syngo® Dynamics HL7 Interface Specifications Manual

Software Version VA10

CE 0123

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US Patent 7,636,899

Intended Use Statement

syngo ® Dynamics is an image and information system intended for acceptance, transfer, display, storage, archive and manipulation of digital medical images, including review, analysis, qualification and reporting.

As a Cardiology PACS and information system, *syngo*® Dynamics supports the physician in interpretation and evaluation of examinations within healthcare institutions, in particular, in Cardiology, Obstetrics and Gynecology or other departments.

syngo® Dynamics is not intended to be used for displaying of digital mammography images for diagnosis in the U.S.

Responsibility Statement

The evidence-based reporting in *syngo* ® Dynamics is intended to be a supporting tool for the diagnosing physician. While Siemens may provide sample templates for user customization, the accuracy and appropriateness of clinical phrases, clinical observations, and user-defined measurements and calculations in *syngo* ® Dynamics worksheets and reports are the responsibility of the diagnosing physician and/or facility.

All quantitative data ranges are derived from the clinical experience of echocardiology laboratories and are included in observation libraries for *syngo* ® Dynamics users. Siemens strongly recommends that users review these ranges with their individual diagnostic needs in mind prior to using *syngo* ® Dynamics for clinical reporting.

Caution

If images are not archived on a regular basis, there may be data loss. *syngo*® Dynamics software archives images automatically, if there is an archiving device and it is properly configured and functioning.

To prevent data loss, Siemens requests that all customers have an archiving device connected and check that it is functioning properly.
United States Federal Law restricts this device to sale by or on the order of a physician.

Improper server hardware or software configuration settings or improper server operating system (Server software defect)

Data loss: undetected failure to store image or patient data sent from acquisition device requires patient to repeat exam
Data loss: loss of image data due to failure to back up
Loss of database backup data due to failure to back up database (either tape or disk backup)

CAUTION

- If images are not archived on a regular basis, there may be data loss. *syngo*®Dynamics software archives images automatically, if there is an archiving device and it is properly configured and functioning. To prevent data loss, Siemens requests that all customers have an archiving device connected and check that it is functioning properly. United States Federal law restricts this device to sale by or on the order of a physician.

User Profiles

The following profiles may vary depending on the site, qualifications, and personal responsibilities. They should be considered general guides.

Technologist

The technologist is responsible for quality assurance of images, including the preparation of images for reading. This preparation includes manipulation of image size, position, or windowing values; creation of preliminary markers or measurements; generation of additional result series, for example, parallel ranges; and sending data for archiving.

Technologist must have the proper training, work experience, product training certification or comparable product experience.

Physician

The physician performs the imaging examination, reporting of patient images, completing and / or verifying reports, interventions, and justifying indications. The physician is responsible for the safety of patients.

The physician must be a doctor of medicine and have the proper training, work experience, and product training certification or comparable product experience.

Clinical Administrator

The clinical administrator configures application settings, DICOM nodes, archiving, and manages short term storage and licenses, performs patient data administration, and is the first support contact for reading physicians.

The clinical administrator is an application specialist who has work experience, product experience, and knowledge of the clinical workflow.

IT Administrator

The IT administrator is responsible for data security, data protection, user management, configuration of DICOM nodes, as well as backup and archiving. The IT administrator manages the IT infrastructure of the clinical network, and is responsible for the

administration and configuration of IT components.

The IT administrator must have expert knowledge of networks, operating systems, user administration, and knowledge of the workflow.

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Copyright

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For service information, please see the terms and conditions of your Service Contract.

Contents

1. Introduction

1.1. Purpose

This specification provides the *syngo*® Dynamics baseline requirements for a Hospital Information System (HIS) to effectively send ADT/Order messages and to receive unsolicited observation reporting messages produced on the *syngo*® Dynamics system via the Health Level 7 (HL7) standard. This document describes the *syngo*® Dynamics system's use of the HL7 standard for communicating with various HIS applications. It explains the *syngo*® Dynamics system's use of the Siemens OPENLink component to communicate via the HL7 Standard.

The *syngo*® Dynamics system components communicate observation reporting information to the Siemens OPENLink Engine via a proprietary communications protocol. The Siemens OPENLink Engine constructs the HL7 message from information supplied by the *syngo*® Dynamics workstation.

