MEDICOM

HL7 INTERFACE

JANUARY 2019

www.medicom.us

Table of Contents

Message Specifications *2*

Mapping and Transfer Methodology **2**

ORU^R01 - Incoming **3**

DEFAULT SEGMENTS AND FIELDS 3

ORU^R01 - Outgoing **3**

ORM^O01 – Local Storage **4**

SCHEDULING 4

DEFAULT SEGMENTS AND FIELDS 4

© 2019 Medicom Technologies, Inc.

Message Specifications

This interface documentation defines the accepted message types from an external system which generates HL7 messages (e.g., RIS, EMR/HER, or HL7 engine).

The Medicom Imagex system can send and receive HL7v2.x messages over TCP/IP. Medicom's system may not support the entire HL7 specification depending on the functionality defined in this document.

Execution of the intended system outcome is based on the message type (specified in MSH-9) and must exactly match one of the defined message types in this document.

Mapping and Transfer Methodology

Medicom's Imagex relies on a mapping technique unique to the system for the conversion and transmission of HL7 messages between two Medicom Spaces. The methodology is based on a default mapping which contains the minimum requirements for information in HL7 messages to be mapped and converted to a DICOM SR for transmission. Additional fields can be added in Medicom's HL7 Mapping Engine to add further elements.

For each HL7 message received by Medicom's Imagex, the user-defined mapping is invoked and allows the system to convert HL7 messages to DICOM SR. The DICOM SR is then transmitted over Medicom's Network to another provider with a Medicom Space. In the cases of orders and results, the DICOM SR can then be converted back to an HL7 message, kept as a DICOM file, or converted to a JPEG image for ingestion into PACS, EMR/EHR, RIS, or HL7 engine. This system creates a single map for all outside HL7 messages and provides a standard means for conversion based on the expected format of information in a receiving system.

© 2019 Medicom Technologies, Inc.

ORU^R01 - Incoming

Observation result (ORU) messages represent the transmittal of the results of a completed study. Medicom's Imagex accepts ORU^R01 messages to create a DICOM SR file of observation results to send to another space on the Medicom Network. The created DICOM SR file will not contain the image files themselves, but simply the report contents.

An important note in this flow: a study UID is required to create a DICOM SR. Before Imagex generates a unique identifier, the system will attempt to query local DICOM locations with the accession number provided in the message to find matching studies and use the found unique identifier.

DEFAULT SEGMENTS AND FIELDS

Element Name	Segment/Group	Notes
Patient Identification	PID-3	Required
Patient Name	PID-5	Required
Patient Date of Birth	PID-7	Required
Patient Sex	PID-8	Required
Referring Physician	PV1-8	Recommended
Study Accession Number	OBR-2	Recommended
Procedure Code	OBR-4.1	Recommended
Repeating OBX segments will contain the strings used to build the DICOM SR contents in OBX-5.		

ORU^R01 - Outgoing

Medicom's Imagex is able to send ORU^R01 messages to an HL7 enabled device upon receiving DICOM files. Imagex can generate ORU^R01 messages for all incoming DICOM files, not just DICOMs which contain results in DICOM SR format.

The generation of this information when combined with Medicom's patient matching system allows facilities to auto-associated outside exams with an unsolicited order in an EMR or RIS — creating a link to the exam in PACS/VNA.

Using the `hl7SendWithoutOBX` in the off state, messages will not be sent unless they contain OBX segments which are built from DICOM SR files.

© 2019 Medicom Technologies, Inc.

ORM^O01 – Local Storage

Using this functionality requires 2.1.7 or later with the `federatedSearch` *setting enabled.*

Order messages (ORM) represent a request to the receiving system for information (results) to fulfill the order. With Imagex, this request is used to trigger an automated federated search and retrieval of DICOM images from another Medicom Space. All ORM^O01 messages sent through an HL7 channel to an Imagex device will be stored on a local database for use in scheduling searches and updating inbound patient demographics contained within the DICOM metadata.

SCHEDULING

The ORM message should contain an appointment date to help determine when the search and retrieval should be executed against other Medicom Spaces. If an order does not meet one of the below criteria, the Imagex device will wait until a number of days before the appointment date to execute the automated federated search:

1. The priority of the study is categorized as STAT or ASAP. This can be mapped to an organization's definition of ROUTINE, STAT, ASAP, or CALLBACK, for example.
2. There is no appointment date in the message.
3. The appointment date is already less than `fedSearchDaysPriorToSearch` days from today.

Keywords for determining the priority are extracted by default from OBR-27.6 and are mapped to corresponding priorities in the setting `fedSearchPriorityMappingTokens`. The number of days is specified in the `fedSearchDaysPriorToSearch` setting.

DEFAULT SEGMENTS AND FIELDS

Element Name	Segment/Group	Notes
Patient Identification	PV1-3	Recommended since Imagex will update the external patient ID to the ID in this field. If not present, Imagex will send a blank patient ID.
Patient Name	PV1-5	Required
Patient Date of Birth	PV1-7	Required
Patient Sex	PV1-8	Required
Procedure Code	OBR-4.1	Required
Priority	OBR-26.7	Recommended. If not present, the priority is assumed to be ROUTINE.
Appointment Date	OBR-34	Recommended. If not present, automated federated search will be executed immediately.

© 2019 Medicom Technologies, Inc.