

Specifications for the HL7 Interface on the CARESTREAM Image Suite

Important

Qualified service personnel must service this equipment.
When doing the procedures in this document, you must
use safe work practices and wear the correct personal protective
equipment (for example, safety eyewear) according to your
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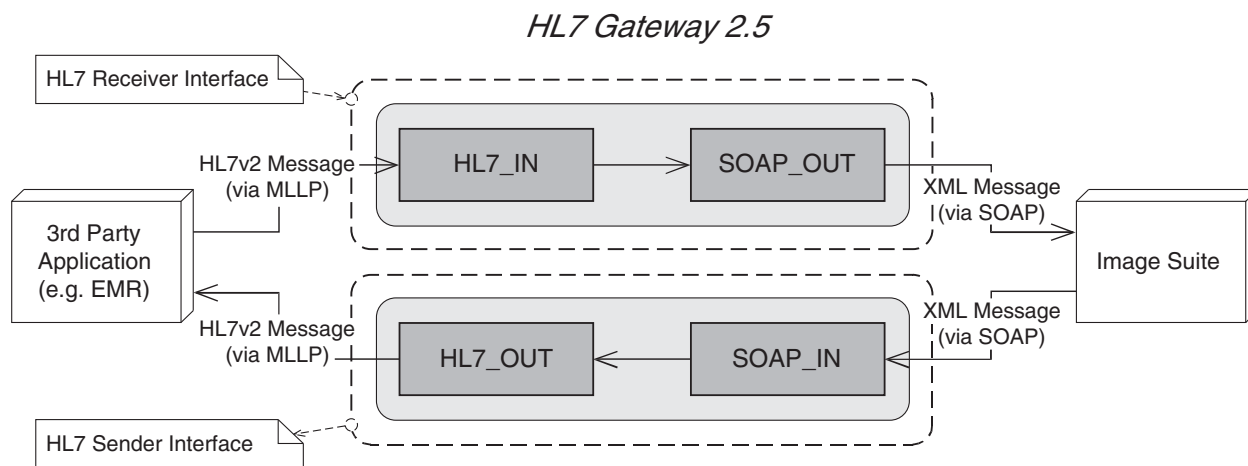
1 Introduction: EMR/EPR/PM Interface Support for HL7

Health Level 7 (HL7) is an international standard used to exchange patient and order information as well as images and reports between electronic devices and systems. Image Suite provides an HL7 interface to communicate with third-party practice management (PM) systems, electronic medical records (EMR), and electronic patient records (EPR).

This allows Image Suite to receive patient and exam information electronically to automatically create an order list and conduct a scan. After scanning and acquiring the images, the EMR/EPR/PM systems will receive an image arrival notification with an embedded Uniform Resource Locator (URL), which the receiver can click to see related images and reports. Other EMR/EPR/PM systems cannot modify an image or report since the study has been set to Completed at the remote web viewer.

Workflow

The workflow between Image Suite and third-party EMR/EPR/PMs is illustrated below:



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1. EMR/EPR/PM sends a message through the HL7 Gateway to Image Suite to create a new order or exam, to update an existing order or exam, or to remove an un-scanned order.
2. Image Suite sends a message containing a URL to notify the image has been set to completed status.
3. EMR/EPR/PM user launches the DICOM Viewer provided by Image Suite by clicking the URL.

MLLP - Minimal Lower Layer Protocol
SOAP - Single Object Access Protocol

Compliance with HL7 Version 2.5

Image Suite is compliant with HL7 version 2.5 but will not be backward compatible with earlier versions of HL7. It is the responsibility of the third-party EMR/EPR/PM systems to send, receive, and parse messages according to the HL7 interface standards. The relevant HL7 specifications are included in this guide to enable dealers to integrate the Image Suite interface support for HL7.

HL7 Image Arrival Notification

Image Suite will send a URL to other PM/EMR/EPR systems through the HL7 interface once the study has been set to Completed. This URL is a parameter string that will enable the external system to launch the image through a web-based DICOM viewer provided by Image Suite. This URL could be regarded as the image arrival notification.

HL7 Service Configuration

Image Suite provides an interface in the Service Configuration Tool to configure the third-party EMR/EPR/PM system's IP Address and Port Number for HL7 communication.