The document specifies the details of HL7 interface messages supported for sDIS features in vVA10. The user is advised to refer other HL7 related documents available in www.hl7.org for further HL7 explanation and knowledge on HL7 Standards. VVA10 sDIS features require a standard HL7 INTERFACE ENGINE which is capable of converting HL7 messages from one version to another, and has functionality which can add, delete, append , Ignore and convert message segments. The Siemens implementation team and the customer should review this document and interface messages during the early implementation phase to assure all workflows and messages are addressed and/or rerouted via the interface engine.

syngo® Dynamics vVA10 sDIS feature supports HL7 VERSION 2.3.1 and all references made are applicable to HL7 2.3.1 standard.

1.2. Scope

This document specifically refers to *syngo*® Dynamics VA10 server and workstations and the Siemens OPENLink component version 23.7-4.

1.3. Abbreviations

(DR)	Short for Demographic Reconciliation in this document.
(OA)	Short for Order Association in this document.
ACK	Acknowledgment
ADT	Patient administration messages within the HL7 standard. Typically initiated by the HIS to inform ancillary systems that a patient has been admitted, discharged, transferred, merged, that other demographic data about the patient has changed (name, insurance, next of kin, etc.) or that some visit information has changed (patient location, attending physician, etc.).
ADT^A01	An HL7 Admit/Discharge/Transfer message for Patient Admit. This occurs when the patient is admitted to the hospital.
ADT^A04	An HL7 Admit/Discharge/Transfer message for Patient Registered. This occurs when the patient is registered at the hospital.
ADT^A08	An HL7 Admit/Discharge/Transfer message for Patient Update. This occurs when the patient's demographic information has been updated from what was previously sent when the patient was admitted.
ADT^A18, A34, A40	An HL7 Admit/Discharge/Transfer message for Patient Merge. These are

	used when two different identifications for the same patient are found and need to be merged into one identification.
AL1	Allergy Information
All servers	For the purposes of this document, the term “all servers” refers to all *syngo* Dynamics servers that are included in the multi-server login configuration of the current server.
CA	The order control code for the order that is canceled. It is used in ORC segment of HL7 ORM Message
DDI	Data Dictionary Item
DG1	Diagnosis
DOB	Patient date of birth
Enterprise	For the purposes of this document, the term “enterprise” refers to the collection of all departments on all servers that are included in the multi-server login configuration of the current server. The scope of “enterprise” is not defined as all departments of all *syngo* Dynamics servers that are physically located in an institution. Each *syngo* Dynamics server within an institution server pool has its own enterprise scope, as the scope is defined by the multi-server login configuration of that individual server.
FON	Short for Filler Order Number in this document - The order number assigned to the Service Request by the party filling the order.
HIS	Health Information System
HIS Verification	A method used by the syngo Dynamics Server’s Vault services to reconcile patient/study information by using a DICOM Modality Worklist Server to confirm scheduled study data. Both automatic and manual reconciliation methods are supported.
HL7	Specific message standards created by the Health Level Seven organization for the exchange, management and integration of electronic healthcare information.
IE	Interface Engine
IP	Internet Protocol
M	Mandatory for sDIS
Master Patient Index	Master Patient Index (MPI) is an index which references all existing patients registered at a health care organization in such manner that each patient is logically represented only once and can be uniquely identified. Use of MPI allows clinical and demographic information to be cross-referenced between different facilities within the enterprise of a health care organization. MPI can be a specific SID/PID pair among all SID/PID pairs that are assigned to a patient. For example, for a health care organization that defines “EPI” as the MPI SID, the value “123456789^^^EPI” indicates it is a MPI and “123456789” is the MPI PID.
MPI	Master Patient Index (MPI) is an index which references all existing patients registered at a health care organization in such manner that each patient is logically represented only once and can be uniquely identified. Use of MPI

