TRConnect HL7 Conformance Statement

Version 1.2.0

Revision A

English

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Chapter 1: Introduction

Purpose and Intended Audience of this Document

This document is a HL7 Conformance Statement for the HL7 Services of TR-Connect.

If the readers are not familiar with HL7 terminology, we recommend you first read the appropriate parts of the HL7 standard itself, prior to reading this conformance statement.

The use of this conformance statement in conjunction with the HL7 standard (version 2.6) is intended to facilitate communication with TR-Connect Systems like Intuition, EAI etc.

Our systems can receive and process Inbound ADT (A01, A04, A08) and ORM(001) messages. And can send ORU (R01, R40) HL7 outbound messages

Note:

a. It is not mandatory to have Inbound messages configured.

b. If Inbound HL7 is not configured, TRConnect will rely on information from products (eg: Intuition/Eureka) and default values. For more information on default values, please refer the detailed section below.

c. It is advised for any product using TRConnect to have their own conformance statement.

Acronyms and Abbreviations

Definitions, terms and abbreviations used in this document, many of which are defined within the HL7 standard. Abbreviations and terms are as follows

Table 1: Acronyms and Abbreviations

Fields	Definitions
ADT	Admission, Discharge, and Transfer message.
AL1	Patient Allergy Information segment
DFT	Detail Financial Transaction message
EVN	Event Type segment
HL7	Health Level 7
IHE	Integrating the Healthcare Enterprise
MSH	Message Header segment
NTE	Notes and comments segment
OBR	Observation Request segment
OBX	Observation/Result segment
OF	Order Filler - Device that sends filled orders (ORM)
OP	Order Placer
ORC	Common Order segment

ORM	Order Request Message
ORU	Observation Results - Unsolicited message
PD1	Patient Additional Demographic segment
PID	Patient ID segment

Fields	Definitions
PV1	Patient Visit segment

Related Documents

- HL7 Standard v2.6

Chapter 2: Outbound Messages

Supported ORU Events

For more information about the processed segments and supported fields, refer to section 2.1.1.1 and section 3.1

Table 1:

FuncArea	Event-Code	ORU - Trigger - Event - Description
ORU	R01	Unsolicited transmission of an observation Message
ORU	R40	Report Alarm (PCD 04)

Supported ORU segments

The following segments are supported when TR-Connect is configured to send outbound ORU messages.

Segments without brackets are mandatory. Segments with square brackets are optional and segments with curly brackets (braces) are repeating.

Table 2:

HL7 ORU Event Code	Supported ORU segments
R01, R40	MSH PID PV1 {ORC} OBR {[OBX]} {[NTE]} [ZDS]

Supported ACK Events

For more information about the processed segments and supported fields refer to section 2.1.2.1 and section 3.2

Table 3:

FuncAreaa	Event-Code	ACK Trigger Event Description
ACK	ALL	General ACK Message

Supported ACK segments

The following segments are supported for the ACK message.

Segments without brackets are mandatory. Segment with square brackets are optional and segments with curly brackets (braces) are repeating.

Table 4:

HL7 ACK Event Code	Supported ACK segments
All	MSH MSA [ERR]

Chapter 3: Inbound Messages

Core Server supported Trigger Events

Supported ADT Events

For more information about the processed segments and supported fields, refer to section 3.1.2.1 and section 3.2

Table 1:

FuncArea	Event-Code	ADT Trigger Event Description
ADT	A01	Admit / Visit notification
ADT	A04	Register a patient
ADT	A08	Update patient information

Supported ADT segments

The following segments are supported when TR-CONNECT receives an ADT message:

Segments without brackets are mandatory. Segments with square brackets are optional and segments with curly brackets (braces) are repeating.

