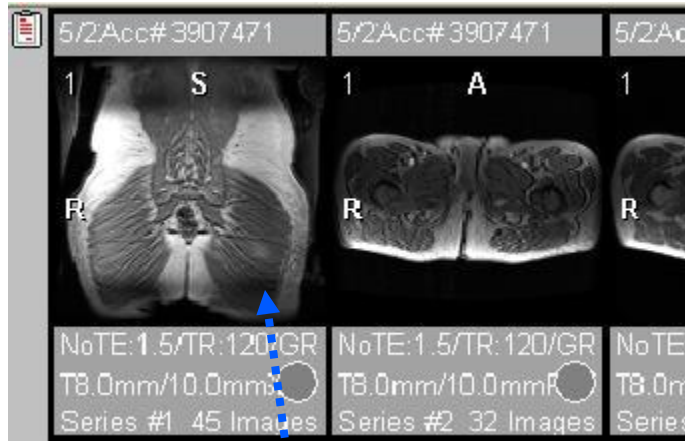


Workbook and Workstation Exercises

- Reference your workbook for instructions
- Ten minutes

Preparing Images

Context Menu



Right-click on image for context-menu

Single Image Menu

- Window Width/Level ▶
- Measurements ▶
- Annotations ▶
- Image Processing ▶

- Scout Line Mode
- Localizer Mode
- Create Popup
- Key Image

- New Link

- Save ▶
- To Paper Printer
- Flip/Rotate ▶
- Zoom Presets ▶

- Delete ▶

- Assign New Unique Study UID

- Export ▶

Series Image Menu

- Window Width/Level ▶
- Measurements ▶
- Annotations ▶
- Image Processing ▶

- Scout Line Mode
- Localizer Mode
- Create Popup
- Clone Window With Preset ▶
- Key Image
- Play Cine Loop

- New Link
- Link All Axials

- Save ▶
- To Paper Printer
- Flip/Rotate/Sort/Split ▶
- Zoom Presets ▶

- Delete ▶

- Assign New Unique Study UID

- Export ▶

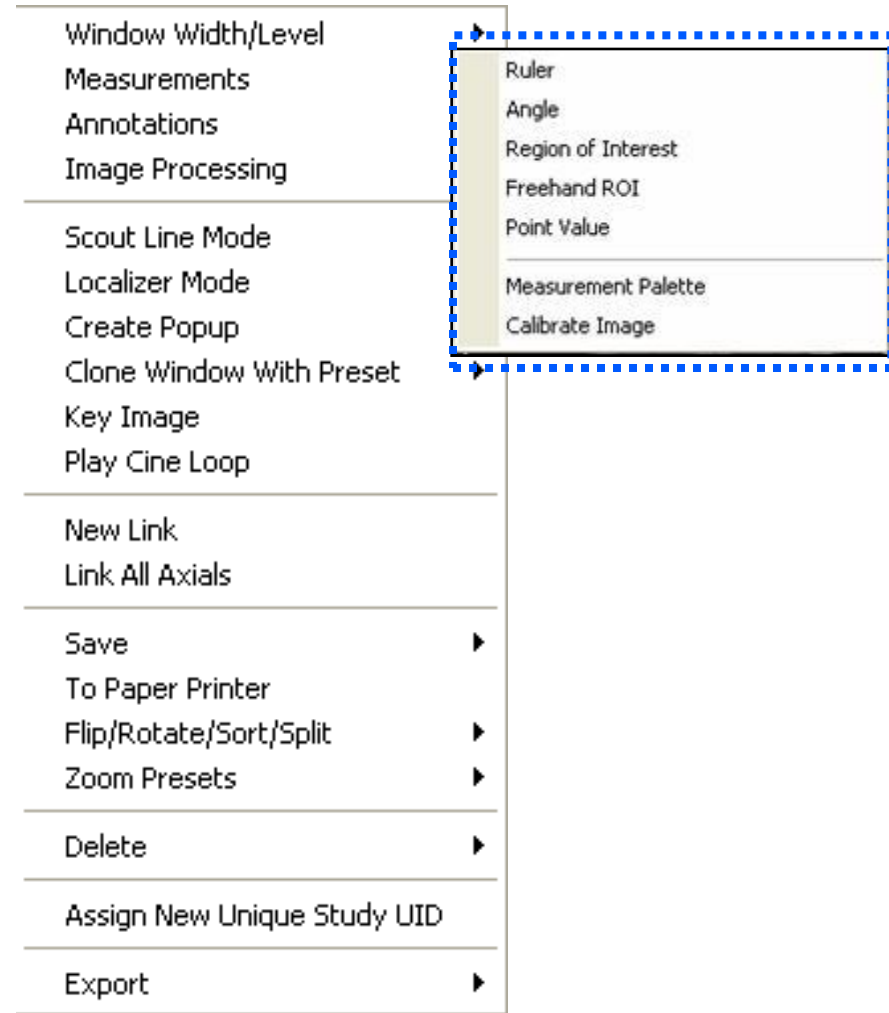
Window Width/ Level

- Adjust window width and window level in an image for optimal viewing or to highlight certain tissue for better visibility (for example; bone, brain, lung, etc.)
- WW/WL menu
 - **Default WWL:** Applies iSite PACS WWL values
 - **Modality default:** Applies modality WWL values
 - **Histogram Calculation:** Uses histogram calculation to set WWL
 - **Customer WW/L set by admin:** Applies WWL values set by admin
- Changing Window Width and Level
 - Mapped to 1-10 keyboard number keys for CT (for example; 1=Abdominal)
 - Mouse: While holding down Left button, move mouse horizontally/ vertically
 - Image Menu
- Editable via User Preferences and System Preferences