	allows clinical and demographic information to be cross-referenced between different facilities within the enterprise of a health care organization. MPI can be a specific SID/PID pair among all SID/PID pairs that are assigned to a patient. For example, for a health care organization that defines “EPI” as the MPI SID, the value “123456789^^^EPI” indicates it is a MPI and “123456789” is the MPI PID.
MRG	Merge
MRN	Medical Record Number in HL7 (Same as Patient ID in DICOM)
MSH	Message Header
NACK	Negative Acknowledgement
NK1	Next of Kin
NW	The order control code for new order that is used in ORC segment of HL7 ORM Message
O	Optional for sDIS
OBR	The Observation Request segment that HL7 ORM message uses to transmit information specific to an order for a diagnostic study or observation, physical exam, or assessment.
ORC	The Common Order segment that HL7 ORM message uses to transmit fields that are common to all orders
ORM^O01	An HL7 General Order Message. Also referred to as an “Order” or “HL7 Order” in this document.
PID	Patient ID or refers to the patient identification segment in a HL7 message.
PON	Short for Placer Order Number in this document - the order number assigned to the Service Request by the party placing the order.
PV1	Patient visit segment in a HL7 message which includes the patient class.
RP-RO	The order control code used for the order that is replacing the previous one. It is used in ORC segment of HL7 ORM Message. For each replacement order, ORC segment use ORC-1-order control value of RP, followed by another ORC segment with ORC-1-order control value of RO.
sDIS	*syngo* Dynamics Information System Features
SID	Site ID. Another name for an Assigning Authority (e.g. an Information System) from the HL7 Standard.
SID/PID	A Site ID and Patient ID combination.
SIU	Scheduling Information Unsolicited
UI	User Interface
WB	sDIS Whiteboard

2. Report Upload to OPENLink Option

2.1. HL7 Message Details Message Specifications

The HL7 outgoing observation reporting interface on the Siemens OPENLink Engine allows the *syngo*® Dynamics system to transmit structured patient-oriented clinical data to external systems via unsolicited messages. The standard used by the Siemens OPENLink Engine is a subset of the HL7 Standard, Version 2.3.1.

The Observation Reporting transaction set is used to transmit results of diagnostic studies from the *syngo*® Dynamics system to interested information systems. Transactions are initiated by the filler application using the ORU message to provide the recorded observation. A single trigger event is used by the Observation Reporting transaction set.

R01 Unsolicited Transmission of Observation

This message is generated by the Siemens OPENLink Engine to provide reports from the *syngo*® Dynamics system to the Information System. The *syngo*® Dynamics workstation provides the report information to the Siemens OPENLink Engine using a proprietary communication interface.

Table 1. ORU Message Type Events

Event Code	Event Description	Message
R01	**Unsolicited Transmission of Observation** Report (Preliminary, Final, or Corrected)	MSH PID OBR {OBX}

2.2. *syngo*® Dynamics Report Format

The *syngo*® Dynamics Report is generated in an XML format prior to being sent to the Siemens OPENLink Engine. Tabs are converted to spaces (0x20) in the XML output. The linefeed character (0x0A) is replaced with a value of \.br\ by the OPENLink Engine to indicate new lines within the formatted report for the HL7 output.

The *syngo*® Dynamics Report may contain HL7 message delimiters in the report text. To ensure an HL7 compliant character set is sent by the Siemens OPENLink Engine, the delimiter characters will be replaced using the table below. The default values are shown. Site-defined substituted character strings are supported.

Table 2. HL7 Delimiter Substitution Table

Message Delimiter	ASCII Character	Substituted Character String
Field Separator	|	\F\
Component Separator	^	\S\
Subcomponent Separator	&	\T\
Repetition Separator	~	\R\
Escape Character	\	\E\

The entire report text is inserted into a single OBX segment. This must be supported by the receiving system.

2.3. Default Segment Listing

The following tables list the HL7 segments and their corresponding data elements that are used by this Report Upload Interface.

Message Header Segment (MSH)

Seq	Type	Element Name	*syngo*® Dynamics Element	Notes
1	ST	Field Separator		Default Value: |
2	ST	Encoding Characters		Default Value: ^~\&
3	HD	Sending Application		"KinetDx"
4	HD	Sending Facility	KinetDxHospitalName	Configured *syngo*® Dynamics Hospital Name*
5	HD	Receiving Application		Optional
6	HD	Receiving Facility		Optional
7	TS	Date/Time of Message		
9	CM	Message Type		**ORU^R01**
10	ST	Message Control ID		1..999999 (will reset to 1)
11	PT	Processing ID		P sent as default
12	ID	Version ID		2.3.4
18	ID	Character Set		Default Value: ISO_IR 100

*This field is currently populated with the study institution name.

