

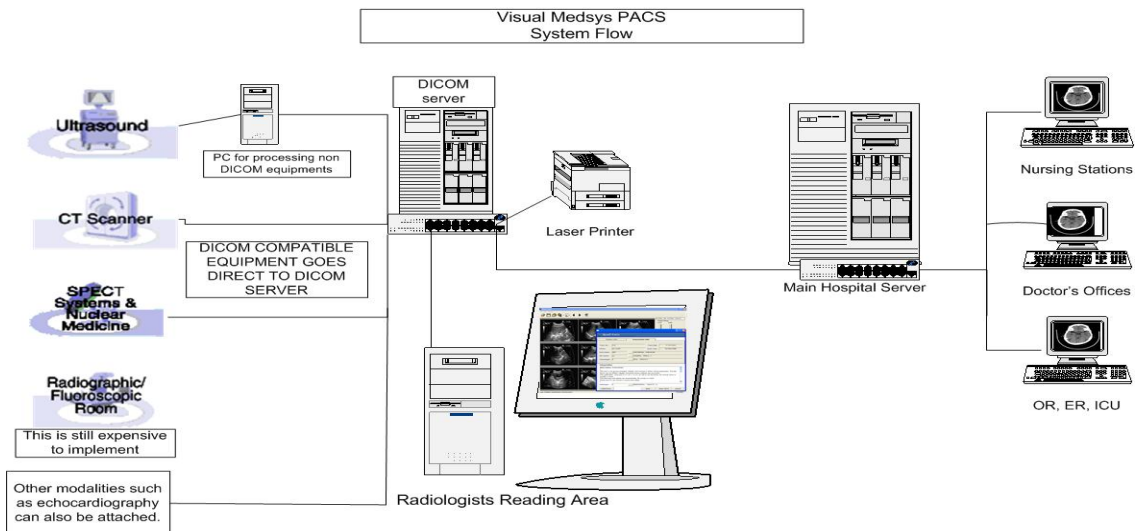
# PACS Server Manual



## Picture Archiving and Communication System

### Basic Features:

- Connects to DICOM Compliant Modalities.: CT / MRI / Ultrasound / Digital X-Rays / Nuclear / Eye-Laser / Etc
- Send Email and SMS (w/ MEDSMS feature) of Image and Interpretation
- Modality Worklist Server – Machine retrieves patient information from server based on HIS Request
- Print past transactions to DICOM film printer
- Burn to CD
- Linked to Medsys Radiology Module
- Images are stored in DICOM (Digital Imaging and Communications in Medicine) format
- PACS Acquire (optional) supports video/image recording of non-DICOM machines, such as Endoscopy



### Server

- MedsysDICOMserver.exe must be running at the PACS Server  
DBServer.txt contains the connection settings to the database server  
Example contents:  
PROVIDER=SQLOLEDB; Server=medsys; uid=sa; pwd=pass; database=DICOM
- Network port 104 and File and Printer sharing should be enabled, a folder d:\images should be shared, this is where images will be stored

### Modality Worklist (optional)

- Installed also on server, machines read from the Worklist to retrieve patient information from the HIS requests.
- Machines should support Worklist, which is an optional component (contact your supplier for details); the IP of the server must be entered in the machine. AE Title is MedsysPACSServer
- Uses port 105

### Modality Machine/Instrument setup

- Enter the IP address of the PACS server, AE Title could be set to MedsysPACSServer, port is 104

Installation Configuration

|  |  |
|--|--|
| PACS Server IP                           |  |
| PACS Server computer name                |  |
| PACS Server Admin username & password    |  |
| PACS Server client username and password |  |
| Connected Modalities                     |  |
| PACS Acquire Modalities                  |  |
| Network Printer IP                       |  |
| Worklist enabled modalities              |  |
| Reading workstations IP                  |  |
| DocModNet view enabled                   |  |
| PACS storage capacity/backup             |  |
| SQL UserName and Password                |  |
| Public IP address                        |  |
| Notes                                    |  |

**Client Setup:**

- User login must be first created in the user manager with password Department code=23
- Under Options, enter the computer name or IP of the PACS server, ex. [\\pacsserver](#)
- If the image retrieval mode is fileshare, make user [\\pacsserver\images](#) can be accessed from the workstation/terminal

**Installation**

Required Files:

- Comdlg32.ocx
- Mslxgd.ocx
- Mshfixgd.ocx
- tabctl32.ocx
- Mskomctl.ocx
- Mskomctlb.ocx
- Mskomct2.ocx
- Crviewer.dll
- Dicomobjects.ocx
- MSMAPI32.OCX
- Sapi.dll
- Scrrun.dll
- Craxdrt.dll
- Nerocom.dll
- Prjmedsyslic.dll

> Copy the files locally (e.g. c:\medsys\pacs\ddl) and Run setup.bat to register the files

Database Files:

- Build\_File
- Password
- Patient Data
- PACS
- DICOM

Copy ntwdblib from crystal to \windows\system32

**Options:**

UsePACSDbExamcodes: *unchecked*

Firewall ports:

- 104 – DICOM Communication
- 105 – DICOM Worklist Communication
- 1433 – SQL
- 3389 – Remote Desktop

Server Setup:

Share folder \IMAGES\

Connecting:

- Under password, type " Medsys" (space medsys) and click on Server...Type the server name and userid/pw then click Test Connection.