When a third-party PM/EMR/EPR system creates the URL link, the images that are viewable are limited to those in the User ID's access group; however, if the third-party user loads the viewer through the URL provided by Image Suite, there is no limitation.

Image Suite will use one unit of the web client license when opening the URL on the remote browser.

Information that Image Suite Requires from Other Systems

Image Suite receives the following information from other PM/EMR/EPR systems to identify and link images to a unique patient:

- 1 Patient Name (Last Name, First Name, Middle Initial)—required
- 2 Patient Gender (M, F, O) —required
- 3 Patient Date of Birth—required
- 4 Patient's Age—required
- 5 Patient ID Number—required
- 6 Requested Date of Study—required
- 7 Study Description or Exam Name (for example, Chest X-Ray) —required
- 8 File Number or Accession Number
- 9 Referring Physician's Name

HL7 Support for Veterinary Medicine

The Image Suite Veterinary application can receive HL7 messages that are sent from other veterinary practice management systems with order and exam information. The supported fields are as follows:

- 1 Animal's Name (name assigned by breeder or owner) – required; will be stored in the First Name of Patient Name—required
- 2 Animal Owner's First and Last Name – required; will be stored in the Last Name of Patient Name.
- 3 Animal's Gender and Neutered Status (Male/Female/Other) —required
- 4 Animal's Date of Birth —required
- 5 Animal's Age—required
- 6 Animal's Species —required
- 7 Animal's Breed—required
- 8 Patient ID Number—required
- 9 Requested Date of Examination—required
- 10 Examination Name or Study Description (for example, Chest X-Ray) —required
- 11 File Number or Accession Number
- 12 Referring Veterinarian's Name
- 13 Veterinarian's Name
- 14 Chip ID

Notes: The animal's name can be stored in the First Name of Patient; the animal owner's first and last name can be stored in the Last Name of Patient. Image Suite will parse and extract the information accordingly.

2 Use Cases

The following five use cases describe typical scenarios in which HL7 is used:

- Receive a Message to Create a New Order or Exam
- Receive a Message to Update an Existing Order or Exam
- Receive a Message to Update an Existing Patient
- Receive a Message to Remove an Un-scanned Order or Exam
- Send a Message Containing a URL to Notify the Image Being Acquired
- Show DICOM Viewer Activated by a URL

Receive a Message to Create a New Order or Exam

- Actors: Radiographer or Receptionist
- Goal: Receive the message from the EMR/EPR/PM system and create a new order accordingly
- Non-Functional: The HL7 message will be received via TCP/IP protocol
- Rank: Essential
- Pre Conditions:
1. Image Suite and the EMR/EPR/PM system are connected through the network.
 2. The socket port is enabled by the firewall application to exchange messages through TCP/IP protocol.
 3. The EMR/EPR/PM system is HL7 standard compatible and supports an ORM^O01 Order Message.
- Flow of Events:
1. The radiographer or receptionist creates a new order in the EMR/EPR/PM system.
 2. The EMR/EPR/PM system creates an HL7 message string and sends the message to Image Suite by TCP/IP protocol.
 3. Image Suite receives and parses the message.
 4. If the parsing is successful, Image Suite will extract the required patient or order information and create a new order in the database.
 5. The Radiographer will activate the order and conduct a scan.
- Alternative Flow of Events:
- Step 3 fails
- 3a. Image Suite returns an error message to the EMR/EPR/PM system that a failure has occurred.
- Post Conditions:
- Success—a new order is created on the Image Suite side and the Radiographer can start a scan accordingly.
- Failure—no new order is created on the Image Suite side and the EMR/EPR/PM system will get an error message.

Receive a Message to Update an Existing Order or Exam

Actors: Radiographer or Receptionist

Goal: Receive the message from the EMR/EPR/PM system and update an existing order accordingly

Non-Functional: The HL7 message will be received via TCP/IP protocol

Rank: Essential

Pre Conditions:

1. Image Suite and the EMR/EPR/PM system are connected through the network
2. The socket port is enabled by the firewall application to exchange messages through TCP/IP protocol.
3. The EMR/EPR/PM system is HL7 standard compatible and supports an ORM^O01 Order Message.

