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, anyplace 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
1. Default Patient Query: Search on Patient Name, MRN, Exam Date, Patient Location

2. Expanded Patient Query: Search on default plus Acc #, Modality, Referring Physician and Organization

3. Patient/ Exam List Symbols:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td>Marked Read</td>
</tr>
<tr>
<td></td>
<td>Report available</td>
</tr>
<tr>
<td></td>
<td>Locked exam</td>
</tr>
<tr>
<td>!</td>
<td>Exception</td>
</tr>
</tbody>
</table>
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
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

1. Return to Patient Directory

2. Right-click to navigate between exams

3. Select bullseye icon to close current exam
Patient History Timeline

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

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>No diagnostic report</td>
</tr>
<tr>
<td>Blue</td>
<td>Diagnostic report available</td>
</tr>
<tr>
<td>“</td>
<td>”</td>
</tr>
<tr>
<td>“X”</td>
<td>No images</td>
</tr>
<tr>
<td>“A”</td>
<td>Exams on 3rd party digital archive—not on iSite PACS server</td>
</tr>
</tbody>
</table>

Hover mouse to view exam information

Left-click to open exam
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
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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) - an 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 the 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 a 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 the 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*

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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

Right-click for shelf-bar menu

- **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

2. **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
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

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