Table 2:

HL7 ADT Event Code	Supported ADT segments
A01;	MSH EVN PID [PD1] PV1 {[OBX]} {[AL1]}
A04; A08;	MSH EVN PID [PD1] [PV1] {[OBX]} {[AL1]}

Supported ORM Events

For more information about the processed segments and supported fields, refer to section 3.1.3.1 and section 3.2

Table 3:

FuncArea	Event-Code	ORM Trigger Event Description
ORM	O01	Order message

Supported ORM segments

The following segments are supported when TR-CONNECT receives an ORM message:

Segments without brackets are mandatory. Segments with square brackets are optional and segments with curly brackets (braces) are repeating.

Table 4:

HL7 ORM Event Code	Supported ORM segments
O01	MSH PID [PD1] [PV1] ORC OBR {[NTE]} {[OBX]} [ZDS]

Supported ACK Events

For more information about the processed segments and supported fields, refer to section 3.1.3.1 and section 3.2

Table 5:

FuncArea	Event-Code	ACK Trigger Event Description
ACK	ALL	General ACK Message

Supported ACK segments

The following segments are supported when TR-Connect receives an ACK message:

Segments without brackets are mandatory. Segment with square brackets are optional and segments with curly brackets (braces) are repeating

Table 6:

HL7 ACK Event Code	Supported ACK segments
All	MSH MSA [ERR]

Core Server supported fields in HL7 segments

The following sections will indicate what are the Required and optional fields supported by TR- CONNECT for each segment.

The supported segments per message types are listed in the above.

Note: Below table does not describe all the fields in a segment. For more details, please refer HL7 version 2.6 specification.

MSH Segment

Table 7:

Seq	HL7 Field Name	Options	Comments
1	Field Seperator	R	Usually "|"
2	Encoding Characters	R	Usually "^~\&"
3	Sending Application	R	
4	Sending Facility	R	
5	Receiving Application	R	
6	Receiving Facility	R	
7	Date/time of Message	O	
7.1	>Date/Time	O	YYYYMMDD[HHMM[SS]] [+ZZZZ]
9	Message Type	R	
9.1	>Message type	R	
9.2	>Trigger events	R	
9.3	>Message structure	O	
10	Message Control ID	R	
11	Processing ID	O	
11.1	>Processing ID	O	
12	Version ID	R	Supported versions: 2.6

MSA Segment

Table 8:

Seq	HL7 Field Name	Option	Comments
1	Acknowledgment Code	R	Supported values:- AA,AR,AE
2	Message Control ID	R	The message control id of the original message

ERR Segment

Table 9:

Seq	HL7 Field Name	Option	Comments
1	Error Code and Location	O	Indicates the position in the message which caused the processing problem.
1.1	>Segment ID	O	
1.2	>Segment sequence	O	
1.3	>Field position	O	
1.4	>Code identifying error	O	
1.4.1	>>Identifier	O	
1.4.5	>>Alternate text	O	Description of the error in the processing application
2	Error location	O	Indicates the position in the message which caused the processing problem. Applicable for HL7 version 2.6
2.1	>Segment ID	O	
2.2	>Segment sequence	O	
2.3	>Field position	O	
2.4	>Field repetition	O	
2.5	>Component number	O	
2.6	>Sub-component number	O	
3	HL7 Error Code	O	Applicable for HL7 version 2.5
3.1	>Identifier	O	
3.2	>text	O	
4	Severity	R	Applicable for HL7 version 2.6
5	Application Error Code	R	The code and description of the error in the processing application. Application for Hl7 version 2.6

Seq	HL7 Field Name	Option	Comments
5.1	>Identifier	R	
5.2	>Text	R	

EVN Segment

Table 10:

Seq	HL7 Field Name	Option	Comments
2	Recorded Date/Time	R	
2.1	>Date/Time	R	YYYYMMDD[HHHMM[SS]][+-ZZZZ]

PID Segment

Table 11:

Seq	HL7 Field Name	Option	Comments
3	Patient Identifier List	R	
3.1	>ID	R	Identification number or code of the patient
3.4	>Assigning Authority	O	The "Assigning authority" aka "Issuer of Patient ID" can consist of the following three parts: -Namespace ID // Issuer of Patient ID -Universal ID // Universal Entity ID -Universal ID Type // Universal Entity ID Type Namespace ID, or combination of Universal ID and Universal ID Type, unique define the issuer. Either only Namespace is specified, or only Universal ID and Universal ID Type are specified, or all three components are specified. The combination of "Namespace ID" - "Universal ID" - "Universal ID Type" must be unique to the TR-Connect systems
3.4.1	>>namespace ID	O	Identifier of the Assigning Authority that issued the patient id
3.4.2	>>universal ID	O	Universal Entity ID
3.4.3	>>universal ID type	O	Universal Entity ID Type.eg: ISO
3.5	> Identifier Type code (ID)	O	Refer HL7 standard table for patient identifier type. eg: MR
3.6	>Assigning facility	O	
3.6.1	>>namespace ID	O	
5	Patient Name	R	
5.1	>family name	R	
5.1.1	>>surname	R	Patient’s last name
5.2	>given name	R	Patient’s first name
5.3	>second and further given name or initials thereof	O	Patient Middle Name
5.4	>suffix	O	Patient’s suffix (eg: JR or III)
5.5	>prefix	O	Patient’s prefix (eg: DR)
5.7	>name type code	O	
5.8	>name representation code	O	
7	Date/Time of Birth	R	

Table 11: (Continued)

Seq	HL7 Field Name	Option	Comments
7.1	Date/Time of Birth	R	YYYYMMDD[HHHMM[SS]]
8	Administrative Sex	O	
11	Patient Address	O	
11.1	>street address (SAD)	O	
11.1.1	>>street or mailing address	O	
11.1.2	>>street name	O	
11.1.3	>>dwelling number	O	
11.2	>othe designation	O	
11.3	>city	O	
11.4	>state or province	O	
11.5	>zip or postal code	O	
11.6	>country	O	
11.7	>address type	O	
11.8	>other geographic designation	O	
11.9	>country/parish code	O	
13	Phone Number - Home	O	
13.1	>telephone numbe	O	
13.2	>telecommunication equipment type (ID)	R	
13.3	>telecommunication equipment type (ID)	R	
13.4	>Email address	O	
14	Phone Number - Business	O	
14.1	>telephone number	O	
14.2	>telecommunication use code	R	
14.3	>telecommunication equipment type (ID)	R	
14.4	>Email address	O	
18	Patient Account Number	O	
19	SSN Number - Patient	O	

Table 11: (Continued)

Seq	HL7 Field Name	Option	Comments
23	Birth Place	O	
29	Patient Death Date/Time	C	Condition Predicate: If PID 30 has a value Y, this field also needs a value.
29.1	Date/Time	R	YYYYMMDD[HHMM[SS]][+-ZZZ Z]
30	Patient Death Indicator	O	Y or N

PD1 Segment

Table 12:

Seq	Hl7 Field Name	Option	Comments
3	Patient Primary Facility	O	
4	Patient Primary Care Provider Name &ID No	O	
4.1	>ID number (ST)	O	Primary Care Physician code
4.2	>family name	O	Physician Family Name
4.2.1	>>surname	O	
4.3	>given name	O	Physician Given Name
4.9	>assigning authority	O	Assigning authority that issued the physicians code
4.9.1	>>namespace ID	O	
5	Student Indicator	O	
6	Handicaps	O	

AL1 Segment

Table 13:

Seq	Hl7 Field Name	Option	Comments
1	Set ID - PV!	O	
2	Patient Class	R	Required for: - A01, A04, R01, R40, O01 I (Inpatient),) (Outpatient), E (Emergency)
		O	Optional A08, PV1 segment not required

Table 13:

Seq	HI7 Field Name	Option	Comments
3	Assigned Patient Location	R	At least one of the component must be filled in (3.1 or 3.2 or 3.3 or 3.4 or 3.11). If patient location is not known or not available with TR-Connect a default value will be set “Unit1^Room1^Bed1” for outbound messages. Warning: If Receiving application receives the default value, they can consider it as unknown value
3.1	>Point of care	O	Patient’s location department code.
3.2	>Room	O	Room in the department
3.3	>Bed	O	Bed in the room
3.4	>Facility (HD)	O	
3.4.1	>>Namespace ID	O	Patient’s location facility code
3.11	>Assigning Authority for location	O	
3.11.1	>>Namespace ID	O	
4	Admission Type	O	Type of admission, the circumstances under which the patient was or will be admitted
7	Attending Doctor	O	Attending Physician information
7.1	>ID number (ST)	O	physician identifier
7.2	>Family name	O	
7.2.1	>>Surname	O	Family name of the physician
7.3	>Given name	O	Given name of the physician
7.4	>Second and further given names or initials thereof	O	Middle name of the physician
7.5	>Suffix (e.g., JR or III	O	Name suffix, like SR
7.6	>Prefix (e.g., DR)	O	Name prefix, like Prof
7.9	>Assigning authority	O	Assigning Authority of attending physician code
7.9.1	>>Namespace ID	O	Identifier of the Assigning Authority that issued the attending physician code.
8	Referring Doctor	O	Referring physician information (see detailed component description in PV1-7)
8.1	>ID number (ST)	O	
8.2	>Family name	O	
8.2.1	>>Surname	O	

Table 13:

Seq	HI7 Field Name	Option	Comments
8.3	>Given name	O	
8.4	> Second and further given names or initials	O	
8.5	>Suffix	O	e.g: JR or III
8.6	>Prefix	O	e.g: DR
8.9	>Assigning authority	O	Assigning Authority of referring physician code.
8.9.1	>>Namespace ID	O	Identifier of the Assigning Authority that issued the referring physician code
15	Ambulatory Status	O	Code indicating any permanent or
16	VIP Indicator	O	This field identifies the type of VIP. −1, set VIP or personnel as yes
17	Admitting Doctor	O	Admitting physician information (see detailed component description in PV1-7)
17.1	>ID number (ST)	O	
17.2	>Family name	O	
17.2.1	>>Surname	O	
17.3	>Given name	O	
17.4	> Second and further given	O	
17.5	>Suffix	O	e.g: JR or III
17.6	>Prefix	O	e.g: DR
17.9	>Assigning authority	O	Assigning Authority of admitting physician code.
17.9.1	>>Namespace ID	O	Identifier of the Assigning Authority that
18	Patient Type	O	Site-specific values that identify the patient type
19	Visit Number	R	Required for A01, A04
		O	Optional for: A08, ORM, ORU

Table 13:

Seq	HI7 Field Name	Option	Comments
19.1	>ID	R	Unique number identifying the admission.
19.4	>Assigning authority	O	
19.4.1	>>Namespace ID	O	Identifier of the Assigning Authority that issued the admission number.
44	Admit Date/Time	O	
44.1	>Date/time	O	
45	Discharge Date/Time	O	
45.1	>Date/time	O	

ORC Segment

Table 14:

Seq	Hl7 Field Name	Option	Comments
1	Order Control	R	
2	Place Order number	R	Required for ORM
		O	Optional for ORU. In case of outbound message, accession number is used to fill this field.
2.1	>Entity identifier	R	Unique identifier for the order, defined by the order placer
2.2	>Namespace ID	O	Identifier of the Assigning Authority that issued the placer order number.
3	Filter Order number	R	Required for ORM
		O	Optional for ORU. In case of outbound message, accession number is used to fill this field.
3.1	>Entity identifier	R	Unique identifier for the order, defined by the order placer
3.2	>Namespace ID	O	Identifier of the Assigning Authority that issued the placer order number.
5	Order Status	R	Required for ORM
		O	Optional for ORU. In case of outbound message, accession number is used to fill this field.
7	Quantity/Timings	O	Identical to the Quantity/Timing in OBR-Segment. If values provided in these fields differ, will consider value provided in OBR-27.
7.4	>Start date/time	O	
7.4.1	>>date/Time	O	YYYYMMDD[HHHMM[SS]][+-ZZZ Z]
7.5	>End date/time	O	
7.5.1	>>Date/time	O	YYYYMMDD[HHHMM[SS]][+-ZZZ Z]
7.6	>Priority	O	
9	>Date/Time of Transaction	O	When empty, the Date/Time of processing the message is taken for outbound messages.
9.1	>Date/time	O	YYYYMMDD[HHHMM[SS]][+-ZZZ Z]
12	Ordering Provider	O	Requesting Physician. If this is not filled in OBR-16 is processed instead
12.1	>ID number	O	Unique code identifying the requesting physician

Table 14: (Continued)

Seq	Hl7 Field Name	Option	Comments
12.2	>Family name	O	
12.2.1	>>Surname	O	Requesting physician last name
12.3	>Given name	O	Requesting physician first name
12.4	>Second and further given names or initials thereof	O	Middle name
12.5	>Suffix	O	e.g: JR or III
12.6	>Prefix	O	e.g: DR
12.9	>Assigning authority	O	
12.9.1	>>Namespace ID	O	Identifier of the Assigning Authority that issued the physician id
15	Order Effective Date/Time	O	
15.1	>Date/Time	O	YYYYMMDD[HHHMM[SS[.SSSS]]][+-ZZZ Z]
17	Entering Organization	O	Requesting department
17.1	>Identifier	R	Code of the department
17.2	>Text	O	Name of the department. If empty, the identifier will be taken as name.
17.3	>Name of Coding system	O	Identifier of the Assigning Authority that issued the department id.
21	Ordering facility name	O	Requesting Hospital
21.1	>Organization name	O	Name of the hospital.
21.3	>ID number (NM)	R	Identifier of the hospital
21.6	>assigning authority	O	
21.6.1	>>Namespace ID	R	Identifier of the Assigning Authority that issued the requesting hospital id.
25	Order Status Modifier	O	
25.1	>identifier (ST)	O	

OBR Segment

Table 15:

Seq	Hl7 Field Name	Option	Comments
1	Set ID - Observation Request	O	
2	Placer Order number	R	Identical to ORC-2. In case of outbound message, accession number is used to fill this field.
3	Filler Order number	R	Identical to ORC-3. In case of outbound message, accession number is used to fill this field.
3.1	>Entity identifier	R	
3.2	>Namespace ID	O	
4	Universal Service Identifier	R	For Outbound ORU messages: For R01 event, value should be 18748-4^Diagnostic imaging study^LN and in R40 event, value should be 196616^MDC_EVT_ALARM^MDC.
5	Priority	B	Priority information is present in OBR.27.6. its required only for backward compatibility.
6	Requested Date/Time	O	Date/Time of processing the message is taken for out-bound messages.
6.1	>Date/Time	O	YYYYMMDD[HHHMM[SS]][+-ZZZ Z]
7	Observation DateTime	C	Actual datetime observation was taken. In case of outbound message datetime of message processing will be considered.
13	Relevant Clinical Info	O	
16	Ordering Provider	O	The ordering provider should be the same as ORC-12. If ORC-12 is filled in, this will not be processed.
16.1	>ID number (ID)	O	Physician Identifier
16.2	>Family name	O	
16.2.1	>>Surname	O	Physician lastname
16.3	>Given name	O	Physician firstname
16.9	>Assigning authority	O	
16.9.1	>>Namespace ID	O	

Table 15: (Continued)