Flow of Events:

1. The radiographer or receptionist updates an existing order in EMR/EPR/PM system.
2. The EMR/EPR/PM system creates an HL7 message string and sends the message to Image Suite by TCP/IP protocol.
3. Image Suite receives and parses the message.
4. If the parsing is successful, Image Suite will extract the required patient or order information and update the existing order information in the database, including previously scanned images.
5. The Radiographer will activate the updated order and conduct a scan.

Alternative Flow of Events:

- Step 3 fails
- 3a. Image Suite returns an error message to the EMR/EPR/PM system that a failure has occurred.

Post Conditions:
Success—existing order will be updated on the Image Suite side.
Failure—there is no update on the Image Suite side and the EMR/EPR/PM system will get an error message.

Receive a Message to Update an Existing Patient

Actors: Radiographer or Receptionist

Goal: Receive the message from the EMR/EPR/PM system and update an existing patient accordingly

Non-Functional: The HL7 message will be received via TCP/IP protocol

Rank: Essential

Pre Conditions:

1. Image Suite and the EMR/EPR/PM system are connected through the network.
2. The socket port is enabled by the firewall application to exchange messages through TCP/IP protocol.
3. The EMR/EPR/PM system is HL7 standard compatible and supports an ADT^A08 Update Patient Message.

Flow of Events:

1. The radiographer or receptionist updates an existing patient in EMR/EPR/PM system.
2. The EMR/EPR/PM system creates an HL7 message string and sends the message to Image Suite by TCP/IP protocol.
3. Image Suite receives and parses the message.
4. If the parsing is successful, Image Suite will extract the required patient information and update the existing patient information in the database.

Alternative Flow of Events: Step 3 fails
3a. Image Suite returns an error message to the EMR/EPR/PM system that a failure has occurred.

Post Conditions: Success—An update for the existing patient will be created on the Image Suite side.

Failure—there is no update on the Image Suite side and the EMR/EPR/PM system will get an error message.

Receive a Message to Remove an Un-scanned Order or Exam

Actors:	Radiographer or Receptionist
Goal:	Receive the message from the EMR/EPR/PM system and remove an un-scanned order accordingly
Non-Functional:	The HL7 message will be received via TCP/IP protocol
Rank:	Essential
Pre Conditions:	<ol style="list-style-type: none">1. Image Suite and the EMR/EPR/PM system are connected through the network.2. The socket port is enabled by the firewall application to exchange messages through the TCP/IP protocol.3. The EMR/EPR/PM system is HL7 standard compatible and supports an ORM^O01 Order Message.
Flow of Events:	<ol style="list-style-type: none">1. The radiographer or receptionist cancels an existing order in the EMR/EPR/PM system.2. The EMR/EPR/PM system creates an HL7 message string and sends the message to Image Suite by TCP/IP protocol.3. Image Suite receives and parses the message.4. If the parsing is successful, Image Suite will extract the required patient or order information and cancel the existing order, assuming the order has no scanned images.
Alternative Flow of Events:	<p>Step 3 fails</p> <p>3a. Image Suite returns an error message to the EMR/EPR/PM system that a failure has occurred.</p> <p>Step 4, if the existing order has scanned images</p> <p>4a. Image Suite does not cancel or remove the order and sends an error message back to the EMR/EPR/PM system.</p>
Post Conditions:	<p>Success—the order will be cancelled and removed on the Image Suite side.</p> <p>Failure—the order will NOT be cancelled on the Image Suite side and the EMR/EPR/PM system will receive an error message.</p>

Send a Message Containing a URL to Notify the Image Being Acquired

Actors:	Radiographer
Goal:	Send a message from Image Suite to the EMR/EPR/PM system (which contains a URL) to acknowledge that the image is being acquired
Non-Functional:	The HL7 message will be received via TCP/IP protocol
Rank:	Essential
Pre Conditions:	<ol style="list-style-type: none">1. Image Suite and the EMR/EPR/PM system are connected through the network.2. The socket port is enabled by the firewall application to exchange messages through the TCP/IP protocol.3. The EMR/EPR/PM system is HL7 standard compatible and supports an ORU^R01 Observation Reporting Message.
Flow of Events:	<ol style="list-style-type: none">1. The radiographer conducts an image scan and the image is acquired in local storage.2. Image Suite creates an HL7 message string and sends the message to the EMR/EPR/PM system by TCP/IP protocol.3. The message will contain a URL, which consists of user name, password, accession number, patient ID, and token ID.4. The EMR/EPR/PM system will parse the message and access the link that allows launching the Image Suite Web Viewer to display the associated patient image(s).5. The EMR/EPR/PM system should parse special characters to the original characters. For example, "/T/ present &" should be replaced in EMR/EPR/PM system.
Alternative Flow of Events:	If there are any QC operations, like image merge/split or patient information updates on the Image Suite side, Image Suite will send the new URL through the HL7 message, which will repeat the steps above. The EMR/EPR/PM system then needs to update the URL accordingly.
Post Conditions:	<p>Success—the URL is sent and correctly accessed at the EMR/EPR/PM system. The user is able to view the images at the EMR/EPR/PM system side through the remote Image Suite Web Viewer.</p> <p>Failure—there is no URL displayed at the EMR/EPR/PM system side.</p>

