Arthrex Synergy.net

www.arthrex.com

HL7 Conformance Statement

Document Version: B

Contents

1 OVERVIEW

This document provides the HL7 conformance for Arthrex's Synergy.net. Synergy .net's HL7 Interfaces are used to generate case schedules and deliver surgical images. If a facility's EMR, scheduling system, etc., sends HL7 order messages, then Synergy.net receives and stores those orders and sends the orders to Synergy^{HD3} units where the orders populate a case list. Synergy.net can also send PDF or JPEG image files generated by Synergy^{HD3} units to an EMR or other result repository via HL7 result messages. Synergy.net supports HL7 (v2.7 or older) message handling for ORU, SIU and ADT are supported messages alongwith ORM(v2.6 or older)

1.1 Audience

This document is intended for EMR (or other HL7 based system) providers, implementers and users of Synergy.net. It is assumed that the reader has a working understanding of HL7.

1.2 Scope

The scope of this document is to define the high-level specification of the HL7 ADT, ORM and SIU messages received by Synergy.net and ORU message sent by Synergy.net.

1.3 Remarks

The intent of the HL7 conformance statement is to provide information on how to allow the HL7 ADT, ORM and SIU message provider and HL7 ORU message receiver to achieve interoperability with Synergy.net. However, the information contained in a HL7 conformance statement is not sufficient to ensure that independent implementations will be able to function seamlessly. Arthrex reserves the right to correct this publication and to make changes to its contents without the obligation of informing anyone of these revisions or changes.

2 DEFINITION, TERMS AND ABBREVATIONS

The following list illustrates all terms and abbreviations, which are used in this document. For an extensive definition of these terms and abbreviations please refer to the HL7 standard.

ADT	Admission – Discharge – Transfer
DICOM	Digital Imaging and Communication in Medicine
HL7	Health Level Seven
MWL	DICOM Modality Worklist
ORM	Order Request Message
ORU	Unsolicited Transmission of an Observation
SIU	Scheduling Information Unsolicited
TCP/IP	Transmission Control Protocol / Internet Protocol

3 HL7 MESSAGE SPECIFICATIONS

3.1 Communication Profile

HL7 v2.7 recommends Minimal Lower Layer Protocol (LLP) to provide an interface between the HL7 application and the network. Lower Layer Protocol is any protocol residing in OSI layers one to four. These protocols package, route, verify, and transmit datagrams. A prime example of one of the protocols is TCP/IP. HL7 Interface for Synergy.net implements TCP/IP Minimal LLP and operates in a TCP/IP network environment.

HL7 messages should conform to the HL7 Minimal LLP block format as follows:

1. HL7 message starts with 0x0B and ends with 0x1C and 0x0D
2. Each HL7 segment is terminated by 0x0D

3.2 Version

HL7 interface for Arthrex Synergy.net supports HL7 version 2.7 and older except ORM. Supported version for ORM is version 2.6 or older.

3.3 HL7 Message

Synergy.net uses ADT, ORM, SIU and ORU messages.

A section below describes Inbound and Outbound messages used.

3.3.1 Inbound Message

Synergy.net Server supports following inbound HL7 messages. The HL7 Server is able to accept each HL7 version 2.7 and older valid messages.

Message Type	Event	Description
ADT	A01	ADT/ACK - Admit/Visit Notification
	A03	ADT/ACK - Discharge Notification
	A08	ADT/ACK - Update Information Notification
	A11	ADT/ACK - Cancel Information Notification
	A30	ADT/ACK - Merge Person Information Notification
	A31	ADT/ACK - Update Person Information Notification
	A40	ADT/ACK – Merge Patient – Patient Identifier List
ORM	O01	ORM - Order Message
SIU	S12	SIU – Notification of New Appointment Booking
	S13	SIU – Notification of Appointment Rescheduling

	S14	SIU – Notification of Appointment Modification
	S15	SIU – Notification of Appointment Cancellation

3.3.2 Outbound Message

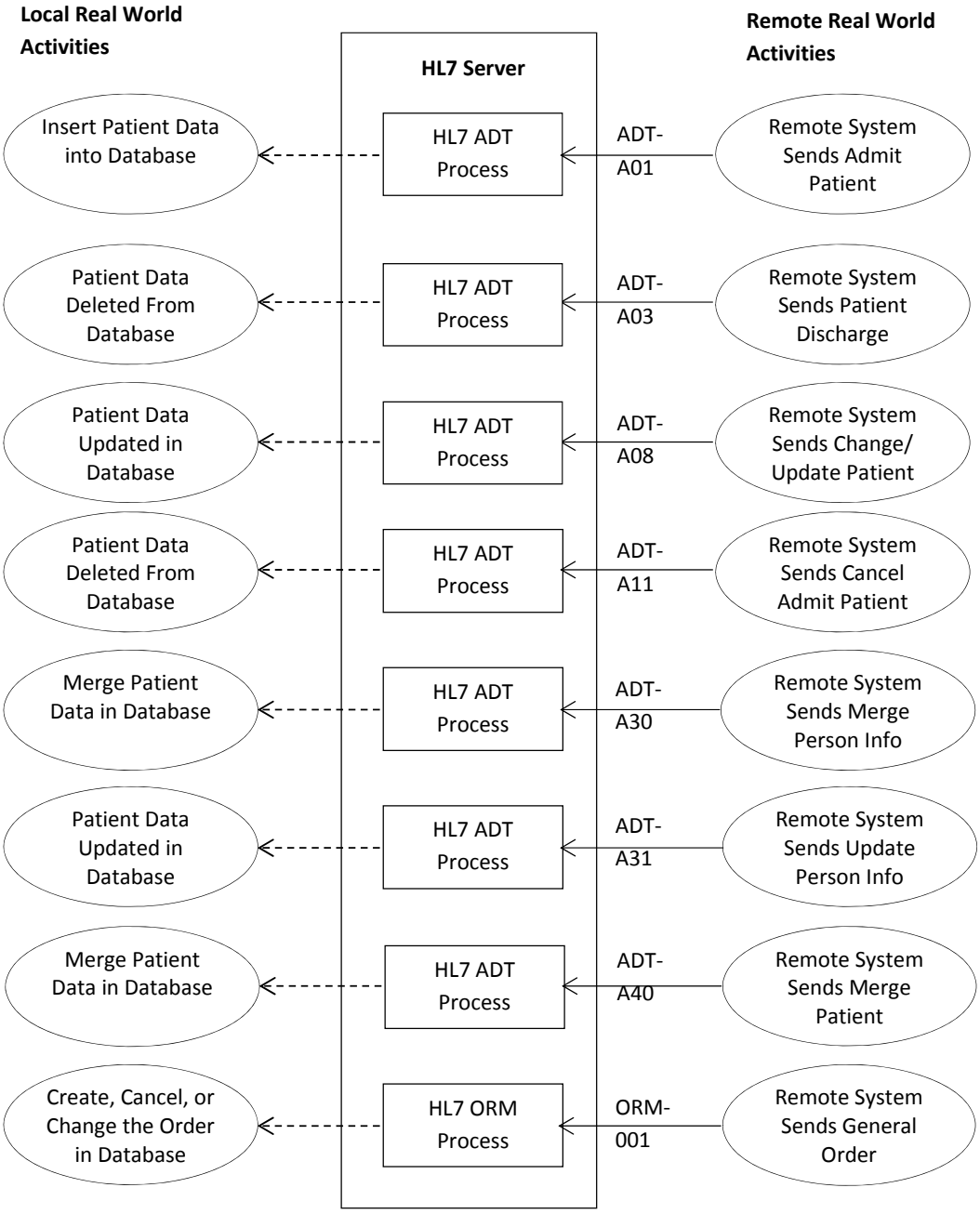
Synergy.net Server supports following outbound message. The HL7 Server is able to send HL7 version 2.7 messages.