Patient Identification Segment (PID)

Seq	Type	Element Name	*syngo*® Dynamics Element	Notes
1	SI	Set ID		1
3	CX	Patient ID (external)	Patientid	DICOM Patient ID
5	XPN	Patient Name	PatientName	DICOM Patient Name*
7	TS	Date/time of birth	PatientBirthDate	
8	IS	Sex	PatientSex	M, F, or O

*This field is currently sent with the DICOM PN encoding rules.

Observation Request Segment (OBR)

Seq	Type	Element Name	*syngo*® Dynamics Element	Notes
1	SI	Set ID		1
3	EI	Filler Order Number	AccessionNumber	DICOM Accession Number
4	CE	Universal Service ID	'^' + StudyDescription	^DICOM Scheduled Procedure Step Description. OPENLink to concatenate and add SubComponent Separator
7	TS	Observation Date/Time	StudyDate + StudyTime	DICOM Study Date + Study Time (Concatenate Values)
22	TS	Results rpt/status change date/time	ReportDate + ReportTime	Date/Time Report uploaded from Workstation (Concatenate Values)
25	ID	Results Status	ReportStatus	F – If *syngo*® Dynamics status is Read P – If *syngo*® Dynamics status is Completed C – If *syngo*® Dynamics report has been amended
32	CM	Principal result interpreter	PhysicianReadingStudy	*syngo*® Dynamics Diagnosing Physician Name*

*This field is currently sent with the DICOM PN encoding rules.

OBX – Observation/Result Segments

OBX1 – Impressions

Seq	Type	Element Name	*syngo*® Dynamics Element	Notes
1	SI	Set ID		1
2	ID	Value Type	CE	Generated by OPENLink
3	CE	Observation Identifier	AccessionNumber&**IMP**	OPENLink to concatenate and add SubComponent Separator
5	*	Observation Value	^Text	Contains *syngo*® Dynamics Impressions Text. OPENLink to concatenate and add SubComponent Separator. Text value should be "HL7 Safe"
11	ID	Observation Result Status	ReportStatus	Same as OBR-25 (F, P, C)

OBX2 – Report Text

Seq	2.3.1. Type	Element Name	*syngo*® Dynamics Element	Notes
1	SI	Set ID		2
2	ID	Value Type	FT	Generated by OPENLink
3	CE	Observation Identifier	AccessionNumber&**GDT**	OPENLink to concatenate and add SubComponent Separator
5	*	Observation Value	Text	Contains *syngo*® Dynamics Report Text. Text value should be "HL7 Safe"
11	ID	Observation Result Status	ReportStatus	Same as OBR-25 (F, P, C)

OBX3 – Addendum

Seq	Type	Element Name	Notes
1	SI	Set ID	3
2	ID	Value Type	FT
3	CE	Observation Identifier	DICOM Accession Number&**ADT**
5	*	Observation Value	Contains *syngo*® Dynamics Addendum Text
11	ID	Observation Result Status	Same as OBR-25 (F, P, C)

3. Report Upload Message Examples

3.1. *syngo*® Dynamics Report with standard linefeed substitution

Final Report

```
MSH|^~\&|KinetDx|Ann Arbor Lab|Broker|Connectivity
Lab|20030305105716||ORU^R01|00002455|P|2.2||||||ISO_IR 100
PID|||M555||SUMNER^ALEX^WILLIAM||19680212|M|
OBR|1||275|^Adult Heart|||20030305120744|||||||||||||||20030305162300|||F||||||
|Welby^Marcus^T
OBX|1|CE|275&IMP||^Acute MI unspecified site, initial episode of care-410.91||||||F
OBX|2|FT|275&GDT||Ann Arbor Medical Center\.br\Echocardiography Laboratory\.br\Telephone:
(734)-555-1234 Fax: (734)-555-1235\.br\\.br\ECHO REPORT\.br\Patient Name: ALEX WILLIAM
SUMNER Patient ID: M555\.br\Exam Date: March 5, 2003 Patient DOB: February 12,
1968\.br\Date of Report: March 5, 2003 Height: \.br\Referring Phys. YEVES ANDREW. TIESSEN
Weight: \.br\Referring Diag. Acute MI unspecified site, initial episode of care-410.91
\.br\Resting BP: / \.br\Indication: Kinet, Acute MI anterolateral, subsequent episode of
care-410.02\.br\\.br\M-mode Data\.br\LVDD: AO: \.br\LVSD: EPSS: \.br\Fract. Shortn: PW:
\.br\RVDD: EDV Teichholz: \.br\IVSTD: ESV Teichholz: \.br\IVSTS: SV: \.br\Fract. Change:
EF: \.br\LAD: \.br\\.br\2D Study\.br\There is mild left atrial enlargement. \.br\There is
apical akinesis with wall thinning compatible with scar. The\.br\distribution suggests a
distal left anterior descending coronary artery\.br\distribution.
\.br\\.br\\.br\\.br\Doppler\.br\There is trivial aortic regurgitation present.
\.br\\.br\\.br\\.br\\.br\_____\.br\Marcus T
Welby\.br\\.br\||||||F
```