**Hardware Recommendations:**

Reading Terminals Display:

- 19" or bigger LCD, 1280x1024 / 1600x1200 or more resolution. Two LCD panels per terminal, for better image comparison. Medical-grade panels are good but come with a higher cost. Swivel panel.
- Video card with DVI-out and dual view capability.

*Viewing terminals need not be upgraded.*

PACS Server:

- Expandable RAID storage (RAID 10). 1 Terabyte initial capacity is good.
- Gigabit LAN, connected to database server.

**Average File Size**

- CT/MR - ~200kb per image (total size depends on the machine's number of slices). Estimated average of ~25Meg per exam
- US - ~450kb per image (~3Meg per exam)
- CR (scanned image) - (~5Meg per image), 1 to 2 images per exam.
- Endoscopy (PACS Aquire) - AVI video (~300Meg)

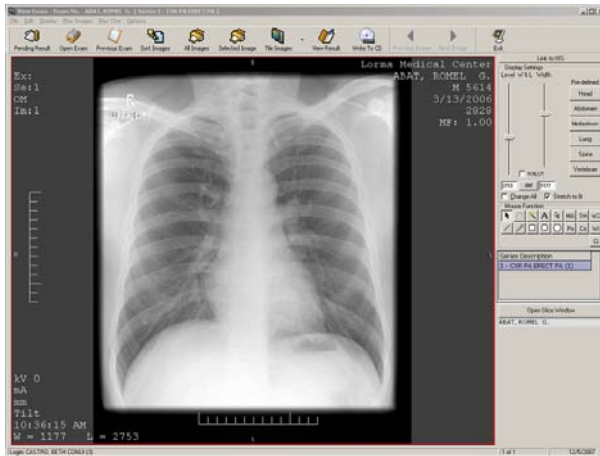
## Client

- To enable image smoothing, under Options (Viewer tab), set magnification to B-spline or Cubic spline. Some doctors prefer smoothing; some prefer the default pixel value



To set the default modality, first close the View exam window, check one modality from the PACS Menu screen, and then click View Exam.

- To open an image, select Open Exam from toolbar – Click on Search then double-click on Patient Name
- If you wish to export the image to BMP or JPG click File | Export to non-DICOM file from menu
- To open images from other series, double click the series description on the Series Description list
- To change the level/width of X-ray images, first uncheck the VOILUT checkbox. The VOILUT checkbox sets the optimal viewing configuration. If VOILUT is not used, click “def” to set the image to the default level/width.
- Play Images – circulates through the opened images, click Play Images again to stop the process
- Open slice window – could be configured to open on the secondary monitor, mainly used for multi-slice CT
- Click on **Previous Result** to open past images.
- Click on **Stretch to fit** and uncheck the box to see the image in the default resolution.



## Mouse Functions:

- Arrow – Default
- Hand – Moves image up/down/left/right. Left click on the image and hold left mouse button down, then drag the mouse in the desired direction.**
- Wand – Measure
- A – Text
- Ma – Magnification
- Sm – Smoothing option (selected image)
- W2/W1 – adjust Level/Width or Brightness/Contrast. To use, left-click on center of image, hold mouse down then move mouse up or down to increase/decrease level, and left and right to change width.**
- Line – draws a line
- Pen – Draws free form
- Square, Circle – draws respective object
- Po – Protractor
- Ci – plays Cine movie for Cine images

**HIS Link**

Updates Accession Number of PACS to the selected Request Num of the HIS.  
Enter Request date and number, then click List Requests. Select the corresponding Request then Save.

| PACS Image Info |                      |          |         |                        |                       |
|-----------------|----------------------|----------|---------|------------------------|-----------------------|
| Modality        | ReqNum               | Exam     | RefNum  | PatientName            | Req Date              |
| CT              |                      |          |         |                        |                       |
| Patient Name    | 62821                | SA161 AP | C28304X | ABAT, FRANCISCO SOTELO | 12/4/2008 12:58:03 PM |
| Study ID        | 52927                | CHEST PA | C28304X | ABAT, FRANCISCO SOTELO | 12/4/2008 12:58:04 PM |
| Study Date      | 12/3/2008            | 52928    | C28304X | ABAT, FRANCISCO SOTELO | 12/4/2008 12:58:04 PM |
| Study UID       | 1.3.51.0.7.112997814 | 52929    | C28304X | ABAT, FRANCISCO SOTELO | 12/4/2008 12:58:04 PM |
| Accession Num:  | 64023                | 52929    | C28304X | ABAT, FRANCISCO SOTELO | 12/4/2008 12:58:04 PM |