Message Type	Event	Description
ORU	R01	ORU - Unsolicited transmission of an observation message

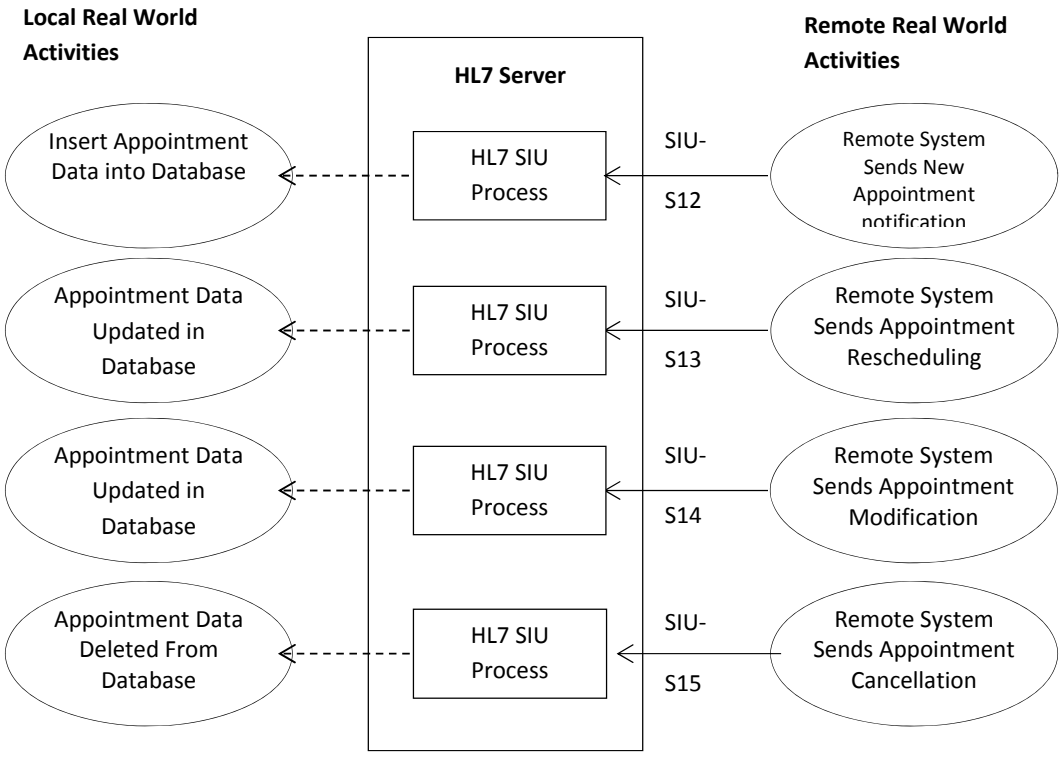
4 USE CASE MODEL

The figure below shows an application data flow diagram for two activities. The circles on the right side in Use Case Model 1(ADT and ORM) and Use Case Model 2 (SIU) represent events from the real world and deal with sending HL7 messages to Synergy.net. The middle of the figure shows different components of Synergy.net , which receives and process the messages from the real world activities. After that, each component reacts in a way that is shown by the circles on the left. Similarly, Use Case Model 3 shows the flow of activities between Synergy.net and Remote Systems.

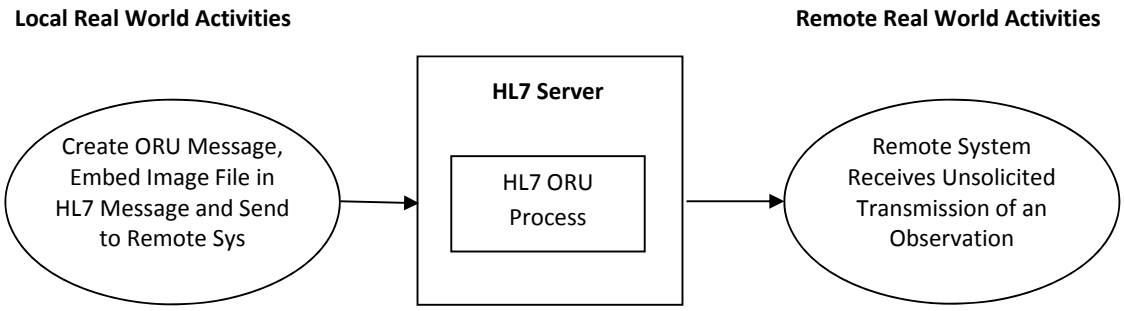
Use Case Model 1: Flow from Remote System to Synergy.net – ADT and ORM



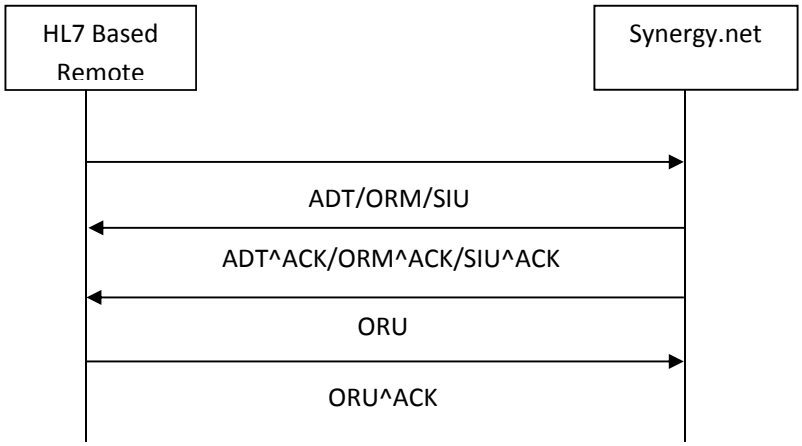
Use Case Model 2: Flow from Remote System to Synergy.net – SIU.



Use Case Model 3: Flow from Synergy.net to Remote System.



5 DYNAMIC INTERACTION MODEL



6 DYNAMIC DEFINITIONS OF TRIGGER EVENTS AND MESSAGES

6.1 ADT Type Messages

The ADT message is used to transfer administrative information. It provides the transmission of new or updated demographic and visit information about patients. Synergy.net will use ADT messages to insert, update, and merge patient data in its database.

