



Software *Solutions*

HL7 /DICOM Information Guide

ec² Software Solutions

Follow the rules. Exceed the standard

This information guide will give you a brief overview of our HL7/DICOM interface along with an explanation of the data that can be shared and the message types supported.

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Introduction

Welcome

Thank you for your interest in our HL7/DICOM Interface. As the developers of the Nuclear Medicine Information System (NMIS), we have over 25 years of experience with hot lab management software. We have a thorough understanding of the features that are required to manage an efficient and successful organization. This brochure provides general and technical information to help explain the valuable functionality of our HL7/DICOM interface. We hope that you find it useful. Please do not hesitate to contact us for more information and as always, we look forward to working with you.

Introduction	2
General Information	3
What is HL7?	3
How it works.....	3
Data from RIS/HIS to NMIS.....	3
Data from NMIS to RIS/HIS.....	3
What is DICOM?	4
What is a Modality Worklist?	4
Data from DICOM Worklist to NMIS.....	4
Hardware Specifications	5
Technical Details	6
Message Types.....	6
HL7 Project Implementation.....	7
HL7 customization.....	7
Permanent Test Environment.....	7
RIS Vendor change.....	7
Contact Us	7

General Information

What is HL7?

ec² Software Solutions has developed the HL7 interface tool to share data between any hospital or radiology information system and the NMIS program. Transcription errors are reduced because the patient data is entered only once. This is a great time saving feature for the Nuclear Medicine department since all of the pertinent patient demographic data will already be pre-filled within the scheduler module of NMIS.

How HL7 Works

To make the interface work, the exams in NMIS are mapped to the exams in the RIS/HIS system. This allows the Nuclear Medicine department to keep the same exam terminology that they are accustomed to. NMIS contains a utility to import all the RIS/HIS exams and match them to NMIS exams. Now when an exam is scheduled in RIS/HIS the corresponding NMIS exam will be populated within the scheduler module of NMIS.

Data from RIS/HIS to NMIS

When scheduling a patient for Nuclear Medicine exams on the RIS/HIS side the following data can be transferred real-time to NMIS:

- Exam Date
- Patients Name
- Birth Date, Age
- Gender
- Patient Address
- Initial Diagnosis
- Patient Status
- Exam Time
- Medical or Radiology Record #
- Weight
- Doctor Name
- Telephone #
- Comments
- Inpatient Room / Floor

Data from NMIS to RIS/HIS

When a radiopharmaceutical is administered in Nuclear Medicine any of the following information can be transferred real-time back to the RIS/HIS program:

- Date and Time the Exam was Completed
- Pertinent Patient Demographic Data
- Exam Performed
- Product Lot #
- Dose Route
- Technologist Initials
- Radiopharmaceutical
- Administered Activity
- Injection Site
- Injection Time

General Information - continued

What is DICOM?

DICOM is an acronym for **D**igital **I**maging and **C**ommunications in **M**edicine. A standard was developed jointly by ACR (the American College of Radiology) and NEMA (the National Electrical Manufacturers Association) to aid the distribution and viewing of medical images such as CT scans, MRIs, ultrasound, Nuclear Medicine and various other modalities.

What is a Modality Worklist?

The Modality Worklist (referred to as MWL) is a server that receives radiology orders from the HIS/RIS and stores all the study and patient information for that order. NMIS has developed an easy to use interface with DICOM modality worklist. With minimal help from your IT, this interface could be up and running within days.

Data from DICOM Worklist to NMIS

When scheduling a patient for Nuclear Medicine exams on the HIS/RIS side the following data can be transferred real-time to NMIS:

- | | |
|---------------------|---------------------------------|
| - Exam Date | - Exam Time |
| - Patients Name | - Medical or Radiology Record # |
| - Birth Date, Age | - Weight |
| - Gender | - Doctor Name |
| - Patient Address | - Telephone # |
| - Initial Diagnosis | - Comments |
| - Patient Status | - Inpatient Room / Floor |

What is the difference in between HL7 and DICOM Modality Worklist interface?

The HL7 interface offers more flexibility and dosing information can be sent back to your RIS system. The cooperation of the RIS/HIS vendor and your IT department is essential and will determine how quickly the project proceeds.

The DICOM MWL interface does not require custom work, it is plug and play.

General Information - continued

Hardware Specifications

The following hardware specifications are suggested for adequate system performance and are consistent with the hardware we sell with our systems:

- Intel Core 2 Duo System
- 2 GB RAM
- Hard Drive: IDE 160 GB or better
- Monitor: SVGA 1024x768 resolution
- DVD drive

Network Requirements

Server Operating Systems Supported

- Server 2008
- Server 2012

Workstation Operating Systems Supported

- Windows 7
- Windows 8

HL7 and DICOM MWL program are installed on the NMIS server and you need to have static IP address. If you are an NMIS single user, you will need to purchase an NMIS Network version.

Technical Details

Message types supported by HL7 interface

HL7 General Order message (ORM^001)

The function of this message is to initiate the transmission of information about an order. This includes patient demographics, new orders, update and cancellation of existing orders, etc.

Trigger Events:

- Exam Scheduled on HIS/RIS/Interface Engine
- Scheduled exam changed/updated
- Scheduled exam cancelled

HL7 Schedule message (SIU)

The interface can accept **SIU** messages from your scheduling system. This includes patient demographics, new orders, update and cancellation of existing orders, etc.

Trigger Events:

- Exam Scheduled on RIS/HIS/Interface Engine
- Scheduled exam changed/updated
- Scheduled exam cancelled

HL7 ADT message feed (ADT)

The interface can receive and store ADT messages. This includes patient registration, patient demographics changes, MRN merge, etc.

Acknowledgement message (ACK)

This message will be sent in response to the **ORM/SIU/ADT** message received from RIS/HIS.

Negative Acknowledgement message (NACK)

This message will be sent in response to an incorrect HL7 message received from RIS/HIS.

Unsolicited transmission of an observation message (ORU)

The interface can send **ORU** messages (dosing information) back to your RIS/HIS. This part is optional.

Trigger Events:

- Patient dosed in NMIS

HL7 Project Implementation

HL7 customization

This interface supports all HL7 standard versions. In addition, some customization is often required in order to adapt to your RIS/HIS systems HL7 specifications. The design of our interface program is flexible and allows for quick changes required as per your RIS specifications.

Permanent test environment

A testing license should be purchased in the event that your IT department would like a permanent testing environment.

RIS Vendor change

Implementation of our HL7 interface with your new RIS vendor can be accomplished with a minimal fee.

Contact Us

Implementation of this feature at your facility can be done on your time schedule. The cooperation of the RIS/HIS vendor and your IT department is essential and will determine how quickly the project proceeds. If you have any questions or need to discuss the details of the interface, please call ec² Software Solutions at 800-851-0025 or email us your questions at info@ec2software.com

Thank you very much for your interest in interfacing NMIS to your RIS/HIS program.