**HIS Request Search**

Request Date: 12/4/2008  
 Req Num:  
 Last Name: ABAT  
 First Name:

Selected Exam:  
 PacRef Num:  
 Accession Num:

### HIS Link

When Worklist is not used: On the machines, enter the HIS Request Number in the accession number field, if the correct request/accession number is not entered, this could be adjusted using the HIS Link.

- Search for the corresponding request by entering the Request Date, and Last name.
- Once a request has been highlighted, click on Save Accession Num to update the image accession number to the selected request number.

## MEDSYS PACS

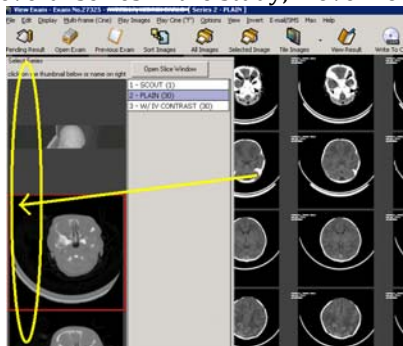
### Quick Guide

1. Double-click MEDSYS PACS icon on the desktop.
2. Enter your MEDSYS user name and password (given by EDP).
3. Click on the name of the patient to open the images.
  - Or type the Last Name of the patient and click Search
  - If name does not appear, make sure the modality (at the top) is checked.



| Exam No.  | Patient ID | Last Name | First Name   | Middle Name | Sex | Exam Name | Exam  |
|-----------|------------|-----------|--------------|-------------|-----|-----------|-------|
| 111008344 | 325506     | ANAGARAN  | MARIA GLORIA | C.          | F   | Abd       | 11/10 |
| 111009471 | 301949     | BALCONADI | MOMICO       | D.          | M   | Abd       | 11/10 |
| 111009471 | 154601     | BANLAOI   | MARIFE       | GENERAO     | F   | Abd       | 11/10 |
| 111009265 | 325468     | CASTANEDA | MARICAR      | P.          | F   | Abd       | 11/10 |
| 111008233 | 153598     | CASUGAY   | AL BRIAN     | G.          | M   | Abd       | 11/10 |
| 111008233 | 150723     | CRISTE    | REYNALDO     | DESCANZO    | M   | Abd       | 11/10 |
| 111007304 | 248024     | ESPIRITU  | JUAN PAOLO   | C.          | O   | Abd       | 11/10 |
| 111015304 | 19705      | ESTABILLO | ELEONOR      |             | F   | Thyroid   | 11/10 |
| 111008004 | 104106     | FERRER    | FELOMENA     |             | F   | Abd       | 11/10 |
| 111008340 | 325420     | HUFANA    | RAYMUND      | P.          | M   | Abd       | 11/10 |
| 111014520 | 256186     | LADUAN    | MERCIA       | G.          | F   | OB        | 11/10 |
| 111009371 | 144657     | LIANGAO   | CANDIDO      | T.          | M   | Abd       | 11/10 |
| 111005495 | 180965     | MALIG     | JERRY        | P.          | M   | Abd       | 11/10 |
| 111013094 | 325467     | MARZO     | SALLY        | S.          | O   | Thyroid   | 11/10 |
| 111012521 | 325493     | MENDOZA   | BETHSaida    | G.          | F   | OB        | 11/10 |

4. If multiple images are displayed, double-click the image to fit it to the whole screen.
5. Select series - If there are several series in the study, move mouse to the left side of the screen to select the series.



6. Tools - move mouse to the bottom of the screen to access the tools.



Basic Tool Functions: (Can be accessed also using Right Click)

- **Windowing** - Click and **hold left** mouse button then drag Up/Down or Left/Right to adjust the brightness and contrast.
  - **Pan** - Click and **hold left** mouse button then drag to move image around.
  - **Zoom** - Click and **hold left** mouse button then drag to zoom image. Alternatively, use the **mouse wheel** to zoom (no need to click on zoom).
7. **Right-click** tools:
    - Capture Part and Send – Makes a copy of the image with annotations and focused area then transmits to the PACS server.
  8. Previous Exam – If a previous exam exists, a blue previous exam button will appear.
  9. Left/Right Arrow Keys – Use the arrow keys to go the next/previous image.