6.2 ACK Type Messages

Synergy.net acknowledges HL7 messages at the Application level. The following original acknowledgement codes will be returned,

- AA – Successful handling of ADT/ORM/SIU message
- AE – Valid HL7 message but error at processing (missing fields, data error, database record errors, etc.)
- AR – Invalid HL7 message or message type, trigger event, and control ID that are not supported

In the case of failure scenarios an Acknowledgement message will be sent with an Error Segment (ERR) having an error code and error description. The following error codes will be used along with the Error Condition Text in the ERR segment to indicate the type of error. The default HL7 message validation error from Synergy.net uses error code 207. For other errors the matching error code from following table are used.

Error Condition Code	Error Condition Text	Description/Comment
101	Required field missing	A required field is missing from a segment
102	Data type error	The field contained data of the wrong data type
103	Table value not found	A field of data type ID or IS was compared against the corresponding table and no match was found
200	Unsupported message type	The Message Type is not supported
201	Unsupported event code and control ID	The Event Code is not supported
203	Unsupported version ID	The Version ID is not supported
204	Unknown key identifier	The ID of the patient, order, etc., was not found. Used for transactions other than additions (e.g., transfer of

		a non-existent patient)
205	Duplicate key identifier	The ID of the patient, order, etc., already exists. Used in response to addition transactions (Admit, New Order, etc.)
206	Application record locked	The transaction could not be performed at the application storage level (e.g., database locked)
207	Application internal error	A catchall for internal errors not explicitly covered by other codes

6.3 ADT^A01 – Admit/Visit Notification

An A01 event is intended to be used for "Admitted" patients only. An A01 event is sent as a result of a patient undergoing the admission process. It signals the beginning of a patient's stay in a healthcare facility. Normally, this information is entered in the primary Patient Administration system and broadcast to the nursing units and ancillary systems.

Synergy.net will receive and parse an ADT^A01 message, store the information from the ADT^A01 message to its database for a non-existing patient. For an existing patient if ADT^A01 is received again than patient record will be updated in database.

6.4 ADT^A03 – Discharge/End Visit Notification

An A03 event signals the end of a patient's stay in a healthcare facility or an outpatient or emergency room visit is ended. It signals that the patient's status has changed to "discharged" and that a discharge date has been recorded, that a discharge date/time has been assigned, and that the patient no longer requires services .

Synergy.net will receive and parse an ADT^A03 message and delete a record for an existing patient from its database based on the information from the ADT^A03 message. IF ADT^A03 is received for a non-existing patient then that message will be ignored.

6.5 ADT^A08 – Update Patient Information

An A08 event is used when any patient information has changed but when no other trigger event has occurred. For example, an A08 event can be used to notify the receiving systems of a change of address or a name change.

Synergy.net will receive and parse an ADT^A08 message and update a record for an existing patient in its database based on the information from the ADT^A08 message. IF ADT^A08 is received for a non-existing patient than a record will be added in database.

6.6 ADT^A11 – Cancel Admit/Visit Notification

For “admitted” patients, an A11 event is sent when an A01 (admit/visit notification) event is cancelled, either because of an erroneous entry of the A01 event or because of a decision not to admit the patient after all.

Synergy.net will receive and parse an ADT^A11 message and delete a record for an existing patient from its database based on the information from the ADT^A11 message. IF ADT^A011 is received for a non-existing then that patient will be ignored.

6.7 ADT^A30 – Merge Person Information

Note: The Merge Person Information event was maintained for backward compatibility only as of v2.3.1 and withdrawn as of v2.7. From V 2.3.1 onwards, the reader is referred to the A40 (merge patient-patient identifier list) event to be used to merge patient information for a current episode.

Synergy.net will receive and parse an ADT^A30 message and merge patient details for an existing patient in its database based on the information from the ADT^A30 message. For a non-existing patient an error acknowledgement (AE- Application Error) will be returned.

6.8 ADT^A31 – Update Person Information

An A31 event can be used to update person information on an MPI (Master Patient Index). It is similar to an A08 (update patient information) event, but an A08 (update patient information) event should be used to update patient information for a current episode.

Synergy.net will receive and parse an ADT^A31 message and update patient details for an existing patient in its database based on the information from the ADT^A31 message. If ADT^A31 is received for a non-existing patient then a record will be added in the database.

6.9 ADT^A40 –Merge Patient – Patient Identifier List

An A40 event is used to signal a merge of records for a patient that was incorrectly filed under two different identifiers. The "incorrect source identifier" identified in the MRG segment (MRG-1 - Prior Patient Identifier List) is to be merged with the required "correct target identifier" of the same "identifier type code" component identified in the PID segment (PID-3 - Patient Identifier List). An A40 (merge patient-patient identifier list) event is intended for merging patient records without merging other subordinate identifiers. Any other subordinate identifiers that were previously associated with the "incorrect source identifier" are now associated with the "correct target identifier."

Synergy.net will receive and parse an ADT^A40 message and update patient details for an existing patient in its database based on the information from the ADT^A40 message. For a non-existing patient an error acknowledgement (AE- Application Error) will be returned.

6.10 ORM^O01 – General Order Message

Note: Retained for backwards compatibility only as of v2.4 and withdrawn as of v2.7. Hence v2.6 is used in our interface.

The function of this message is to initiate the transmission of information about an order. This includes placing new orders, cancellation of existing orders, discontinuation, holding,

etc. ORM messages can originate also with a placer, filler, or an interested third party. The trigger event for this message is any change to an order. Such changes include submission of new orders, cancellations, updates, patient and non-patient specific orders, etc.

Synergy.net will update its database for an existing patient. For a non-existing patient a record will be added in its database and an order event will be updated in the database.

6.11 ORU^R01 – Unsolicited Observation Messages

The ORU message is for transmitting results to other systems.

Synergy.net will receive a report as an HTTP post message. Synergy.net will create an ORU message, embed the report in Base64 encoded format and forward it to an EMR or other HL7 repository.

6.12 SIU^S12 – Notification of New Appointment Booking

This message is sent from a filler application to notify Synergy.net that a new appointment has been booked. The information provided in the SCH segment and the other detail segments as appropriate describe the appointment that has been booked by the filler application.

6.13 SIU^S13 – Notification of Appointment Rescheduling

This message is sent from a filler application to notify Synergy.net that an existing appointment has been rescheduled. The information in the SCH segment and the other detail segments as appropriate describe the new date(s) and time(s) to which the previously booked appointment has been moved. Additionally, it describes the unchanged information in the previously booked appointment.

6.14 SIU^S14 – Notification of Appointment Modification

This message notifies Synergy.net that an existing appointment has been modified on the filler application. This trigger event should only be used for appointments that have not been completed or for parent appointments whose children have not been completed.

6.15 SIU^S15 – Notification of Appointment Cancellation

A notification of appointment cancellation is sent by the filler application to Synergy.net when an existing appointment has been canceled. A cancellation event is used to stop a valid appointment from taking place. For example, if a patient scheduled for an exam cancels his/her appointment, then the appointment is canceled on the filler application.