Measurement

- Tools to measure specific areas of an image
- Measurement menu:
 - **Ruler**: Linear measurements (pixel or mm)
 - **Angle**: Degree measurement for specified region
 - **Region of Interest (ROI)**: Average data value for a circular region of an image
 - **Freehand ROI**: Similar to ROI but allows free-hand selection of ROI
 - **Point Value**: The value of data points at a specific point on the image pixel
 - **Measurement Palette**: Floating measurement palette
 - **Calibrate Image**: Calibrate to a certain known measurement



Annotation

- Tools to add generic and custom symbols and text to an image
- Annotation sub-menu:
 - Line
 - Arrow
 - Triangle
 - Circle
 - Text
 - Freehand
 - Spine Labeling: Sagittal/Lateral Images
- Annotations are saved when an exam is saved as a Presentation State
- Custom annotations can be created in the System Preferences menu

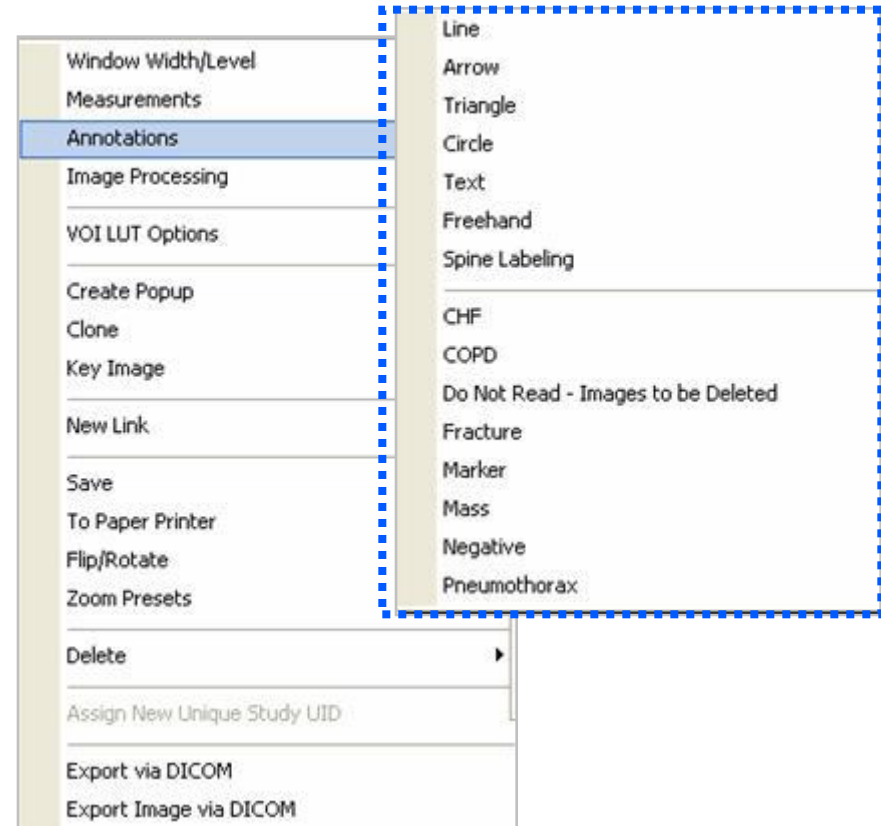


Image Processing

- Image enhancement tools
- Process images (excepted inverted) are marked with “P” icon in the lower right corner of image
- Image Processing settings are editable in User and System Preferences menus
- Image Processing menu:
 - **Invert Image**: Reverses the black and white coloration of an image
 - **Edge Enhance**: Increases image edge visibility
 - **Edge Detect**: Uses Sobel operator to increase image edge visibility
 - **Median Filter**: Common filtering method to reduce noise in the image

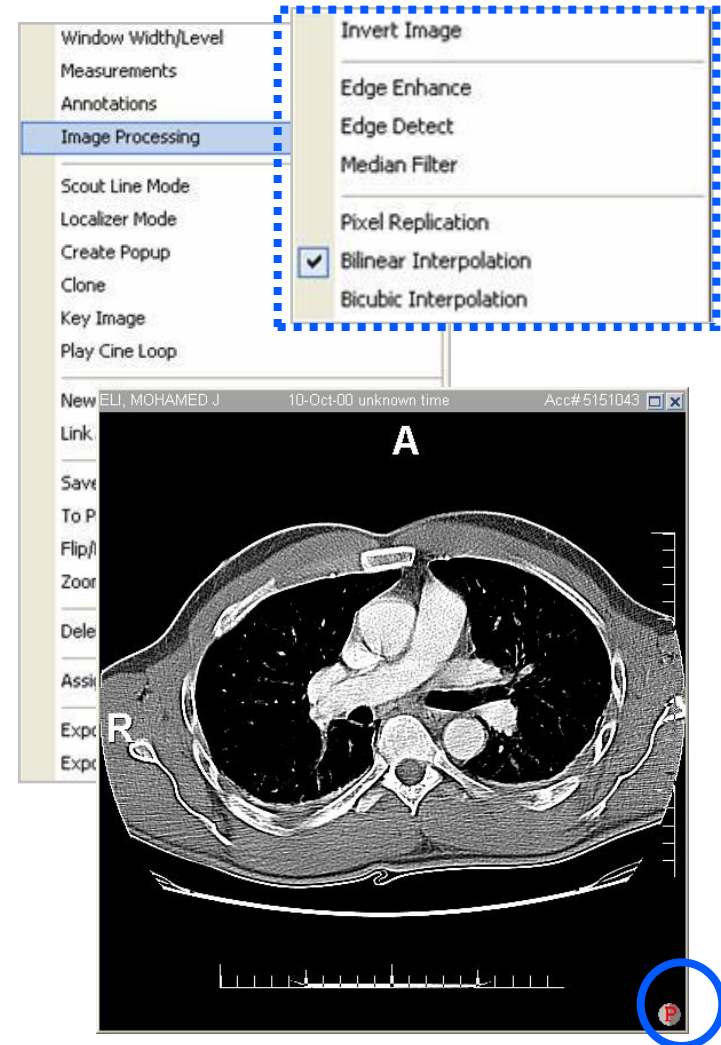


Image Processing (cont.)