Corrected Report

```
MSH|^~\&|KinetDx|Ann Arbor Medical Center|Broker|Connectivity
Lab|20030305105716||ORU^R01|00002455|P|2.2||||||ISo_IR 100
PID|||M555||SUMNER^ALEX^WILLIAM||19680212|M|
OBR|1||275|^Adult Heart|||20030305120744|||||||||||||||20030305162300|||C||||||
|Welby^Marcus^T
OBX|1|CE|275&IMP||^Acute MI unspecified site, initial episode of care-410.91||||||C
OBX|2|FT|275&GDT||Ann Arbor Medical Center\.br\Echocardiography Laboratory\.br\Telephone:
(734)-555-1234 Fax: (734)-555-1235\.br\\.br\ECHO REPORT\.br\Patient Name: ALEX WILLIAM
SUMNER Patient ID: M555\.br\Exam Date: March 5, 2003 Patient DOB: February 12,
1968\.br\Date of Report: March 5, 2003 Height: \.br\Referring Phys. YEVES ANDREW. TIESSEN
Weight: \.br\Referring Diag. Acute MI unspecified site, initial episode of care-410.91
\.br\Resting BP: / \.br\Indication: Kinet, Acute MI anterolateral, subsequent episode of
care-410.02\.br\\.br\M-mode Data\.br\LVDD: AO: \.br\LVSD: EPSS: \.br\Fract. Shortn: PW:
\.br\RVDD: EDV Teichholz: \.br\IVSTD: ESV Teichholz: \.br\IVSTS: SV: \.br\Fract. Change:
EF: \.br\LAD: \.br\\.br\2D Study\.br\There is mild left atrial enlargement. \.br\There is
apical akinesis with wall thinning compatible with scar. The\.br\distribution suggests a
distal left anterior descending coronary artery\.br\distribution.
\.br\\.br\\.br\\.br\Doppler\.br\There is trivial aortic regurgitation present.
\.br\\.br\\.br\\.br\\.br\_____\.br\Marcus T
Welby\.br\\.br\||||||C
OBX|3|FT|275&ADT||April 23, 2003            TIESSEN, YEVES\.br\Further examination of
this study indicates the possibility for some\.br\additional aortic
regurgitation\.br\||||||C
```

4. IHE DRPT REPORT CREATOR

The Displayable Reports Profile specifies transactions supporting the creation, revision, intra/inter-department transmission, and reading of display-ready clinical reports. In the imaging procedure context, it provides linkage between the report, the imaging and other evidence of the procedure. The report is provided to actors outside the department for broad distribution (e.g., using other profiles).

The DRPT Profile requires the use of the Portable Document Format (PDF), which has emerged as a ubiquitous means of encoding documents ready for presentation, including graphical content. For reporting on imaging procedures, especially on cardiac procedures, PDF is able to present the full range of documentation generated by a wide variety of reporting packages. Furthermore, PDF allows the reporting physician to control the "look" of the report, which is important for both clinical and business reasons.

syngo® Dynamics is a **Report Creator –** A system that generates and transmits clinical reports.