7 STATIC DEFINITION FOR ADT^A01, ADT^A03, ADT^A08, ADT^A11, ADT^A30, ADT^A31, ADT^A40

7.1 Message Level Definition

Segment	Description	Usage	Cardinality
MSH	Message Header	R	1
EVN	Event Type	R	1
PID	Patient Identification	R	1
PV1	Patient Visit	R	1
MRG	Merge Patient Information	R (for ADT A30 and A40)	1

7.2 Segment Level Definition

7.2.1 MSH- Message Header Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP	TBL#	ITEM#	Element Name
1	MSH-1			ST	R	N		00001	Field Separator
2	MSH-2			ST	R	N		00002	Encoding Characters
9	MSH-9			MSG	R	N		00009	Message Type
10	MSH-10			ST	R	N		00010	Message Control ID
12	MSH-12			VID	R	N		00012	Version ID

7.2.2 EVN – Event Segment

Event Segment is required, but none of the fields in Event segment are validated in this release.

7.2.3 PID – Patient Identification Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
3	PID-3			CX	R	Y		00106	Patient Identifier List

5	PID-5			XPN	R	Y		00108	Patient Name
7	PID-7			DTM	O			00110	Date/Time of Birth
8	PID-8			CWE	O		0001	00111	Administrative Sex

7.2.4 PV1- Patient Visit Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
7	PV1-7			XCN	O	Y		00137	Attending Doctor
8	PV1-8			XCN	O	Y		00138	Referring Doctor

7.2.5 MRG- Merge Patient Information

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	MRG-1			CX	R	Y	0061	00211	Prior Patient Identifier List

7.3 Field Level Definition

7.3.1 MSH-Message Header Segment's Field Definition

SEQ.NAME	FIELD NAME	DEFINITION
MSH-1	Field Separator	This field contains the separator between the segment ID and the first real field. It serves as the separator and defines the character to be used as a field separator for the rest of the message. The interface will always use "|".
MSH-2	Encoding Characters	This field contains four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. The interface uses "^~\&" respectively.

MSH-9	Message Type	This is a composite field which includes 2 components: <message type> ^ <trigger event>. Interface will consider following Message Type:. Interface will consider following Message Type: ADT-A01, ADT-A03, ADT-A08, ADT-A11,ADT-A30 and ADT-A31
MSH-10	Message Control ID	This field contains a value that uniquely identifies the message. The receiving system should echo this ID back to the sending system in the ACK message's MSA segment. If a message is re-sent for any reason, the message control id will remain the same for each transmission of the identical message.
MSH-12	Version ID	This is the HL7 version number in use. The interface will use version "2.X" in this field.

7.3.2 PID – Patient Identification Segment's Field Level Definition

SEQ.NAME	FIELD NAME	DEFINITION
PID-3	Patient Identifier List	This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.). A patient may have a number of identifiers. By default the first identifier is used.
PID-5	Patient Name	This field contains one or more components. The first component (family name) is required. The family name and given name , middle name and suffix components are honored and rest are not used by the interface and will be ignored.
PID-7	Date/Time of Birth	This field contains the patient's date of birth (YYYYMMDD) and time of birth (HHMMSS). Although Date Of Birth is an optional field, it is a highly desirable one and should be completed when possible. Time of birth is ignored.
PID-8	Administrative Sex	This field contains the patient's sex. Refer to User-defined Table 0001 - Administrative Sex in HL7 Specification (V27_CH02C_CodeTables).It can have following values - F: Female, M: Male, O: Other, U: Unknown, A: Ambiguous, N: Not applicable. Values other than this will produce an error. Values other than Male and Female would be merged to O

		(Other).

7.3.3 PV1 – Patient Visit Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
PV1-7	Attending Doctor	This field contains the attending physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple attending doctors.
PV1-8	Referring Doctor	This field contains the referring physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple referring doctors.

7.3.4 MRG – Merge Patient Information Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
MRG-1	Prior Patient Identifier List	This field contains the prior patient identifier list. This field contains a list of potential "old" numbers to match. Only one old number can be merged with one new number in a transaction.

8 STATIC DEFINITION FOR ORM^O01

8.1 Message Level Definition

Segment	Description	Usage	Cardinality
MSH	Message Header	R	1
PID	Patient Identification	R	1
PV1	Patient Visit	R	1
ORC	Common Order	R	1…n
OBR	Observation Request	R	1…n

8.2 Segment Level Definition

8.2.1 MSH - Message Header Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP	TBL#	ITEM#	Element Name
1	MSH-1			ST	R	N		00001	Field Separator
2	MSH-2			ST	R	N		00002	Encoding Characters
6	MSH-6		100	HD	O	N		00006	Receiving Facility
9	MSH-9			MSG	R	N		00009	Message Type
10	MSH-10			ST	R	N		00010	Message Control ID
12	MSH-12			VID	R	N		00012	Version ID

8.2.2 PID – Patient Identification Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
3	PID-3		100	CX	R	Y		00106	Patient Identifier List
5	PID-5		100	XPN	R	Y		00108	Patient Name
7	PID-7			DTM	O			00110	Date/Time of Birth
8	PID-8		100	CWE	O		0001	00111	Administrative Sex

8.2.3 PV1 – Patient Visit Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
3	PV1-3			PL	O	Y		00133	Assigned Patient Location
7	PV1-7		100	XCN	O	Y		00137	Attending Doctor
8	PV1-8		100	XCN	O	Y		00138	Referring Doctor

8.2.4 ORC – Common Order Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	ORC-1	2..2		ID	R	N	0119	00215	Order Control ID
2	ORC-2		100	EI	C	N		00216	Placer Order Number
3	ORC-3		100	EI	R	N		00217	Filler Order Number
15	ORC-15		NA: For Date 8: for Time	DTM	R	N		00229	Order Effective Date/Time
21	ORC-21		1000	XON	O	N		01311	Ordering Facility Name

8.2.5 OBR – Observation Request Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
3	OBR-3		100	EI	R			00217	Filler Order Number
24	OBR-24	2..3		ID	O		0074	00257	Diagnostic Serv Sect ID
44	OBR-44			CNE	O			00393	Procedure Code

8.3 Field Level Definition

8.3.1 MSH- Message Header Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
MSH-1	Field Separator	This field contains the separator between the segment ID and the first real field. It serves as the separator and defines the character to be used as a field separator for the rest of the message. The interface will always use "|".
MSH-2	Encoding Characters	This field contains four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. The interface uses "^~\&" respectively.
MSH-6	Receiving Facility	This field defines which facility sent the message. For messages sent by the interface, this will be user defined and unique.
MSH-9	Message Type	This is a composite field which includes 2 components: <message type> ^ <trigger event>. Interface will consider following Message Type:. Interface will consider following Message Type: ORM-O01
MSH-10	Message Control ID	This field contains a value that uniquely identifies the message. The receiving system should echo this ID back to the sending system in the ACK message's MSA segment. If a message is re-sent for any reason, the message control id will remain the same for each transmission of the identical message.
MSH-12	Version ID	This is the HL7 version number in use. The interface will use version "2.X" in this field.

8.3.2 PID – Patient Identification Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
PID-3	Patient Identifier List	This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.). A patient may have a number of identifiers. By default the first identifier is used.