- **CLAHE** (Contrast Limited Adaptive Histogram Equalization)- adaptive form of HE that enhances the contrast across the image
 - Available for CR, DX and MG modalities
- **Interpolation Schemes:** Methods of constructing new data points from a discrete set of known data points.
 - Pixel Replication: fastest
 - Bilinear Interpolation: default
 - Bicubic Interpolation: most accurate
- **VOI LUT** (Value of Interest Look up table): Image processing to correct for detector defects, enhance image, reduce noise or alter dynamic range
 - Available on CR/DX
 - Must be enabled on modality side before it is an option in iSite PACS

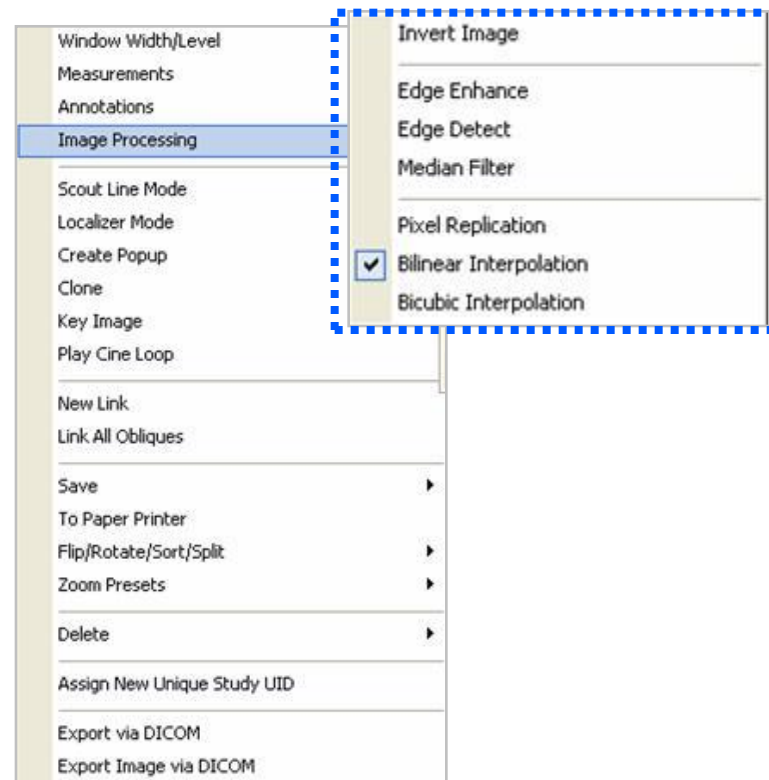
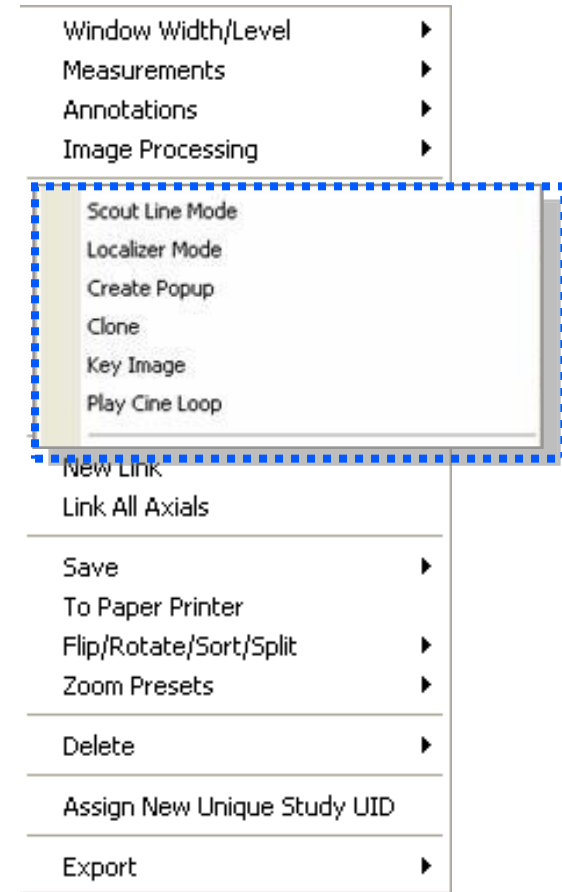