Show DICOM Viewer Activated by a URL

Actors:	Radiographer
Goal:	Show the DICOM Viewer provided by Image Suite, which will be activated by a URL at the EMR/EPR/PM system.
Non-Functional:	The EMR/EPR/PM system will have the capability to open a Web page through the IE browser (IE 7.0 or higher)
Rank:	Essential
Pre Conditions:	<ol style="list-style-type: none">1. Image Suite and EMR/EPR/PM system are connected through the network.2. The IE browser has been configured to enable the ActiveX component.
Flow of Events:	<ol style="list-style-type: none">1. Radiographer2. Image Suite creates a HL7 message string and sends the message to the EMR/EPR/PM system by TCP/IP protocol.3. The message will contain a URL, which consists of a user name, password, accession number, patient ID, and token ID.4. The EMR/EPR/PM system will parse the message and show the link that will allow launching the Image Suite Web Viewer to display a patient image(s).
Alternative Flow of Events:	If there are any QC operations, like image merge/split or patient information updates at the Image Suite side, Image Suite will send the new URL through the HL7 message, which will repeat the steps above. The EMR/EPR/PM system then needs to update the URL accordingly.
Post Conditions:	<p>Success—the URL is sent and is displayed correctly on the EMR/EPR/PM system. The user is able to launch the images on the EMR/EPR/PM system via remote access to an Image Suite Web Viewer.</p> <p>Failure—no URL is displayed on the EMR/EPR/PM system.</p>

3 HL7 Message Structures

HL7 messages follow a specific structure. The structure of each HL7 message used in Image Suite is listed below, followed by the format for each segment.

Order Message– ORM^O01

ORM^O01 messages are received by Image Suite whenever a New, Cancel, or Update order is placed by other EPR/EMR/PM systems. There will be only one patient's information sent with each order message.

New, Update, or Cancel Order messages use four segments:

Segment	Name	Required
MSH	Message Header	Yes
PID	Patient Identification	Yes
ORC	Common Order	Yes
OBR	Observation Request	Yes
ADT	Update Patient	

Update Patient Message– ADT^A08

ADT^A08 messages will be received by Image Suite whenever a patient update request is placed by other EPR/EMR/PM systems. There will be only one patient's information sent with each order message.

Update Patient:

Segment	Name	Required
MSH	Message Header	Yes
EVN	Event Type	Yes
PID	Patient Identification	Yes
PV1	Patient Visit	Yes

General Acknowledgment Message–ACK

Upon internal verification of the data being successfully written into the Image Suite tables, Image Suite will transmit an ACK message.

General Acknowledgment messages use two segments:

Segment	Name	Required
MSH	Message Header	Yes
MSA	Message Acknowledgment	Yes

Observational Results Unsolicited Message–ORU^R01

An ORU^R01 message will be sent to other EMR/EPR/PM systems whenever captured images have been acquired by Image Suite. A URL will be sent to third-party EMR/EPR/PM systems to enable those systems to launch a web-based DICOM Viewer by clicking the URL.

Observational Results Unsolicited messages use four segments:

Segment	Name	Required
MSH	Message Header	Yes
PID	Patient Identification	Yes
OBR	Observation Request	Yes
OBX	Results	Yes

4 HL7 Segments

This section contains the Sequence Number, Maximum Length, Data Type, Description, Value, Comments, and whether the field is Required or Optional, for the following types of HL7

Segments:

MSH	Message Header
MSA	Message Acknowledgment
PID	Patient Identification
ORC	Common Order
OBR	Observation Request
OBX	Observation/Result
EVN	Event Type
PV1	Patient Visit

NOTE: The grayed-out table rows are Not Applicable and can be ignored.