PID-5	Patient Name	This field contains one or more components. The first component (family name) is required. The family name and given name components are honored and rest of the components are not used by the interface and will be ignored.
PID-7	Date/Time of Birth	This field contains the patient's date of birth (YYYYMMDD) and time of birth (HHMMSS). Although Date of birth is an optional field, it is a highly desirable one and should be completed when possible. Time of birth is ignored.
PID-8	Administrative Sex	This field contains the patient's sex. Refer User-defined Table 0001 - Administrative Sex in HL7 Specification (V27_CH02C_CodeTables). It can have following value - F: Female, M: Male, O: Other, U: Unknown, A: Ambiguous, N: Not applicable. Values other than Male and Female would be merged to O (Other).

8.3.3 PV1 – Patient Visit Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
PV1-3	Assigned Patient Location	This field contains the patient's initial assigned location or the location to which the patient is being moved.
PV1-7	Attending Doctor	This field contains the attending physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple attending doctors. Only first identifier will be stored in database if multiple identifiers are mentioned.
PV1-8	Referring Doctor	This field contains the referring physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple referring doctors. Only first identifier will be stored in database if multiple identifiers are mentioned.

8.3.4 ORC – Common Order Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
ORC-1	Order Control ID	This field determines the function of the order

		segment. Refer to HL7 Table 0119 – Order Control Codes for valid entries. Depending on the message the action of the control code may refer to an order or an individual service. For example, the code CA in a message cancels the order. Synergy.net will use following codes: NW: New Order, PR: Previous Results with New Order/Service, XR: Changed as Requested, RO: Replacement order, RP: Order replace request, XO: Change order, CA: Cancel order, DC: Discontinue order
ORC-3	Filler Order Number	This field is the order number associated with the filling application. If accession number is not mentioned in field ORC 3.1 it would be taken from field OBR 3.
ORC-15	Order Effective Date/Time	This field contains the date/time that the changes to the request took effect or are supposed to take effect. Surgery date (Order effective date time ORC-15) is an optional field and if it is received blank, then today's (current) date would be stored in the database for surgery date.
ORC-21	Ordering Facility Name	This field contains the name of the facility placing the order.

8.3.5 OBR – Observation Request Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
OBR-3	Filler Order Number	This field is the order number associated with the filling application. If ORC-3 is blank, accession number will be picked from OBR-3.
OBR-24	Diagnostic Serv Sect ID	This field is the section of the diagnostic service where the observation was performed. If the study was performed by an outside service, the identification of that service should be recorded here. For Synergy.net Modality is mapped to this field. Refer HL7 Specification (HL7 Table 0074 - Diagnostic Service Section ID).
OBR-44	Procedure Code	This field contains a unique identifier assigned to the procedure, if any, associated with the charge. This field is a coded data type for compatibility with clinical and ancillary systems.

9 STATIC DEFINITION FOR ORU^R01

9.1 Message Level Definition

Segment	Description	Usage	Cardinality
MSH	Message Header	R	1
PID	Patient Identification	R	1
PV1	Patient Visit	R	1
OBR	Observation Request	R	1
OBX	Observation Result	R	1

9.2 Segment Level Definition

9.2.1 MSH - Message Header Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP	TBL#	ITEM#	Element Name
1	MSH-1			ST	R	N		00001	Field Separator
2	MSH-2			ST	R	N		00002	Encoding Characters
3	MSH-3		100	HD	R	N		00003	Sending Application
7	MSH-7			DTM	R	N		00007	Date/Time of Message
9	MSH-9			MSG	R	N		00009	Message Type
10	MSH-10			ST	R	N		00010	Message Control ID
11	MSH-11			PT	R	N		00011	Processing ID
12	MSH-12			VID	R	N		00012	Version ID

9.2.2 PID – Patient Identification Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	PID-1			SI	R	N		00104	Set ID - PID
3	PID-3		100	CX	R	Y		00106	Patient

									Identifier List
5	PID-5		100	XPN	R	Y		00108	Patient Name
7	PID-7			DTM	O			00110	Date/Time of Birth
8	PID-8		100	CWE	R		0001	00111	Administrative Sex

9.2.3 PV1 – Patient Visit Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	PV1-1			SI	R			00131	Set ID – PV1
2	PV1-2			IS	O			00132	Patient Class
4	PV1-4			IS	R			00134	Admission Type
7	PV1-7		100	XCN	O			00137	Attending Doctor
8	Pv1-8		100	XCN	O			00138	Referring Doctor

9.2.4 OBR – Observation Results Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	OBR-1			SI	R			00237	Set ID – OBR
3	OBR-3			EI	R			00217	Filler Order Number
4	OBR-4			CWE	R			00238	Universal Service Identifier
22	OBR-22			DTM	R			00255	Results Rpt/Status Chng – Date/Time
25	OBR-25			ID	R			00258	Result Status

9.2.5 OBX – Observation Results Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	OBX-1			SI	R			00569	Set ID -OBX
2	OBX-2			ID	R			00570	Value Type
3	OBX-3			CWE	R			00571	Observation Identifier
5	OBX-5			VARIES	R			00573	Observation Value
11	OBX-11			ID	R			00579	Observation Result Status

9.3 Field Level Definitions

9.3.1 MSH – Message Header Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
MSH-1	Field Separator	This field contains the separator between the segment ID and the first real field. It serves as the separator and defines the character to be used as a field separator for the rest of the message. The interface will always use "|".
MSH-2	Encoding Characters	This field contains four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. The interface uses "^~\&" respectively.
MSH-3	Sending Application	This field defines which application sent the message. For messages sent by our interface, this will be Synergy.net.
MSH-7	Date/Time of Message	This field contains the date/time that the message was created in the date/time format: YYYYMMDDHHMM [SS]. The "seconds" portion is optional.
MSH-9	Message Type	This is a composite field which includes 2 components: <message type> ^ <trigger event>. Interface will consider following Message Type: ORU^R01

MSH-10	Message Control ID	This field contains a value that uniquely identifies the message. The receiving system should echo this ID back to the sending system in the ACK message's MSA segment. If a message is re-sent for any reason, the message control ID will remain the same for each transmission of the identical message. Synergy.net will send a unique message ID which is automatically generated.
MSH-11	Processing ID	P = Production
MSH-12	Version ID	This is the HL7 version number in use. The interface will use version "2.7" in this field.

9.3.2 PID – Patient Identification Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
PID-1	Set ID - PID	This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.
PID-3	Patient Identifier List	This field should contain the patient's medical record number. This number should be the same each time the same patient is admitted/registered. This field could be used by the interface to locate previous admission/order data for the patient. Synergy.net will send Patient ID received from an HTTP request.
PID-5	Patient Name	This field contains one or more components. The first component (family name) is required. The family name and given name components are honored and the rest are not used by the interface and will be ignored.
PID-7	Date/Time of Birth	This field contains the patient's date of birth (YYYYDDMM) and time of birth (HHMMSS). Although this is an optional field, it is a highly desirable one and should be completed when possible. Time of birth is ignored.
PID-8	Administrative Sex	This field contains the patient's sex. Refer to User-defined Table 0001 - Administrative Sex in HL7 Specification(V27_CH02C_CodeTables) It can have following value – F:Female,M:Male,O:Other,U:Unknown,A:Ambiguous,N:Not applicable

9.3.3 PV1 –Patient Visit Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
PV1-1	Set ID –PV1	This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.
PV1-2	Patient Class	This field is used by systems to categorize patients by site. It does not have a consistent industry-wide definition. It is subject to site-specific variations. Refer to User-defined Table 0004 - Patient Class for suggested values.
PV1-4	Admission Type	This field indicates the circumstances under which the patient was or will be admitted. Refer to User-defined Table 0007 - Admission Type for suggested values.
PV1-7	Attending Doctor	This field contains the attending physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple attending doctors.
PV1-8	Referring Doctor	This field contains the referring physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple referring doctors.