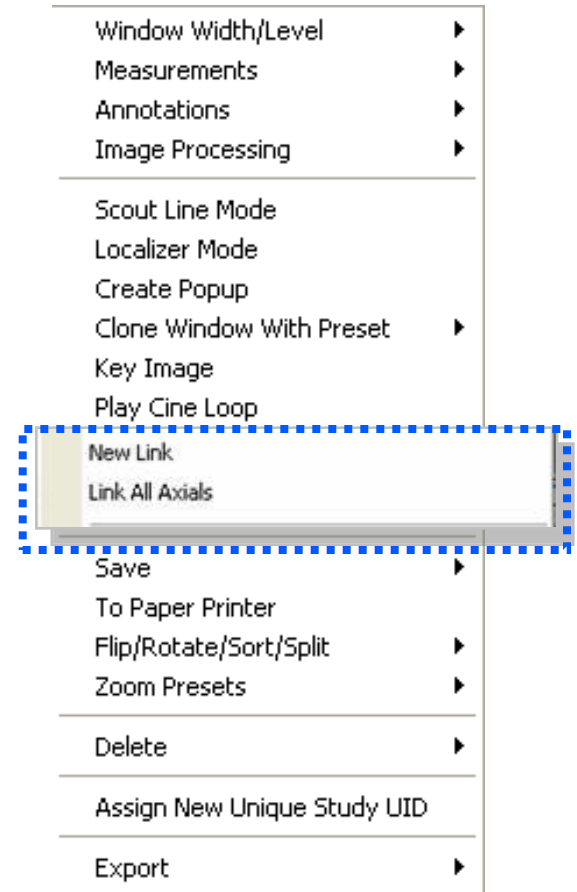
Image Viewing Options

- **Scout Line** (series only): Reference line inserted to help visualize and navigate to same location in multiple series with different orientations (2D)
- **Localizer** (series only): crosshair (+) reference mark to help visualize and navigate to a location in multiple series with different orientations (3D)
- **Create Pop-up**: Inserts selected image/ series into floating pop-up window
- **Clone**: Creates a copy of the selected image/ series
- **Key Image**: Marks specific images as notable in the study and puts it into Key Image window
- **Play Cine Loop** (series only): Cycles through images in series in a continuous loop



Linking Options (Series Only)

- Synchronizes images or series with a designated “master” image to:
 - View through multiple images at the same location simultaneously
 - Have same “navigation” as the master, like Zoom or Pan
- Linked Images/ Series denoted by  icon
- Link Sub-menu:
 - **New Link**: Link images within or across studies
 - **Link All Axials/ Sagittals/ Coronals/ Obliques** (series only): Links all image stacks in rack with the same orientation



Save and Print Options

- **Window to Clipboard:** Copies the entire window with measurements, annotations, and overlays to the clipboard
- **Window to File:** Saves window as either a JPEG, TIFF, GIF, PNG or BMP format file with measurements, annotations, and overlays to the clipboard
- **Image to Clipboard:** Saves only the images, without measurements, annotations and overlays
- **Image to File:** Saves images as either a JPEG, TIFF, GIF, PNG or BMP format file without measurements, annotations and overlays
- **To Paper Printer:** Prints images to paper printer

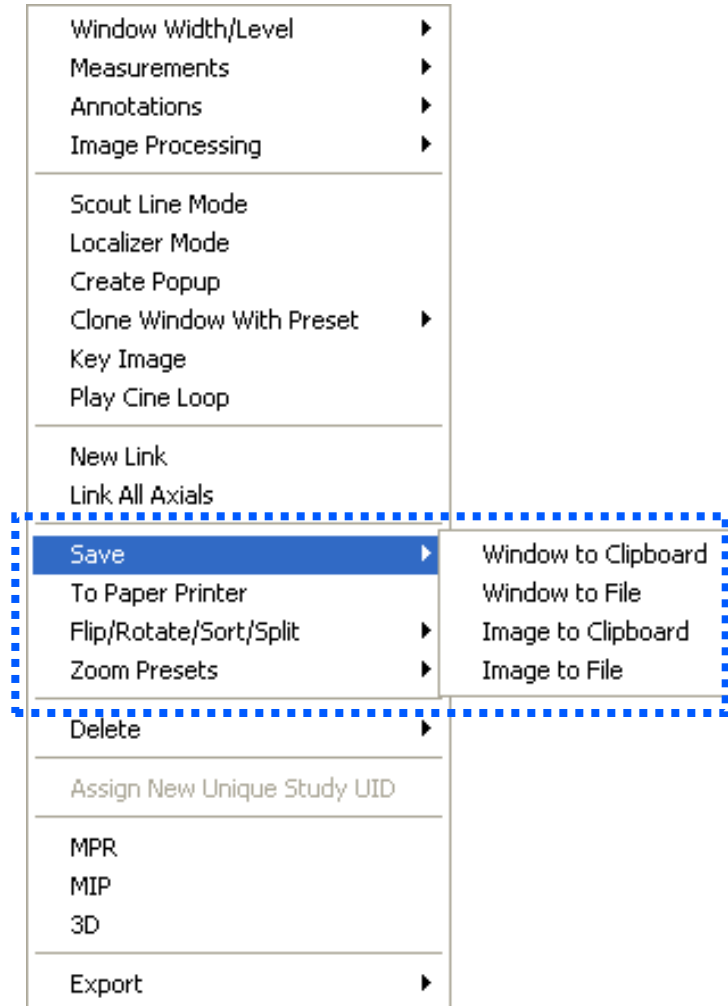
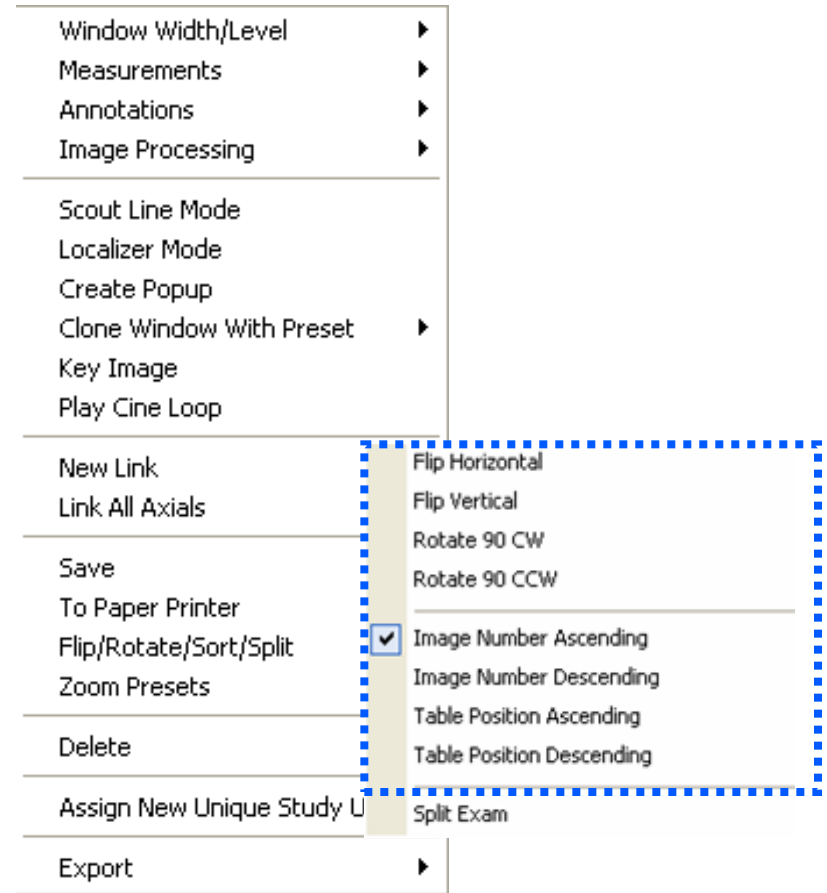