MSH – Message Header Segment

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
1	1	R		ST	Field Separator	- a vertical line, the fourth field in the message buffer (right after the MSH).
2	4	R		ST	Encoding Characters	^~\&, which defines the component separator, sub-component separator, encoding character and repeating separator.
3	227	R		HD	Sending Application	Name of sending application, for example, Image Suite.
4				HD	Sending Facility	NA
5				HD	Receiving Application	NA
6				HD	Receiving Facility	NA
7	26	R		TS	Date/Time of Message	Current System Date/Time
8				ST	Security	NA
9	15	R		MSG	Message Type	ORM^O01
10	20	R		ST	Message Control ID	Unique identifier for this message to be sent back with Acknowledgment
11	1	R		PT	Processing ID	Always is P (Production), which will be used to decide how to process the message.

MSH – Message Header Segment (continued)

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
12	10	R		VID	Version ID	2.5
13				NM	Sequence Number	NA
14				ST	Continuation Pointer	NA
15	2	R		ID	Accept Acknowledgment Type	AL - Always Used for TCP/IP purposes only.
16				ID	Application Acknowledgment Type	NA
17	3	O		ID	Country Code	USA as default; will be assigned other values if required for different language versions of Image Suite.
18	16	O		ID	Character Set	ASCII as default; will be assigned other values if required for different language versions of Image Suite.
19				CE	Principal Language of Message	NA
20				ID	Alternate Character Set Handling Scheme	NA
21				EI	Message Profile Identifier	NA

MSA—Message Acknowledgment Segment

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
1	2	R		ID	Acknowledgment Code	AA Original mode: Application Accept Enhanced mode: Application acknowledgment: Accept AE Original mode: Application Error Enhanced mode: Application acknowledgment: Error AR Original mode: Application Reject Enhanced mode: Application acknowledgment: Reject CA Enhanced mode: Accept acknowledgment: Commit Accept CE Enhanced mode: Accept acknowledgment: Commit Error CR Enhanced mode: Accept acknowledgment: Commit Reject
2	20	R		ST	Message Control ID	Message control ID (MSH) from the incoming message.
3	80	O		ST	Text Message	Error message will be filled when responding to the external system
4					Expected Sequence	N/A
5					Delayed Acknowledgment Type	N/A
6					Error Condition	N/A

PID—Patient Identification Segment

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATATYPE	DESCRIPTION	VALUE/COMMENT
1				SI	Set ID – Patient ID	NA
2	20			CX	Patient ID (External ID)	NA
3	250	R		CX	Patient Identifier List (Internal ID)	<p>If Image Suite is the receiver, then the external system will send their internal Patient ID here.</p> <p>If Image Suite is the sender, then Image Suite will send Image Suite internal Patient ID here.</p> <p>Invalid character: \</p>
4	64			CX	Alternate Patient ID – PID	<p>For Veterinary, it will store the animal's Chip ID</p> <p>Invalid character: \</p>
5	250	R R		XPN	Patient Name Family Name Given Name Middle initial	<p>Family Name and Given Name are required.</p> <p>For Veterinary application, the Family Name will store the owner's name; the Given Name will store the animal's name.</p> <p>Patient Name field is a combination of Last Name, First Name, and Middle Name.</p> <p>The format is: LastName^FirstName^MiddleName</p> <p>Invalid characters: ^\%<></p>
6				XPN	Mother's Maiden Name	NA
7	26	R		TS	Date of Birth	YYYYMMDD
8	1	R		IS	Administrative Sex	<p>F=Female, M=Male, O=Other</p> <p>For Veterinary application, it will store the animal's Neutered Status.</p>

PID—Patient Identification Segment (continued)

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATATYPE	DESCRIPTION	VALUE/COMMENT
9				XPN	Patient Alias	NA
10				CE	Race	NA
11				XAD	Patient Address	NA
12				IS	County Code	NA
13				XTN	Phone Number – Home	NA
14				XTN	Phone Number –Business	NA
15				CE	Primary Language	NA
16				CE	Marital Status	NA
17				CE	Religion	NA
18				CX	Patient Account Number	NA
19				ST	SSN Number – Patient	NA
20				DLN	Driver's License Number – Patient	NA
21				CX	Mother's Identifier	NA
22				CE	Ethnic Group	NA
23				ST	Birth Place	NA
24				ID	Multiple Birth Indicator	NA
25				NM	Birth Order	NA
26				CE	Citizenship	NA
27				CE	Veterans Military Status	NA
28				CE	Nationality	NA
29				TS	Patient Death Date	NA
30				ID	Patient Death Indicator	NA
31				ID	Identity Unknown Indicator	NA