9.3.4 OBR – Observation Request Segment's Field Definition

SEQ.NAME	FIELD NAME	DEFINITION
OBR-1	Set ID – OBR	For the first order transmitted, the sequence number shall be 1; for the second order, it shall be 2; and so on.
OBR-3	Filler Order Number	This field is the order number associated with the filling application. This is a permanent identifier for an order and its associated observations. Synergy.net will send Accession number received from an HTTP Request.
OBR-4	Universal Service Identifier	Identifier code for the requested observation/test/ battery. The identifier can come from either a local coding system or industry standards such as SNOMED and LOINC. Currently we can set dummy value (ex. ^Unknown^) if required specific service identifier should come in via an HTTP request.

OBR-22	Results Rpt/Status Chng – Date/Time	This field specifies the date/time when the results were reported or status changed. This conditional field is required whenever the OBR-25 is valued. This field is used to indicate the date and time that the results are composed into a report and released, or that a status, as defined in ORC-5 order status, is entered or changed. (This is a results field only.) Synergy.net will send date/time of ORU message creation in the format YYYYMMDDHHMMSS.
OBR-25	Result Status	This field contains the status of results for this order. This conditional field is required whenever the OBR is contained in a report message. It is not required as part of an initial order. This field could be either 'F' or 'C' where 'F' indicates that the result has been verified to be correct and final and 'C' indicates Correction to results.

9.3.5 OBX – Observation Results Segment's Field Definition

SEQ.NAME	FIELD NAME	DEFINITION
OBX-1	Set ID -OBX	This field contains the sequence number.
OBX-2	Value Type	This field defines the data type of OBX-5, Observation Value. This field is required if OBX-11-Observation result status is not valued with an "X". Synergy.net uses 'ED'.
OBX-3	Observation Identifier	This field contains a unique identifier for the observation. The format is that of the Coded with Exception (CWE).
OBX-5	Observation Value	This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which observation value is formatted. Synergy.net will have a Base64 encoded result.
OBX-11	Observation Result Status	This field contains the observation result status. This field could be either 'F' or 'C' where 'F' indicates that the result has been verified to be correct and final and 'C' indicates Correction to results.

10 STATIC DEFINITION FOR SIU^S12, SIU^S13, SIU^S14, SIU^S15

10.1 Message Level Definition

Segment	Description	Usage	Cardinality
MSH	Message Header	R	1
SCH	Schedule Activity Information	R	1
PID	Patient Identification	R	1
PV1	Patient Visit	O	1
RGS	Resource Group Segment	R	1
AIS	Appointment Information - Service	R	1…n
AIP	Appointment Information - Personnel Resource	R	1…n
AIL	Appointment Information - Location	R	1…n

10.2 Segment Level Definition

10.2.1 MSH - Message Header Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP	TBL#	ITEM#	Element Name
1	MSH-1			ST	R	N		00001	Field Separator
2	MSH-2			ST	R	N		00002	Encoding Characters
4	MSH-4		180	HD	O	N		00004	Sending Facility
6	MSH-6		180	HD	O	N		00006	Receiving Facility
9	MSH-9			MSG	R	N		00009	Message Type
10	MSH-10			ST	R	N		00010	Message

									Control ID
12	MSH-12			VID	R	N		00012	Version ID

10.2.2 SCH – Schedule Activity Information

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
2	SCH-2			EI	R	N		00861	Filler Appointment ID
5	SCH-5			CWE	O	N		00864	Schedule ID
7	SCH-7			CWE	O	N	0276	00866	Appointment Reason
8	SCH-8			CWE	O	N	0277	00867	Appointment Type
11	SCH-11				O	N		00884	Appointment Timing Quantity

10.2.3 PID – Patient Identification Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
3	PID-3		100	CX	R	Y		00106	Patient Identifier List
5	PID-5		100	XPN	R	Y		00108	Patient Name
7	PID-7			DTM	O			00110	Date/Time of Birth
8	PID-8		100	CWE	O		0001	00111	Administrative Sex

10.2.4 PV1 – Patient Visit Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
8	PV1-8		100	XCN	O	Y		00138	Referring Doctor

10.2.5 RGS - Resource Group Segment

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	RGS-1	1..4		SI	R			01203	Set ID -

									RGS

10.2.6 AIS – Appointment Information-Service

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
3	AIS-3			CWE	R			00238	Universal Service Identifier

10.2.7 AIP – Appointment Information-Personnel Resource

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
3	AIP-3			XCN	R	Y		00913	Personnel Resource ID
4	AIP-4			CWE	R		0182	00907	Resource Type

10.2.8 AIL – Appointment Information- Location Resource

SEQ.NO	SEQ.NAME	LEN	C.LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
3	AIL-3			PL	R	Y		00903	Location Resource ID
4	AIL-4			CWE	R		0305	00904	Location Type - AIL

10.3 Field Level Definition

10.3.1 MSH- Message Header Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
MSH-1	Field Separator	This field contains the separator between the segment ID and the first real field. It serves as the separator and defines the character to be used as a field separator for the rest of the message. The interface will always use "|".
MSH-2	Encoding Characters	This field contains four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. The

		interface uses "^~\&" respectively.
MSH-4	Sending Facility	This field defines which facility sent the message. For messages sent by the interface, this will be user defined and unique.
MSH-6	Receiving Facility	This field defines they receiving facility. For messages sent by the interface, this will be user defined and unique.
MSH-9	Message Type	This is a composite field which includes 2 components: <message type> ^ <trigger event>. Interface will consider following Message Type:ORU^R01.
MSH-10	Message Control ID	This field contains a value that uniquely identifies the message. The receiving system should echo this ID back to the sending system in the ACK message's MSA segment. If a message is re-sent for any reason, the message control id will remain the same for each transmission of the identical message.
MSH-12	Version ID	This is the HL7 version number in use. The interface will use version "2.X" in this field.

10.3.2 SCH – Schedule Activity Information

SEQ.NAME	FIELD NAME	DEFINITION
SCH-2	Filler Appointment ID	This field contains the filler application's permanent identifier for the appointment request (and the scheduled appointment itself, when it has been confirmed as a booked slot by the filler application). This is a composite field.
SCH-5	Schedule ID	This field contains an identifier code for the schedule in which this appointment is (or will be) booked. This field is provided for instances in which filler applications maintain multiple schedules, and when a particular resource or set of resources is controlled by more than one of those schedules.
SCH-7	Appointment Reason	This field contains an identifier code for the reason that the appointment is to take place.
SCH-8	Appointment Type	This field contains the identifier code for the type of appointment.
SCH-11	Appointment Timing Quantity	This field contains the scheduled appointment's start date and time as scheduled by the filler application.