Image Orientation and Sorting

- Flip:
 - Horizontal: Right to left (x-axis)
 - Vertical: Top to bottom (y-axis)

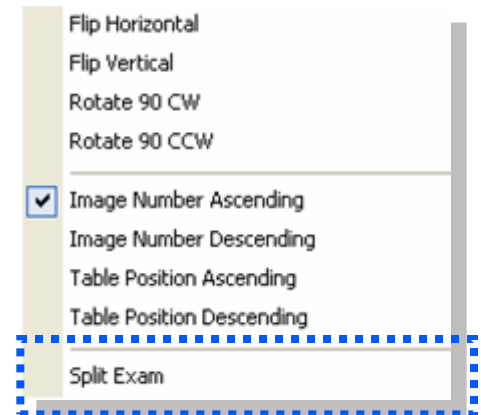
- Rotate: Clock-wise, counter clock-wise
 - Rotate 90 CW:
 - Rotate 90 CCW:

- Sort (series only)
 - Image Number Ascending (1, 2, 3, etc.)
 - Image Number Descending (3, 2, 1)



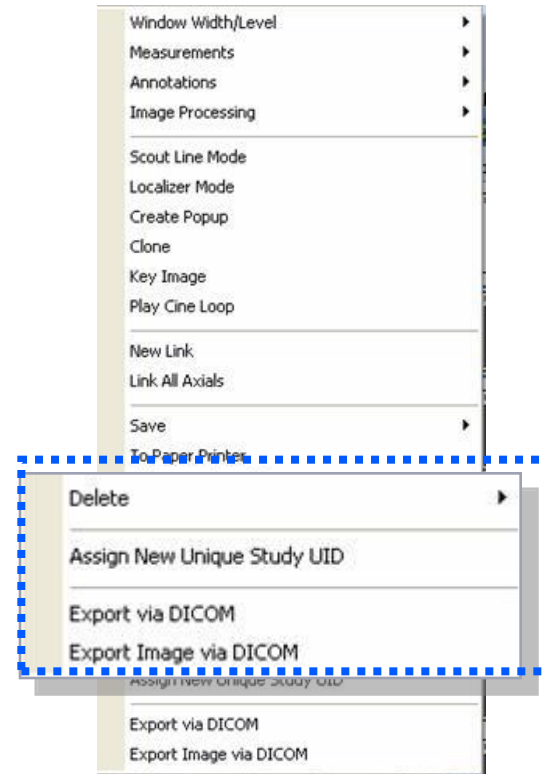
Exam Splitting (Stacked Series Only)

- Split options are sent from modality and can vary
- Splits a series according to specific DICOM attributes (for example; acquisition time)
- Scout images and clones cannot be split
- Exam splitting is a temporary display change
- To preserve a split, it must be saved as a Presentation State



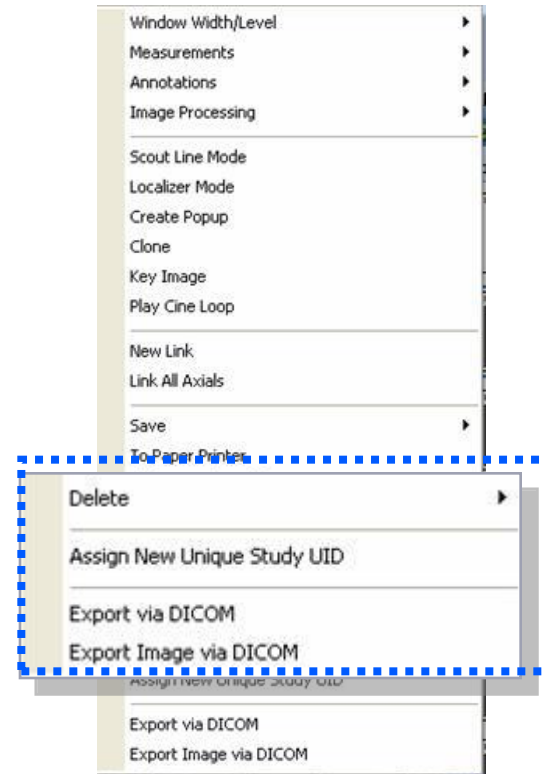
Other Image Options

- **Assign New SUID:** Selected images are assigned a new SUID by iSite PACS. Most often used to resolve Demographic Mismatch studies.
- **Export**
 - **Via DICOM:** Exports all study information
 - **Images via DICOM:** Exports image only