Seq	Hl7 Field Name	Option	Comments
18	Placer Field 1	R	For ORM message, must have the accession number here the value sent in DICOM tag [0008,0050]. It will be mapped to OBR-2, OBR-3, ORC-2, ORC-3 for
19	Placer Field 2	O	
20	Filler Field 1	O	
22	Result Rpt/Status Change – Date/Time	C	The modification date of the report
22.1	>Date/Time	O	
24	Diagnostic Serv Sect Id	O	
25	Result Status	R	For ORU, based on OBX-11
27	Quantity/Timing	R	For priority
27.4	>Start date/time	O	
27.4.1	>>Date/Time	O	
27.5	>End date/time	O	
27.5.1	>>Date/Time	O	
27.6	**>Priority**	**R**	
28	Result Copies To	O	
28.1	>ID number (ST)	O	
28.2	>family name	O	
28.2.1	>>surname	O	
28.3	>given name	O	
28.9	>assigning authority	O	
28.9.1	>>namespace ID	O	
31	Reason For Study	O	
32	Principal Result Interpreter	O	
32.1	>Name	R	
32.1.1	>>ID number (ST)	R	

Table 15: (Continued)

Seq	Hl7 Field Name	Option	Comments
32.1.1	>>ID number (ST)	R	
32.1.2	>>Family name	R	
32.1.3	>>Given name	O	
32.1.9	>>Assigning authority	O	
33	Assistant Result Interpreter	O	
33.1	>Name	R	
33.1.1	>>ID number (ST)	R	
33.1.2	>>Family name	R	
33.1.3	>>Given name	O	
33.1.9	>>Assigning authority	O	
34	Technician	O	
34.1	>Name	R	
34.1.1	>>ID number (ST)	O	
34.1.2	>> family name	O	
34.1.3	>>given name	O	
34.1.9	>>Assigning authority	O	
34.5	>Room	O	
35	Transcriptionist	O	
35.1	>name	R	
35.1.1	>>ID number (ST)	R	
35.1.2	>>Family name	O	
35.1.3	>>Given name	O	
36	Scheduled Date/Time	O	
36.1	>Date/Time	O	
43	Planned Patient Transport	O	
43.1	>Identifier	O	

Table 15: (Continued)

Seq	Hl7 Field Name	Option	Comments
43.2	>Text	O	
43.3	>Name of coding system		

OBX Segment

Table 16:

Seq	HL7 Field Name	Option	Comments
1	Set ID - OBX	O	Set to 1,2,3...
2	Value Type	R	Supported Value: FT, ED, ST, NM. In case of outbound ORU messages, for PDF and JSON reports base64 encoded value (ED) is used. For sending URL FT (Formatted Text) is used. For numerical measurement, NM is used.
3	Observation identifier	R	For Outbound ORU messages, If its Intuition: Format is “{Protocalname}^Measurement^99zzz”. If its EAI: Format is “{algorithm name id}^{algorithm name text}”
4	Observation Sub ID	O	For Outbound ORU messages, If its EAI: value is “{algorithm uid}” but if we have multipart document then it should be “{algorithm uid}^{sequenceno.}” Otherwise, it’s a int value eg: 1,2,3…
5	Observation Value	R	For Outbound ORU messages, this field contains the actual values. But if we have ED data then it needs have the metadata values as well and will need to account for character limitation 65k characters and escape sequence characters. Sample format for PDF: {filename1}^AP^PDF^Base64^{******data chunk 1 for pdf******} Sample format for JPEG: {filename1}^AP^JPEG^Base64^{******data chunk 1 for jpeg******}
8	Abnormal Flag	O	Value for abnormal flags DET used to indicate worklist prioritization for AI detection, supported for EAI only
11	Observation Result Status	R	For Outbound ORU messages, value is always set to “F” in case the sending application is intuition. EAI set to ‘R’ Results entered -- not verified
14	Date/Time of the Observation	O	The creation date of the report
14.1	>Date/Time	R	