10.3.3 PID – Patient Identification Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
PID-3	Patient Identifier List	This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.). A patient may have a number of identifiers. By default the first identifier is used.
PID-5	Patient Name	This field contains one or more components. The first component (family name) is required. The family name and given name components are honored and rest of the components are not used by the interface and will be ignored.
PID-7	Date/Time of Birth	This field contains the patient's date of birth (YYYYMMDD) and time of birth (HHMMSS). Although Date of birth is an optional field, it is a highly desirable one and should be completed when possible. Time of birth is ignored.
PID-8	Administrative Sex	This field contains the patient's sex. Refer User-defined Table 0001 - Administrative Sex in HL7 Specification (V27_CH02C_CodeTables). It can have following value - F: Female, M: Male, O: Other, U: Unknown, A: Ambiguous, N: Not applicable. Values other than Male and Female would be merged to O(Other).

10.3.4 PV1 – Patient Visit Segment's Field Definitions

SEQ.NAME	FIELD NAME	DEFINITION
PV1-8	Referring Doctor	This field contains the referring physician information. Multiple names and identifiers for the same physician may be sent. The field sequences are not used to indicate multiple referring doctors. Only the first identifier will be stored in database if multiple identifiers are mentioned.

10.3.5 RGS - Resource Group Segment

SEQ.NAME	FIELD NAME	DEFINITION
RGS-1	Set ID - RGS	This field contains a number that uniquely identifies the information represented by this segment in this transaction for the purposes of addition, change or deletion.

10.3.6 AIS – Appointment Information-Service

SEQ.NAME	FIELD NAME	DEFINITION
AIS-3	Universal Service Identifier	This field contains an identifier code for a service to be scheduled. This field may contain a universal service identifier describing the observation/test/battery/procedure or other activity that is to be performed during the requested appointment.

10.3.7 AIP – Appointment Information-Personnel Resource

SEQ.NAME	FIELD NAME	DEFINITION
AIP-3	Personnel Resource ID	This field contains the ID number and name of the person being requested or scheduled for an appointment. This field is used to identify a specific person being requested, or a specific person who has been scheduled as a resource for an appointment. If the specific person is not known, but the type of resource is, *AIP-4-Resource role* is used to identify the type of personnel resource required or scheduled.
AIP-4	Resource Type	This field identifies the role of the personnel requested/scheduled for an appointment.

10.3.8 AIL – Appointment Information-Location Resource

SEQ.NAME	FIELD NAME	DEFINITION
AIL-3	Location Resource ID	This field contains a coded identification of the location being requested or scheduled for an appointment. This field is used to identify a specific location being requested, or a specific location that has been scheduled for an appointment.
AIL-4	Resource Type	This field identifies the type of the location requested/scheduled for this appointment.

11 APPENDIX HL7 DICOM MAPPING

This section describes the mapping between the HL7 ADT/ORM messages received from the HL7 based message provide to DICOM attributes which are internally used by Synergy.net for DICOM instance generation. The following table specifies the required HL7 fields for Synergy.net to process an HL7 inbound message.

MWL Parameters		HL7 Mapping			HL7 Message
Parameter Name	DICOM Tag	Segment	Field No	Field Name	
patientFirst	PatientName (0010, 0010)	PID	5	Patient Name	ORM ADT
patientLast	PatientName (0010, 0010)	PID	5	Patient Name	ORM ADT
patientNumber	PatientID (0010, 0020)	PID	3	Patient ID	ORM ADT
patientGender	PatientSex (0010, 0040)	PID	8	Administrative Sex	ORM ADT
patientDob	PatientBirthDate (0010, 0030) PatientBirthTime (0010, 0032)	PID	7	Date/Time of Birth	ORM ADT
surgeryDate	ScheduledProcedure StepStartDate (0040, 0002)	ORC	9	Order Effective Date/Time	ORM
requestedProcedureDescription	RequestedProcedure Description (0032, 1060)	OBR	44	Procedure Code	ORM
studyTime	StudyTime (0008, 0030)	ORC	15	Order Effective Date/Time	ORM
accessionNumber	Accession Number (0008, 0050)	ORC	3 (if not available then 2)	Placer Order Number	ORM
referringPhysicianFirst	ReferringPhysianName(0008, 0090)	PV1	8	Referring Doctor	ORM ADT

referringPhysicianLast	ReferringPhysianName(0008, 0090)	PV1	8	Referring Doctor	ORM ADT
performingPhysicianFirst	PerformingPhysicianName(0008, 1050)	PV1	7	Attending Doctor	ORM ADT
performingPhysicianLast	PerformingPhysicianName(0008, 1050)	PV1	7	Attending Doctor	ORM ADT
Modality	Modality (0008, 0060)	OBR	24	Diagnostic Serv Sect ID	ORM
Department	ScheduledProcedureStepLocation (0040,0011)	ORC	21		ORM
scheduledStationAETitle	ScheduledStationAETitle(0040,0001)				NA
studyDescription	StudyDescription (0008, 1030)	OBR	44	Procedure Code	ORM
seriesDescription	SeriesDescription (0008, 103E)				NA
institution	InstitutionName (0008, 0080)	MSH	6		ORM

This section describes the mapping between the HL7 SIU messages received from the HL7 based message provide to DICOM attributes which are internally used by Synergy.net for DICOM instance generation. The following table specifies the required HL7 fields for Synergy.net to process an HL7 inbound message.

MWL Parameters	DICOM Tag	HL7 Mapping			HL7 Message
Parameter Name		Segment	Field No	Field Name	
patientFirst	PatientName (0010, 0010)	PID	5	Patient Name	SIU ADT
patientLast	PatientName (0010, 0010)	PID	5	Patient Name	SIU ADT
patientNumber	PatientID (0010, 0020)	PID	3	Patient ID	SIU ADT
patientGender	PatientSex (0010, 0040)	PID	8	Administrative Sex	SIU ADT
patientDob	PatientBirthDate (0010, 0030)	PID	7	Date/Time of Birth	SIU ADT