Delete Image(s)

- Used to **hide images** on the rack from view
- Can be used to delete a single image or a complete stack of images
- Because images are not actually deleted, iSite PACS will not accept resent images
- **Recover Deleted Image(s)** using Shelf Bar menu
- All deleted images will be recovered. Unable to selectively recover images



iSite Enterprise



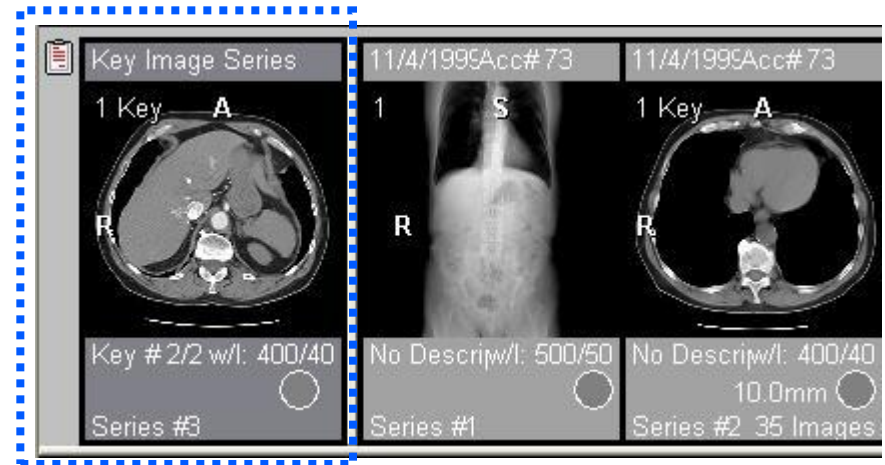
Workbook and Workstation Exercises

- Reference your workbook for instructions
- Ten minutes

Save Image Changes

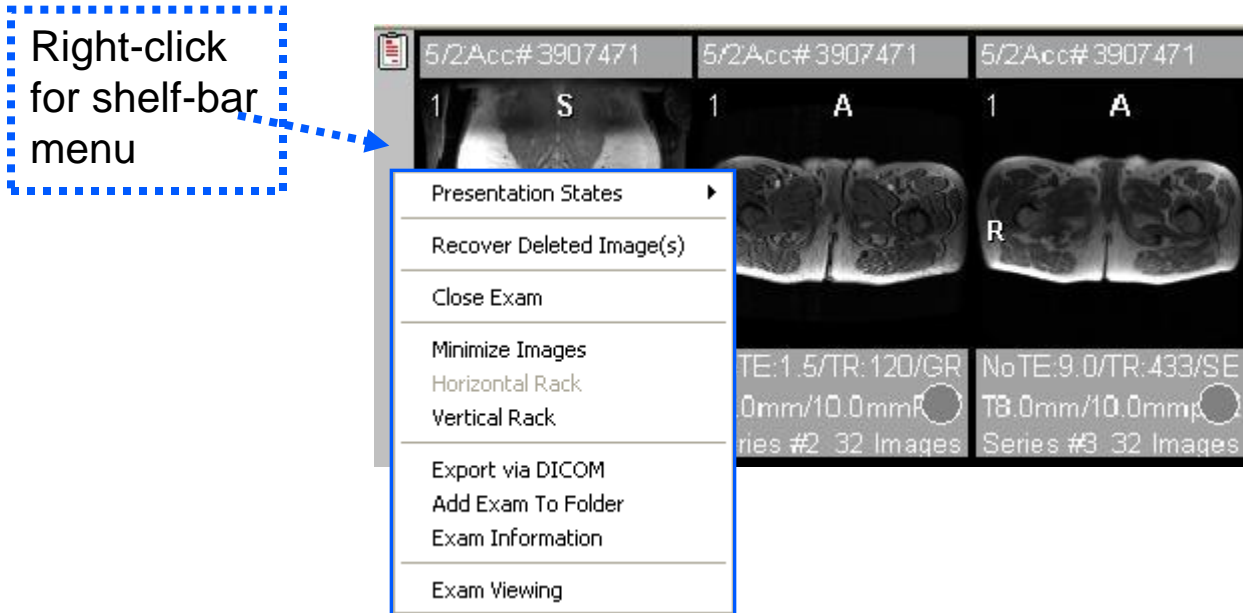
Key Image

- Marks images as notable in the study
- Images visible in the Key Image series window if Key Image Window is enabled in User Preferences
- Images that are marked as key images are saved, regardless of whether Key Image Window is enabled
- Images can be marked as key images by:
 - Pressing [Space Bar] when image is selected
 - Key Image option in Context Menu




Key images stack must be enabled in User Preferences to be visible

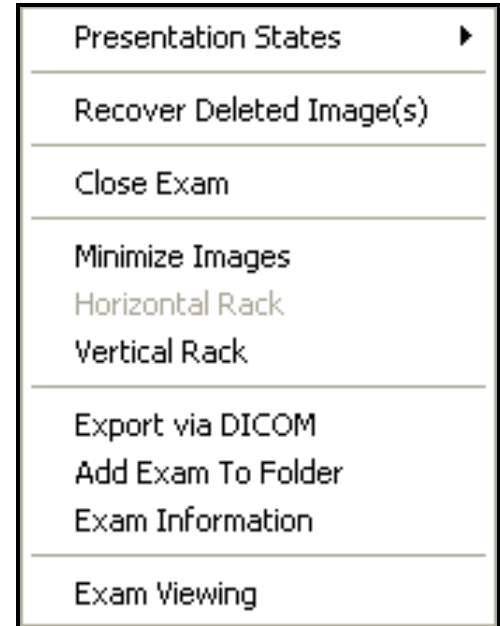
Shelf Bar



- **Shelf Bar:** Grey bar to the left of the exam rack with additional exam menu and information

