

# PenRad Digital Automation Tools

## PenFetch - Smart image distribution for facility optimization

- Eliminates Radiologist wait-time**
- Optimizes network utilization**
- Eliminates manual image transfer**
- Distributes interpreting workload**
- Distributes images by study type**
- Pre-fetches prior images by exam type**

PenRad's DICOM worklist scheduler was originally developed to automatically prefetch prior images for mammography and distribute them directly to reading workstations in advance to eliminate the Radiologists wait time for images to download, however other applications for the module also exist for image distribution for facility optimization.

For facilities manually transferring images, this module eliminates the requirement to schedule staff to complete task. Scheduled pre-fetching is generally only available with full HIS/RIS and PACS systems.



The automatic scheduling allows bulk distribution at night, reducing day time network traffic to real-time imaging, thus increasing bandwidth during the day (moves priors for tomorrow's patients, moves images nightly to remote archives, moves images to remote reading facilities by exam type or by expression rules).

The module optimizes performance of limited networks (T1, DSL) for off-site imaging and storage facilities and monitors the worklist for additions (walk-ins) to immediately retrieve required images for distribution or distribute images directly real-time to one or more specific workstations by exam type and rules.

The module queries the worklist automatically, filters by imaging modality and body type, for a specified time interval and provides C-MOVE, and/or query/retrieve and store capabilities for multi-destination (workstation and archive) distribution. The module will also query multiple archives automatically also.

PenRad's integrated use of expressions within the PenFetch module allows customized "smart" instructions for image movement based on rules based on exam types as well as patient information, for workload distribution, scheduled or real-time, such as male/female, patient age, diagnostic/screening, odd/even mrn, mrn ends in 1/2 sends to workstation #1, 3/4 sends to #2, 5/6 sends to #3, 7/8 sends to #4, 9/0 sends to #5.

If DICOM worklist is not available, PenRad offers an HL7/DICOM module to query HL7 orders. In addition, the module can process image transfer with a text file from a scheduling system for example.

The software package is a Windows service.

DICOM Conformance Statement available on PenRad's web site [www.penrad.com](http://www.penrad.com)

# PenRad

*the mammography information solution provider*

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# PenRad **Digital Automation Tools**

## **DICOM worklist - Provides worklist from HL7 and text files**

**Eliminates manual data entry**

**Provides consistent info for image archival**

**Supports HL7 real-time and batch processing**

**Offers text file input to offer DICOM worklist**

PenRad offers a combination package that allows facilities to execute DICOM Worklist queries to eliminate manual data entry from a HL7 source or from a text file from a scheduling system.

The worklist processes HL7 orders and ADT, populates an internal SQL database, and processes DICOM queries to populate image modality data fields, eliminating manual data entry, providing correct consistent information for PACs.

The worklist supports DICOM based imaging modalities for worklist and "ad hoc" queries for patients.

This module generally satisfies needs for imaging workstations and archival without the need for a full DICOM broker that is generally only available with full HIS/RIS and PACS systems.

It increases efficiency and provides consistent DICOM information for image archival and the database can be pre-populated to add historical patient information.

The module offers an increase in efficiency for digital imaging and scanning priors for comparison.

Works in conjunction with PenRad's PenFetch to transfer images real-time and/or as a scheduled event.

The software package is a Windows service.

DICOM and HL7 Conformance Statement available on PenRad's web site [www.penrad.com](http://www.penrad.com)



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# PenRad **Digital Automation Tools**

## **HL7/DICOM SR - Converts HL7 result messages to DICOM SR**

**Generates DICOM basic SR from HL7 result message**  
**Supports HL7 real-time and batch processing**  
**Offers text file input for DICOM Basic SR**  
**Adds narrative report to DICOM PACS**

The HL7/DICOM SR extracts the report from the result section of the HL7 message to create a DICOM Basic Structured Report to be associated with the imaging files for archive or review on a SoftCopy workstation, generally only available with full HIS/RIS and PACS systems.

The module can populate legacy exams from HL7 result messages and/or from a text file.

The module automatically repeats the HL7 message eliminating the need separate feed.

The software package is a Windows service.

DICOM and HL7 Conformance Statement available on PenRad's web site [www.penrad.com](http://www.penrad.com)

## **HL7Repeater - Repeats HL7 messages to additional source**

**Repeats HL7 message for separate feeds**  
**Supports HL7 real-time and batch processing**

The HL7 Repeater processes HL7 messages and repeats messages into two sources for Speech recognition systems, feeding HL7/DICOM worklists, Results to DICOM Basic SR, text extractors for coding, etc.

The module is used with PenRad's HL7 engine to process text files to create the HL7 message from scheduling systems.

It is used with PenRad's HL7/DICOM worklist module for multiple worklists for imaging modalities.

The software package is a Windows service.

DICOM and HL7 Conformance Statement available on PenRad's web site.



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## **PenScan - Mammography Scanning Software**

**Digitizes priors for SoftCopy comparison**  
**Facilitates Tele-Mammography with efficiencies**

PenScan provides a digital imaging solution for converting hardcopy film for SoftCopy comparison.

Recycle your mammography CAD scanner into a scanner designed for SoftCopy comparisons.

PenScan is a Windows based software application that accepts images from film digitizers such as the Vidar AdvantagePro or Icad Fulcrum.

PenScan supports DICOM worklist to provide a means to correlate those images with the correct patient.

In addition, the QC feature provides verification and correction for each image within a study of the correct patient demographics, mammography view and image orientation prior to pushing the image out onto the network for SoftCopy display and/or archival in a PACS.

PenScan takes advantage of the scanner's bulk feed capabilities by allowing entry of multiple patients and multiple studies in the scanner queue, eliminating the need for separator cards.

PenScan has the ability to push complete studies or single images to any DICOM enabled device that may be listening on the network and can push to multiple devices simultaneously.

DICOM Conformance Statement available on PenRad's web site [www.penrad.com](http://www.penrad.com)

## **SoftCopy Synchronization - Syncs images and PenRad**

**Synchronizes SoftCopy workstation with patient exam in PenRad system**  
**One-way and bi-directional control**

This module allows the synchronization between PenRad and the SoftCopy workstation to select the corresponding patient automatically.

It saves the radiologist time by not having to select the patient in both systems. It reduces inherent errors, similar to when the barcode is attached to the images in the film environment and or the transcription system.

One-way and bi-directional interfaces available for most workstation vendors. PenRad's SoftCopy connectivity module supports Xml, serial, CCOW and custom.

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