PID—Patient Identification Segment (continued)

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATATYPE	DESCRIPTION	VALUE/COMMENT
32				IS	Identity Reliability Code	NA
33				TS	Last Updated Date/Time	NA
34				HD	Last Update Facility	NA
35	250	O		CE	Species Code	Will receive the Species Name or Code from Veterinary Practice System.
36	250	O		CE	Breed Code	Will receive the Breed Name or Code from Veterinary Practice System.
37				ST	Strain	NA
38				CE	Production Class Code	NA
39				CE	Tribal Citizenship	NA

ORC—Common Order Segment

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
1	2	R		ID	Order control	<p>Image Suite will create a new order if the value is:</p> <p>NW – New order</p> <p>Image Suite will update an existing order if the value is:</p> <p>SC – Status changed</p> <p>XO – Change order</p> <p>Image Suite will remove an existing order if the value is:</p> <p>CA – Cancel order</p>
2				EI	Placer Order Number	NA
3	22	R		EI	Filler Order Number	<p>Accession Number (unique) is filled by external application and should match OBR-3.</p> <p>Invalid character: \</p>
4				EI	Placer Group Number	NA
5				ID	Order Status	NA
6				ID	Response Flag	NA

ORC—Common Order Segment (continued)

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
7	200	R		TQ	Quantity/Timing: Quantity Interval Duration Start date/time End date/time Priority Condition Test Conjunction Order sequencing	Only Start date/time is used. The format is YYYYMMDD. If used, should match OBR-27.
8				EIP	Parent	NA
9				TS	Date/Time of Transaction	NA
10				XCN	Entered By	NA
11				XCN	Verified By	NA
12	250	O		XCN	Ordering Provider	Ordering referring physician. If used, should match OBR-16. Invalid characters: ^\%<>
13				PL	Enterer's Location	NA
14				XTN	Call Back Phone Number	NA
15				TS	Order Effective Date/Time	NA

ORC—Common Order Segment (continued)

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
16				CE	Order Control Code Reason	NA
17				CE	Entering Organization	NA
18				CE	Entering Device	NA
19				XCN	Action By	NA
20				CE	Advanced Beneficiary Notice Code	NA
21				XON	Ordering Facility Name	NA
22				XAD	Ordering Facility Address	NA
23				XTN	Ordering Facility Phone Number	NA
24				XAD	Ordering Provider Address	NA
25				CWE	Order Status Modifier	NA
26				CWE	Advanced Beneficiary Notice Override Reason	NA
27				TS	Filler's Expected Availability Date/Time	NA

ORC—Common Order Segment (continued)

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
28				CWE	Confidentiality Code	NA
29				CWE	Order Type	NA
30				CNE	Enterer Authorization Mode	NA

OBR—Observation Request Segment

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
1	4	O		SI	Set ID – OBR	Sequence Number
2				EI	Placer Order Number	NA
3	22	R		EI	Filler Order Number	Placer Order Number (unique). Should match ORC-3.
4	250	R		CE	Universal Service ID: Identifier Text Name of coding system	<p>The identifier code for the requested observation, test, or battery. It will be used as Procedure Code. The first component of this field contains codes that describe what scanning or imaging procedure should be done; for example, CT_CHEST_PA or MR_HEAD_. The codes are defined by the RIS. The second component contains a textual description of the procedure.</p> <p>For Image Suite, this field stores the Procedure Code. Image Suite will use this code to query Body Part, View Position, and Species from the database. User should define the Procedure Code using the Service Configuration tool.</p>
5				ID	Priority	NA
6				TS	Requested Date/time	NA
7	26	O		TS	Observation Date/Time	<p>Date/Time of the encounter (date when a procedure or activity is performed). Format: YYYYMMDDHHMM[SS[ss]]</p> <p>This value will be filled in when the OBR is transmitted as part of a report message.</p>
8				TS	Observation End Date/Time	NA