Shelf Bar Pop-up Menu

- **Presentation State:** User saved configuration of an exam. Availability denoted by  symbol
- **Recover Deleted Image(s):** Recovers images that have been “deleted” (meaning hidden)
- **Close Exam:** Close exam and return to Patient Directory
- **Minimize Images:** Minimizes images in exam row
- **Vertical Rack:** Change orientation of image rack to vertical
- **Export via DICOM:** Send exam to DICOM device
- **Add Exam to folder:** Copy exam to a folder in the folder tree
- **Exam Info:** Patient, Exam and Study Information
- **Exam Viewing:** Opens the Advanced Visualization tools



Presentation States Hierarchy

1. **“Mark Read” Presentation State:** *Radiologist uses the “Mark Read” button (ability to save presentation state upon “Mark Read” is a User Preference)*
2. **“Pre-Read” Presentation State:** *Radiologist to save image presentation modifications so that it can be read later*
3. **“Technologist” Presentation State:** *Prior to the radiologist viewing and interpreting the exam*
4. **“Original DICOM” Image Presentation:** *No Presentation States have been defined for this exam.*
5. **“User” Presentation State:** *Does not take precedence over other users or the original DICOM presentation*



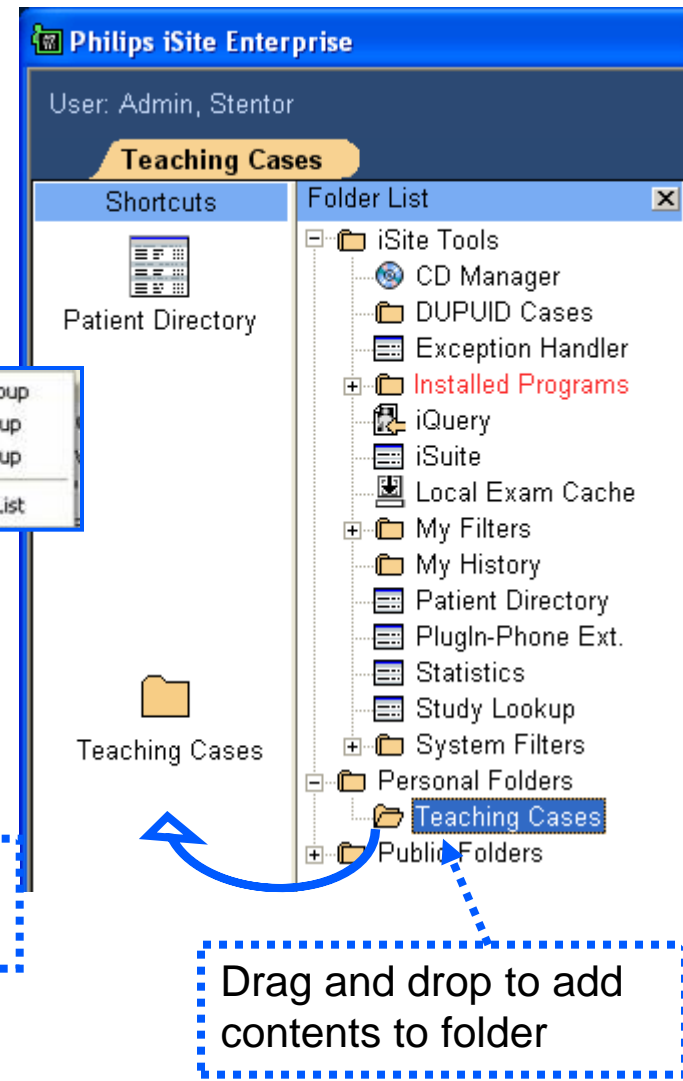
Shortcut Bar and Folder List

1. **Add/ Edit Shortcuts:** Left-click on shortcut bar for menu
 - Add contents to shortcuts bar by dragging and dropping

- **Add/ Edit to Folders:** Left-click on Personal or Public (permission-restricted) folders for menu
 - Add content to folder by dragging and dropping.