	PatientBirthTime (0010, 0032)				
surgeryDate	ScheduledProcedure StepStartDate (0040, 0002)	SCH	11	Appointment Timing/Quantity	SIU
requestedProcedureDescription	RequestedProcedure Description (0032, 1060)	AIS(If not available, then SCH)	3.1(If not available, then 7.1)	Universal Service ID (Not available,then Appointment Reason)	SIU
studyTime	StudyTime (0008, 0030)	SCH	11	Appointment Timing/Quantity	SIU
accessionNumber	Accession Number (0008, 0050)	SCH	2.1(If not available, then 5.1)	Filler Appointment ID(If not available,then ScheduleID)	SIU
referringPhysicianFirst	ReferringPhysianName(0008, 0090)	PV1	8	Referring Doctor	SIU ADT
referringPhysicianLast	ReferringPhysianName(0008, 0090)	PV1	8	Referring Doctor	SIU ADT
performingPhysicianFirst	PerformingPhysician Name(0008, 1050)	AIP	3.3, if Role specifies a surgeon in AIP-4(customer specific)	Personnel Resource ID	SIU ADT
performingPhysicianLast	PerformingPhysician Name(0008, 1050)	AIP	3.2, if Role specifies a surgeon in AIP-4(customer specific)	Personnel Resource ID	SIU ADT
Modality	Modality (0008, 0060)	SCH	8.1	Appointment Type	SIU
Department	ScheduledProcedure StepLocation (0040,0011)	MSH	4	Sending Facility	SIU

studyDescription	StudyDescription (0008, 1030)	AIS(If not available,then SCH)	3.1(If not available, then 7.1)	Universal Service ID (If not available,then Appointment Reason)	SIU
institution	InstitutionName (0008, 0080)	MSH	6(If not available, then 4)	Receiving Facility(If not available,then Sending Facility)	SIU

12 SAMPLE HL7 MESSAGE

12.1 ADT Message: ADT- A01

MSH|^~\&|ADT1|MCM|LABADT|MCM|198808181126|SECURITY|ADT^A01|MSG00001|P|2.4
EVN||20130516174254
PID|||1^5^M11||JONES^WILLIAM^A^III||19610615|M||2106-3|10|GL||||S||PATID12345001^2^M10|123456789|9-87654^NC
PV1|1|I|2000^2012^01||||004777^LEBAUER^SIDNEY^J.|||SUR||-||1|A0

12.2 ORM Message: ORM-O01

MSH|^~\&|HIS|MedCenter|LIS|MedCenter|20060307110114||ORM^O01|MSGID20060307110114|P|2.6
PID|||35||Jones^John^^^Mr.||19670824|M|||123 West St.^^Denver^CO^80020^USA||||||
PV1||O|OP^PAREG^||||2342^Jones^Bob|123^Bhawalkar^Manish||CAR|||||||||2|||||||||||||||||||||20060307110111|
ORC|NW|8642753100013^LIS|16^LCS||||||19980728000000|||PEED|||20130510154925||||||Arthrex
OBR|1|20060307110114||003038^Urinalysis^E|||20060307110114|||||||||||||||AU|||20131212|||||||||||||||Ortho

12.3 SIU Message: SIU-S12

MSH|^~\&|HIS|MedCenter|||20100217165031||SIU^S12|20100217165031|P|2.3|||AL|NE||||||2.3
SCH|1700|1700||||06^OB
CARE^SM0__A|ROUTINE|NORMAL|90|MIN^MINUTES^SM0__A|1^^^20140802080000^^R|||||1^Ginni||||1^Ginni|
PID|||35||matt^brown^^^Mr.||19950820|M|||123 West
PV1|1|O|^ROOM22|||||^Miley^Ray||||||||||||CO
RGS|1
AIS|1||05^Care
AIL|1||^Room20|OT^Office
AIP|1||01^Alex^Wiley^^^^^^SM0__A|GP

12.4 ORU Message: ORU-R01

MSH|^~\&|SynergyNet||||20130524113734||ORU^R01^ORU_R01|6l13052406073406926 0|P|2.7

PID|1||1234||Vyas^Devang||19830703|M

PV1|1|I||A|||^Kocharekar^Ganesh|^Bhawalkar^Manish

OBR|1||A01|serviceIdentifier|||||||||||||||||20130524113734|||F

OBX|1|ED|observationIdentifier||^APPLICATION^PDF^Base64^JVBERi0xLjQKJeLjz9MKMyA
wIG9iaiA8PC9MZW5ndGggMTQ2NC9GaWx0ZXIvRmxhdGVEZWNvZGU+PnN0cmVhbQp4nKV
ZXVPbOBR9z6/QI51ZsrL83Te20DY7hbYh7BMvIlGCdmw52A5b+uv3SkpICNGNYzHD2APWOSe
ydHTuzdPgr8kgoCQLGZnMBpScMzaM9e2fnwMSwN18QIc0pXFO6JDRMGdwDcOUxaReDM6+
VU3zQkYlXwjyqSqXtWgaWSky5q2syP3ZJW85uSpEKVR7/+HD5F+gWMAvXbOF5ooQkANjkmB
9F2RWKSMB00o3T2+ezKKOD7J0c0PzLkOuJoOfgycQnq2Fv72CcJjTNM1hKuM0JgBfi8HcjGHkb
0D5AmNj8p9GSJIkJfvX8ZdDCLfdRyb6qSAKhzA4yE8ZHJsxFiAKgyE7FQDYo8CT3QD0ZTdL2IfdAP
RkT9Jwyx71YLcAa/bTAIA9jvw+uwXo+9nD2JPdAPRlDxJPdgPQkz3OUz92C9CXPc082Q1AX/Y49
2Q3AH3ZI0+vswB92Zmn11mAvuzU0+ssQE/2KAv92C1AX/bE0+ssQF/2yNPrLMAB9p8mkxEdN
SCCJSTN9IOTsmMkG80ga8n5i1QLwtWMXIq5VBLimOIFuWjbWj6sWtFschVEmV06Bic/29BB9q
GGzvzXgLeiJDe8FB8d4+PYpge2I3kPA82MbllR6JZ18fBQi2epAZRLGUCwCIEoWlErQHgW6AcEG
Bq7YbazfWSGMJCxeFrJWsyInBM7W7vz9Mgb8iCEIktRz6u6hOfgr+2jsHM6JBO4fX3RZGe6N4r
2tCQ5tVq2Cnb57s8oZdkfLAjo/QcyrdSzeGmAj7dbUiNqpWaiXlRKkMJwTrcgQzJqXexpvM++rKt
nORMN4aQUXAFZBdtjWtWzQ7RmLjZcMBn3Z/AIJ8tKqpZIRWTbkEI6X2cSJ+438alSrfjV4u8SRbj
h660HVdAU3skUbq+5Ws35tF3Vom7IRdNUU7t2yW0LW5bXM7faMMXWTbOsVCMfCkG+1w
uu5G90S6zlY5Anyb8/u7m6vtjWee/VB9kRb5m8LI94C4qxW286VcR57kb4Prp0b/04o+6Rd+M
RMjIJ3COv5nOYXO08oB9xnjhCrPkOXL84BsAQEx2LhWza+nUhtqsGfxNH0PR+he0IO7SaE0Zpck
7j8zBwi6OIPV/94uWyOLI0UISbiggLQvgzlwXXuwT8E9xENmSmF444snCiDDFtsEw9GFeIImjf1jp
a2AOHlRHZfCSXtyQ4V26RCeZnj1yBbV6KZlrLJX5cRhHiCxezEs45u1z0iVm9XXbHeiMRpZ69kX2E
7sktzDwTuwXomRvDxDOxW4C+7JFnYrcAHVJrRF+XYZfUureeOuTUMEPcR9ugtp3b1UMpTQLB
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Approvals

Approved By	Kenneth Olbrish