OBR—Observation Request Segment (continued)

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
9				CQ	Collection Volume	NA
10				XCN	Collector Identifier	NA
11				ID	Specimen Action Code	NA
12				CE	Danger Code	NA
13				ST	Relevant Clinical Info.	NA
14				TS	Specimen Received Date/Time	NA
15				CM	Specimen Source	NA
16	250	O		XCN	Ordering Provider	Ordering referring physician. This should be identical to ORC-12 if used.
17				XTN	Order Callback Phone Number	NA
18				ST	Placer field 1	NA
19				ST	Placer field 2	NA
20				ST	Filler Field 1	NA

OBR—Observation Request Segment (continued)

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
21				ST	Filler Field 2	NA
22				TS	Results Report/Status Change Date/Time	NA
23				MOC	Charge to Practice	NA
24				ID	Diagnostic Serv Sect ID	NA
25				ID	Result Status	NA
26				PRL	Parent Result	NA
27	200	O		TQ	Quantity/Timing: Quantity Interval Duration Start date/time End date/time Priority Condition Test Conjunction Order sequencing	Only Start date/time is used. The format is YYYYMMDD. If used, should match ORC-7.
28				XCN	Result Copies To	NA
29				EIP	Parent	NA
30				ID	Transportation Mode	NA

OBR—Observation Request Segment (continued)

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
31				CE	Reason for Study	NA
32				NDL	Principal Result Interpreter	NA
33				NDL	Assistant Result Interpreter	NA
34				NDL	Technician	NA
35				NDL	Transcriptionist	NA
36	26	O		TS	Scheduled Date/Time	YYYYMMDD, the date the study is scheduled, if applicable. If blank, will use OBR-27.
37				NM	Number of Sample Containers	NA
38				CE	Transport Logistics of Collected Sample	NA
39				CE	Collector's Comment	NA
40				CE	Transport Arrangement Responsibility	NA
41				ID	Transport Arranged	NA
42				ID	Escort Required	NA

OBR—Observation Request Segment (continued)

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
43				CE	Planned Patient Transport Comment	NA
44	250	O		CE	Procedure Code	The name of the body part and view position if available. For example, CR_CHEST_PA or _FOOT_.
45				CE	Procedure Code Modifier	NA
46				CE	Placer Supplemental Service Information	NA
47				CE	Filler Supplemental Service Information	NA
48				CWE	Medically Necessary Duplicate Procedure Reason	NA
49				IS	Result Handling	NA

OBX—Observation/Result Segment

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	VALUE/COMMENT
1	4	O		SI	Set ID – OBX	Sequence number, should be identical to OBR-1 for each repetition.
2	2	R		ID	Value Type	<p>TX – will store URL (Uniform Resource Locator) information, which is a string to enable the external system to launch the image through a web-based DICOM Viewer provided by Image Suite. This could also be regarded as the image arrival notification. At Image Suite, once the image has been captured and acquired successfully, Image Suite will send the ORU^R01 message immediately.</p> <p>The URL format is:</p> <p>http://[ip address or server name]/ImageSuite/DICOMViewer.aspx? user_name=[my name]& password=[my password – hashed string]& accession_number=[my accession number]& patient_id=[my patient id]& UIDs=[my UIDs]& UIDLevel=[my UID Level]& token_id=[my token ID]</p> <p>Note: The user name in the URL cannot contain any local characters. Please encode the URL first.</p>
3	250	R		CE	Observation Identifier	The token_id in the URL will be filled here to identify the URL reporting.
4				ST	Observation Sub-Id	NA
5	99999	R		varies	Observation Value (Result)	URL string filled in by Image Suite

OBX—Observation/Result Segment (continued)

6				CE	Units	NA
7				ST	Reference Range	NA
8				IS	Abnormal Flags	NA
9				NM	Probability	NA
10				ID	Nature of Abnormal Test	NA
11	1	R		ID	Observation Result Status	F Final Results. Can only be changed with a corrected result.
12				TS	Effective Date of Reference Range	NA
13				ST	User Defined Access Checks	NA
14				TS	Date/Time of the Observation	NA
15				CE	Producer's ID	NA
16				XCN	Responsible Observer	NA
17				CE	Observation Method	NA
18				EI	Equipment Instance Identifier	NA
19				TS	Date/Time of the Analysis	NA