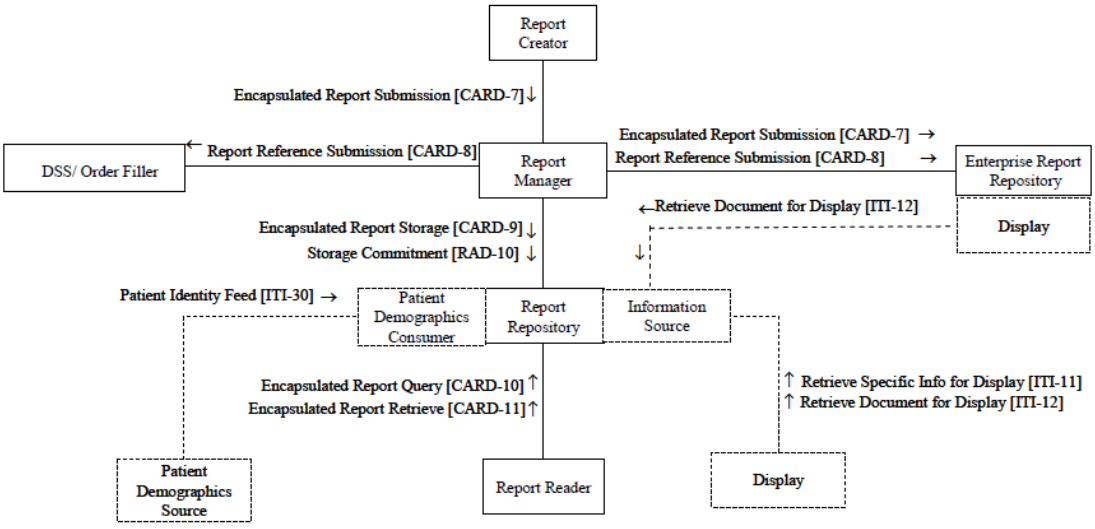


Figure 1

Complete details of the IHE DRPT implementation requirements can be found at:
http://www.ihe.net/Technical_Framework/index.cfm#radiology

5. IHE DRPT Message Examples

Below is a sequence sample of a test study from preliminary to final to amended in *syngo*® Dynamics and the corresponding MDM T2 and MDM T10 messages.

MSH|^~\&|syngo Dynamics|Hospital Name|Receiving Application|Receiving Facility|201011151311||**MDM^T02**|6|P|2.3.1|||||8859/1
EVN||201011151311
PID|||drpt2||sample^drpt^^^mr
OBR|1|^syngo Dynamics||^Adult Cardiac|||20101115131051||||||||||||||||R
TXA|1001|DI|AP||||20101115131124.431|||||1.3.12.2.1107.5.8.11.105.17776024256.374677893148344|||||PA
OBX|1|HD|^113014^DICOMStudy^DCM||1.3.12.2.1107.5.8.11.105.17776024256.374677874100265|||||O
OBX|2|ED|^Physician||^Application^PDF^Base64^JVBERi0xLjENCg0KMyAwIG9iag0CAgICAgICAgICA0YNCg==|||||R

MSH|^~\&|syngo Dynamics|Hospital Name|Receiving Application|Receiving Facility|201011151311||**MDM^T10**|9|P|2.3.1|||||8859/1
EVN||201011151311
PID|||drpt2||sample^drpt^^^mr
OBR|1|^syngo Dynamics||^Adult Cardiac|||20101115131051||||||||||||||||F
TXA|1002|DI|AP||||20101115131147.228||||^dehar^todd|1.3.12.2.1107.5.8.11.105.17776024256.374677909041117|1.3.12.2.1107.5.8.11.105.17776024256.374677893148344||||AU|||||^dehar^todd^^^^^^^^^^^^20101115131147.228
OBX|1|HD|^113014^DICOMStudy^DCM||1.3.12.2.1107.5.8.11.105.17776024256.374677874100265|||||O
OBX|2|ED|^Physician||^Application^PDF^Base64^JVBERi0xLjENCg0KMyAwIG9iaCg==|||||F

MSH|^~\&|syngo Dynamics|Hospital Name|Receiving Application|Receiving Facility|201011151312||**MDM^T10**|12|P|2.3.1|||||8859/1
EVN||201011151312
PID|||drpt2||sample^drpt^^^mr
OBR|1|^syngo Dynamics||^Adult Cardiac|||20101115131051||||||||||||||||C
TXA|1003|DI|AP||||20101115131147.228||||^dehar^todd|1.3.12.2.1107.5.8.11.105.17776024256.374677944757801|1.3.12.2.1107.5.8.11.105.17776024256.374677909041117||||AU|||||^dehar^todd^^^^^^^^^^^^20101115131147.228
OBX|1|HD|^113014^DICOMStudy^DCM||1.3.12.2.1107.5.8.11.105.17776024256.374677874100265|||||O
OBX|2|ED|^Physician||^Application^PDF^Base64^JVBERi0xLjENCg0KMTEgMCBvYmoQo=|||||C

6. ADT Interface

There are three ADT messages that affect associations between different SID/PID pairs. Each includes required segments, although not all of the required segments are needed to support SID/PID associations.

