Med X Change DRSHD – Digital Recording System High Definition

HL7 Conformance Statement

U5001-37, 1.1

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1. OVERVIEW

This document provides the HL7 conformance statement for the digital documentation system (MedXChange DRSHD).

DRS-HD is an endoscopic surgical video recorder. The HL7 interface application will enable DRS-HD to communicate with the HIS/other applications using the HL7 protocol. This will allow the system to receive patient worklist related information from the HIS/other applications. This document contains the high level HL7 specifications, and MWL DICOM mapping provided for the DRS-HD HL7 interface. Table 1.1 specifies only HL7 required fields to create the DICOM image instance. Detailed HL7 fields with DICOM attributes mapping defined in section 4.1.

Table 1.1 – Required attribute mapping between HL7 fields and DICOM fields		
Description	HL7 Field	DICOM Tag
Patient's Name	PID-5-1,2,3	(0010,0010)
Patient ID	PID-3-1	(0010,0020)
Referring Physician Name	AIP-3-2,3	(0008,0090)
Order No/Accession No	SCH-1-1	(0008,0050)
Requested Procedure ID	AIS-3-1	(0040,1001)
Requested Procedure Name	AIS-3-2	(0032,1060)
Schedule Station Name	AIL-3-2	(0040,0010)

2.   INTRODUCTION

2.1. General Information

This document specifies the HL7 conformance of the MedXChange digital documentation system (DRSHD). Whenever a new study is scheduled, a SIU^S12 message is generated in the HIS and sent to the DRSHD's HL7 interface. The HL7 interface receives the modality worklist scheduled information from the HIS or order placer in the form of a SIU^S12 message and provides modality worklist information to the DRSHD's DICOM interface. The DRSHD DICOM interface will receive MWL information from the HL7 interface and embed the patient information into a DICOM image header and store the image on DICOM storage server.

2.2. Revision History

Table 2.1 – Revision History			
Revision	**Date**	**Comment**	**Author**
1.0	20/4/2010	Initial Release Version	CitiusTech
1.1	28/1/2015	Added support for SIU^S13, S14, S15 messages	Chris Trout

2.3. Audience

This document is intended for HIS and RIS providers, implementers and users of MedXChange DRSHD. It is assumed that the reader has a working understanding of HL7 and DICOM.

2.4. Scope

The scope of this document is to define the high level specification of the HL7 SIU^S12, S13, S14, and S15 messages received by the DRS-HD. The scope is limited to the HL7 fields and DICOM attributes mapping used for the modality worklist and image instance.

2.5. Remarks

The intent of the HL7 conformance statement is to provide knowledge to the implementer of the HIS based MWL query. It also provides information on how to allow the HL7 schedule message to achieve interoperability with the modality worklist. However, the information contained in a HL7 conformance statement is not sufficient to ensure that independent implementations will be able to function seamlessly.
MedXChange 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.

2.6. References

- NEMA 2003, DICOM Standard: Parts 1 – 14.
- HL7 Standard version 2.3. This document is available at: http://www.hl7.org

3.   HL7 MESSAGE SPECIFICATIONS

3.1. Communication Profile

HL7 v2.3 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 datagram's. A prime example of one of the protocols is TCP/IP. HL7 Interface for DRS-HD 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 DRS-HD supports HL7 version 2.3

3.3. Message Delimiters

HL7 Interface for DRS-HD uses the delimiter values in Table 3.1

Table 3.1 – Delimiter Values	
Delimiter	**Value**
Segment Terminator	<cr>
Field Separator	|
Component Separator	^
Subcomponent Separator	&
Repetition Separator	~
Escape Character	\

3.4. Rejection Messages

Rejection messages usually result from an exception. The HL7 Interface logs a comprehensive message detailing the reason of rejection. The HL7 interface only receives SIU^S12, S13, S14, and S15 messages. If any other HL7 message is sent to the DRSHD HL7 interface then the HL7 interface will reject that message. The interface log should be consulted for full details.

3.5. Error Messages

Error messages usually result from message format or context. If any parsing or validation error is found in any stage of DRSHD HL7 interface then the message is not processed by affected module. Error logs are generated by each module. An error logs will have a detailed description of the error if any.

3.6. HL7 Message

This section depicts message grammar and describes required HL7 fields. DRSHD's HL7 interface module will support only inbound SIU^S12, S13, S14, and S15 messages. Since the interface required fields are a subset of SIU^S12, S13, S14, and S15 messages, this document only discusses the required fields related to the SIU^S12, S13, S14, and S15 messages.