EVN – Event Type

SEQUENCE	MAX LEN	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	COMMENT
1	3	B		ID	Event Type Code	
2	26	R		TS	Recorded Date/Time	
3	26	O		TS	Date/Time Planned Event	N/A
4	3	O		IS	Event Reason Code	N/A
5	250	O		XCN	Operator ID	N/A
6	26	O		TS	Event Occurred	N/A
7	241	O		HD	Event Facility	N/A

PV1 – Patient Visit

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	COMMENT
1	4	O		SI	Set ID - PV1	N/A
2	1	R		IS	Patient Class	E – Emergency I – Inpatient O – Outpatient P – Preadmit R – Recurring patient B – Obstetrics C – Commercial Account N – Not Applicable U – Unknown <i>Note: Though the PV1 segment is required by HL7 standard, Image Suite will not process this segment when it receives an ADT^A08 message. The Patient Class value will be ignored.</i>
3	80	O		PL	Assigned Patient Location	N/A
4	2	O		IS	Admission Type	N/A
5	20	O		CX	Preadmit Number	N/A

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	COMMENT
6	80	O		PL	Prior Patient Location	N/A
7	60	O		XCN	Attending Doctor	N/A
8	60	O		XCN	Referring Doctor	N/A
9	60	O		XCN	Consulting Doctor	N/A
10	3	O		IS	Hospital Service	N/A
11	80	O		PL	Temporary Location	N/A
12	2	O		IS	Preadmit Test Indicator	N/A
13	2	O		IS	Re-admission Indicator	N/A
14	3	O		IS	Admit Source	N/A
15	2	O		IS	Ambulatory Status	N/A
16	2	O		IS	VIP Indicator	N/A
17	60	O		XCN	Admitting Doctor	N/A
18	2	O		IS	Patient Type	N/A
19	20	O		CX	Visit Number	N/A
20	50	O		FC	Financial Class	N/A
21	2	O		IS	Charge Price Indicator	N/A
22	2	O		IS	Courtesy Code	N/A
23	2	O		IS	Credit Rating	N/A
24	2	O		IS	Contract Code	N/A
25	8	O		DT	Contract Effective Date	N/A
26	12	O		NM	Contract Amount	N/A
27	3	O		NM	Contract Period	N/A
28	2	O		IS	Interest Code	N/A
29	1	O		IS	Transfer to Bad Debt Code	N/A
30	8	O		DT	Transfer to Bad Debt Date	N/A
31	10	O		IS	Bad Debt Agency Code	N/A
32	12	O		NM	Bad Debt Transfer Amount	N/A
33	12	O		NM	Bad Debt Recovery Amount	N/A
34	1	O		IS	Delete Account Indicator	N/A
35	8	O		DT	Delete Account Date	N/A
36	3	O		IS	Discharge Disposition	N/A

SEQUENCE	MAX SIZE	REQUIRED	REPEATS	DATA TYPE	DESCRIPTION	COMMENT
37	25	O		CM	Discharged to Location	N/A
38	80	O		CE	Diet Type	N/A
39	2	O		IS	Servicing Facility	N/A
40	1	B		IS	Bed Status	N/A
41	2	O		IS	Account Status	N/A
42	80	O		PL	Pending Location	N/A
43	80	O		PL	Prior Temporary Location	N/A
44	26	O		TS	Admit Date/Time	N/A
45	26	O		TS	Discharge Date/Time	N/A
46	12	O		NM	Current Patient Balance	N/A
47	12	O		NM	Total Charges	N/A
48	12	O		NM	Total Adjustments	N/A
49	12	O		NM	Total Payments	N/A
50	20	O		CX	Alternate Visit ID	N/A
51	1	O		IS	Visit Indicator	N/A
52	60	O		XCN	Other Healthcare Provider	N/A

Publication History

Publication Date	Publication No.	ECO No.	Changed Pages	File Name	Notes
2011-10-24	9J0841	---	---	9J0841.doc	New Publication
2012-10-04	9J0841	---	Title Page	9J0841.doc	Changed the title page to remove V2 from the title. As of the date of this publication, this specification is valid for all Software Versions in Image Suite.
2013-12-02	9J0841	---	all	9J0841.doc	Updated for Image Suite V4

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