Right-click for shortcut menu

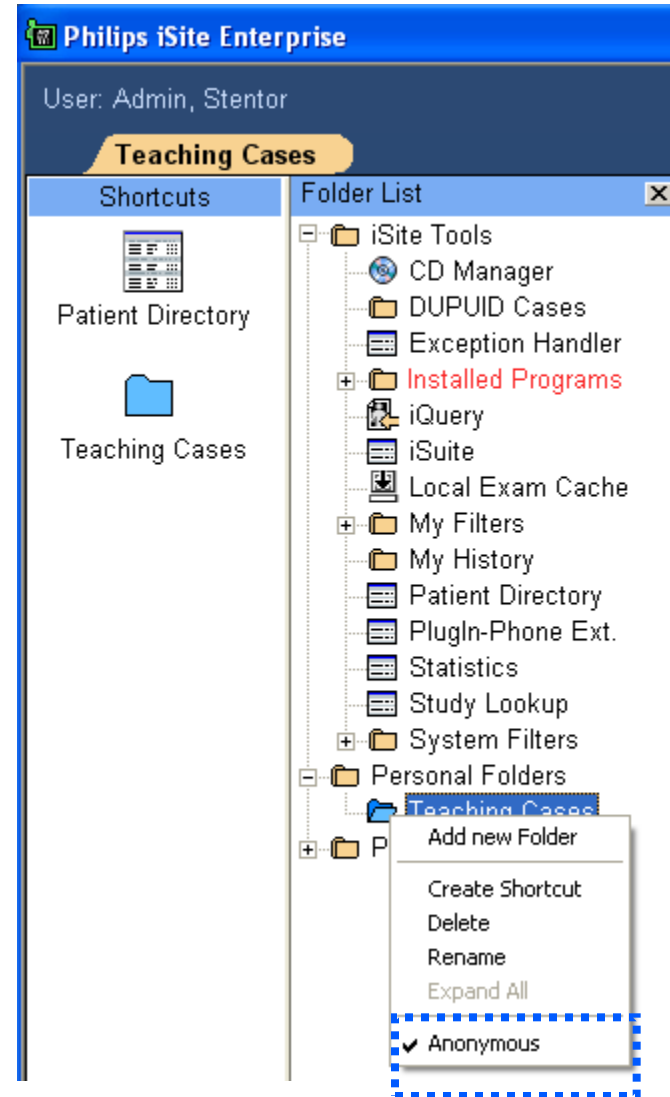
Drag and drop to add contents to folder



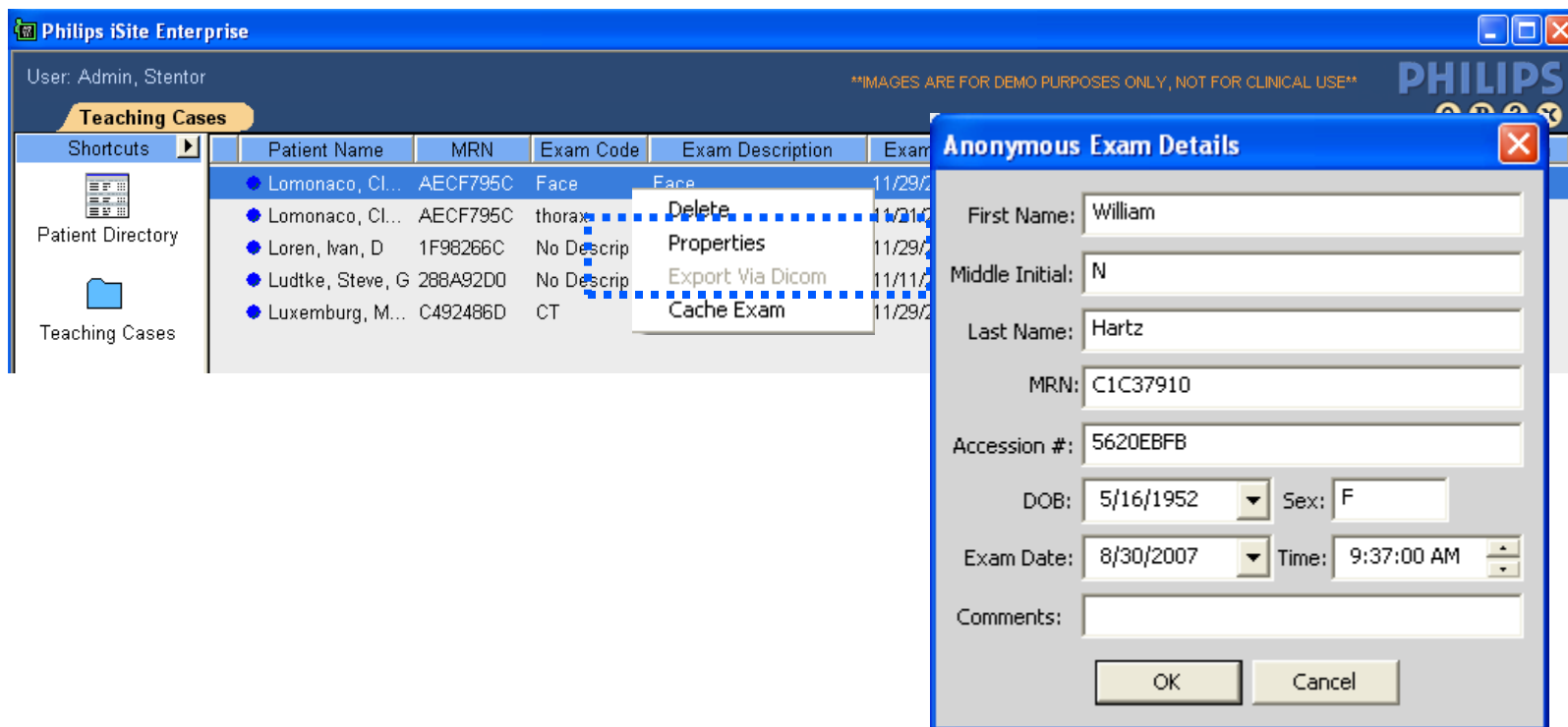
Shortcut Bar and Folder List (cont.)

2. **Anonymization:** Right-click on folder, Select “Anonymous”

- All folder items are automatically anonymized
- Folder and anonymized content color-coded
- Exams from the same patient are anonymized with the same patient demographics to preserve timeline
- Certain features are disabled when viewing Anonymized exams (including Assigning New SUID, Deleting Images, etc.)



Shortcut Bar and Folder List (cont.)



3. Manual Anonymization: Right-click on item, select **Properties**

- Manually edit demographics and enter comments

iSite Enterprise



Workbook and Workstation Exercises

- Reference your workbook for instructions
- Ten minutes