Schedule Information Unsolicited Message

Table 3.2 – Message grammar for SIU^S12, S13, S14, and S15 - Notification of new appointment booking			
Segment Definition	**Segment Description**	**Required Fields/Components**	**HL7 v.2.3 Chapter #**
MSH	Message Header	MSH-1, MSH-2, MSH-4,MSH-9, MSH-10, MSH-11-1, MSH-12-1	02
SCH	Schedule Activity Information	SCH-1-1	10
PID	Patient Identification	PID-3-1,PID-5-1, PID-5-2	03
RGS	Resource Group Segment	RGS-3-1	10
AIS	Appointment Information – Service	AIS-3-1, AIS-3-2	10
[AIG]	Appointment Information – General Resource	AIG-3	10
AIL	Appointment Information – Location Resource	AIL-3-2	10
AIP	Appointment Information – Personal Resource	AIP-3-2, AIP-3-3	10

3.7. Acknowledgement Message

DRSHD's HL7 interface sends an accept acknowledgement on same port when it successfully receives an incoming SIU^S12, S13, S14, and S15 messages. It is the remote system's responsibility to wait for an accept acknowledgement message and receive acknowledgement message. HL7 interface will not check message grammar and validation before sending the acknowledgement message.

3.8. Sample HL7 Message

MSH|^~\&|SAP^SAP^GUID|HL7_Sender|EB^EB^GUID||20010520173800||SIU^S12|93710600|P|2.3||NE
SCH|Placer001|Filler001|||CT||^Unklare Beschwerden||||^^^20010701100000^20010701103000|||||||||
PID|1||001000||Meier^Florian^Bernd^^^Herr|Schulz|19670808|M|||Karl-Lipp-
Str.9^^Munchen^^80992^D||(089) 14002243|(089)
234||||198708080150||||Munchen|||||D|20020131063000
RGS|1
AIS|1||SUR^COLO
AIG|1|||^Medikament 3||1.5|^Amp
AIG|2|||^Medikament 4||3|^cm3
AIL|1||^02^^^^^^^Room 2||^Endo
AIP|1||D100^Muller^Heiner^^^Dr|

4.   HL7- MWL

4.1.   HL7 – MWL Mapping

This section describes the mapping between the HL7 SIU^S12, S13, S14, and S15 messages received from the HIS with Modality Work List (MWL) DICOM attributes. Below table specifies the required HL7 fields for DRS-HD to process the HL7 inbound message.

SN	HL7 Segment/DICOM Description	DICOM Tag	HL7 Segment	HL7 Mandatory
1	**MSH**			
1.1	Field Separator	NA	MSH-1	Required
1.2	Encoding Character	NA	MSH-2	Required
1.3	Sending Application	NA	MSH-3	
1.4	Sending Facility	NA	MSH-4	Required
1.5	Receiving Application	NA	MSH-5	
1.6	Receiving Facility	NA	MSH-6	
1.7	Schedule Step Start Date	(0040,0002)	MSH-7	Required
1.8	Message Type	NA	MSH-9	Required
1.9	Message Control ID	NA	MSH-10	Required
1.10	Processing ID	NA	MSH-11-1	Required
1.11	Version ID	NA	MSH-12-1	Required
2	**SCH**			
2.1	Order Number	(0008,0050)	SCH-1-1	Required
2.2	Modality	(0008,0060)	OT	
3	**PID**			
3.1	Patient ID	(0010,0020)	PID-3-1	Required
3.2	Patient Last Name	(0010,0010)	PID-5-1	Required
3.3	Patient First Name	(0010,0010)	PID-5-2	Required
3.4	Patient Middle Name	NA	PID-5-3	
3.5	Patient Birth Date	(0010,0030)	PID-7	
3.6	Patient Sex	(0010,0040)	PID-8	
4	**RGS**			
4.1	Identifier	NA	RGS-3-1	
5	**AIS**			
5.1	Procedure ID	(0040,1001)	AIS-3-1	Required
5.2	Procedure Name	(0032,1060)	AIS-3-2	Required
6	**AIG**			
6.1	Resource ID	NA	AIG-3	
7	**AIL**			
7.1	Operating Room Number	(0040,0010)	AIL-3-2	Required
7.2	Facility Code	NA	AIL-4-1	
7.3	Facility Name	NA	AIL-4-2	
8	**AIP**			
8.1	Surgeon Last Name	(0008,0090)	AIP-3-2	Required
8.2	Surgeon First Name	(0008,0090)	AIP-3-3	Required