6.1. Message Overview

The following messages need to be supported. The samples are indicative of the general format of the messages but not the exact content, which varies within a message type. A broad sampling of each message type should be acquired to determine the full set of content to be processed.

We only accept the following ADT message types: A01, A02, A04, A06, A07, A08, A18, A34, A36, A40 and A47. See Appendix B for information on configuration file if message types need to be deleted.

Matching rules are used to determine if any cached ADT records are to be associated with the demographic data of incoming studies. The configuration can be made following instructions in the VA10A *syngo*® Dynamics System Administration Manual (Part Number: P/N 10744367-240-03).

Seven matching rules exist. Matching rule #1 is tried first then matching rule #2 is tried second, and so on. If a unique match is found using a matching rule then any following matching rule does not need to be tried. When the order association feature is disabled this section shall be grayed out, except for rules #4 and #5.

At least one demographic rule must be selected. If no rules are selected when the user switches to a different tab or presses the “Save” button, a message is displayed reminding the user to select at least one rule.

There are three states that Demographic Reconciliation for a study can be in. The states are tracked in the Database.

The three states are:
1. No Demographic Reconciliation Attempted
2. Successful Demographic Reconciliation
3. Failed Demographic Reconciliation

Note:
Prior to syngo Dynamics V9.0, the DICOM accession number was mapped to the outbound HL7 message. Changes were made starting in syngo Dynamics V9.0 OPENLink database to implement the "ADT Reconciliation" and "Order Association" features . To revert to having the DICOM Accession number mapped to the outbound HL7 messages, the OPENLink database OPLsyngodynamics.mdb delivered with the versions V9.0, V9.5, and VA10A should be replaced. See Knowledge Base article SKB0022335.

Minimum Message Structure

MSH|^~\&|7EDIT|7EDIT.COM|||20100615111225||ADT^A01|MSG00001|P|2.6|||||WIN
DOWS-1252
EVN|A01|20100614
PID|1||MCH0047^^^MCH||LASTNAME^FIRSTNAME
PV1||O

ADT^A01 (Admit/Visit Notification)

Required Segments: MSH, PID, EVN, PV1
Optional Segments l: NK1, DG1, MRG, GT1, IN1
Sample:

MSH|^~\&|EPIC_RX|CCHS_MCH|PYXISRX|CCHS_MCH|20071128103643|112|A
DT^A01|4705875|P|2.4
EVN|A01|200711281036|||112^ADTR^REG^IN^^^^^MCH^^^^^CC-OP
PID|||E5473316^^^EPI^EPI~27243789^^^50^MCH~400000726845^^^^CCHS-WR-
EAD~00135038^^^^CCHS-WR-FVH-
LUTH||YOUNGER^LAM^C^^MR.||19580810|M|YOUNGER^LAM|B|2573 BUNDY
DR K^^AKRON^OH^44104||(555)555-1212^P^7|(216)881-
5300X3112^P^8|ENGL|S|BAP|272437890027|294629208|||||||||N
PV1|||E012^E012-019^E012-
19^900|E|||03403^ASSOCIATES^IP^ER|||PHCC||||||03403^ASSOCIATES^IP^ER||10
9892958|||||||||||||||ALIVE|||||||200711281036
AL1|1|Drug class|14379^NO KNOWN ALLERGIES|||19981024
DG1|1||^NT--EMS HEADACHE|NT--EMS HEADACHE

ADT^A08 (Update Patient Information)

Required Segments: MSH, PID, EVN, PV1
Optional Segments: NK1, DG1, MRG, GT1, IN1
Sample:

MSH|^~\&|EPIC_RX|CCHS_MCH|PYXISRX|CCHS_MCH|20071128103437|U6125
71|ADT^A08|4705766|P|2.4
EVN|A08|200711281034|||U612571^MCKENZIE RMA^LISA^^^^^^MCH^^^^^CC-
OP
PID|||E38573915^^^EPI^EPI~42401323^^^50^MCH||BLACK^RONALD^^^MR.||19
400526|M||B|4601 FIFTH AVE
EXT^^YOUNGSTOWN^OH^44505^^^^MAHONING|MAHONING|(330)759-
0038^P^7||ENGL|M|BAP|42401323689E463|281344843|||||||||N
PV1|||UROL^^^900|||||||||||||00364^MONTAGUE^DROGO^K.||109700195|||||||||||||||AL
IVE|||||||200711281020
AL1|1|Drug class|14379^NO KNOWN ALLERGIES|||19981024

ADT^A18 (Merge Patient Information)

Required Segments: MSH, PID, EVN, PV1
Optional Segments: none
Sample:

```
MSH|^~\&|EPIC|EPIC|MCH|MCH|20071128103508|50000000|ADT^A18|2431634|P|
2.3
EVN|A18|200711281035|||50000000^USER^MYCHART^^^^^^MCH^^^^^CC-OP
PID|||E37631308^^^^EPI~37527912^^^50^MCH||MURDAKHAEV^JOSHUA
ARIEL||20030904|M|MURDAKHAVE^JOSHUA~MURDAKHAEV^JOSHUA
ARIEL|W|27030 CEDAR RD
420^^BEACHWOOD^OH^44122^^^^CUYAHOGA|CUYAHOGA|(216)591-
1895^P^7^^^216^5911895~(440)220-
0337^P^7^^^440^2200337||ENGL|S|||000000000||||||||||N
PD1|||MICHIGAN CLINIC HOSPITAL^^50|235127^KOLKIN^ALLA
```

6.2. Segment Structure

The MSH and PID segments need to be processed from the above ADT messages to associate SID/PID pairs. Other segments can be ignored.

MSH

The MSH segment defines the intent, source, destination, and some specifics of the syntax of the message. Only items 1 and 9 are important. The Field Separator indicates how fields in the segment are separated (e.g. “MSH”). The Message Type indicates what message it is (e.g. “ADT^AO1”, “ADT^AO8”, “ADT^A18”).

Seq	Opt	Type	Len	Description
1	R	ST	1	Field Separator
2	R	ST	4	Encoding Characters
3	O	HD	180	Sending Application
4	O	HD	180	Sending Facility
5	O	HD	180	Receiving Application
6	O	HD	180	Receiving Facility
7	R	TS	26	Date/Time Of Message
8	O	ST	40	Security
9	R	CM	13	Message Type
10	R	ST	20	Message Control Id
11	R	PT	3	Processing Id
12	R	VID	60	Version Id
13	O	NM	15	Sequence Number
14	O	ST	180	Continuation Pointer
15	O	ID	2	Accept Acknowledgment Type
16	O	ID	2	Application Acknowledgment Type
17	O	ID	3	Country Code
18	O	ID	16	Character Set
19	O	CE	250	Principal Language Of Message
20	O	ID	20	Alternate Character Set Handling Scheme
21	O	ID	10	Conformance Statement Id

Sample:
MSH|^~\&|MCHHL7|MCH|Server1|Server2|20030414172418||DFT^P03|5582|P|2.4|||AL|

PID

The PID segment is the primary means of communicating patient identification information. Only items 2, 3, 4, 5 and 7 need to be processed: Patient ID (e.g. “1”), Patient Identifier List (e.g. “MRN-000009”), Alternate Patient ID – PID (e.g. “19”), Patient Name (e.g. “Smith^Alice^A”) and Date/Time of Birth (e.g. “19560516000000”).

Note that the Patient identifier list can be made up of a number of components. It also can repeat for multiple entries. All that is needed to support SID/PID associations are the ID and "assigning authority" components (or the "identifier type code" component, when the "assigning authority" component is left blank):

- <ID (ST)> ^
- <check digit (ST)> ^
- <code identifying the check digit scheme employed (ID)> ^
- <assigning authority (HD)> ^
- <identifier type code (ID)> ^
- <assigning facility (HD) ^
- <effective date (DT)> ^
- <expiration date (DT)>

The subcomponents of the assigning authority component are:

- <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

The subcomponents of the assigning facility are:

- <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>

Most HL7 messages only populate the following components at most: ID and identifier type code. Facilities that use a check digit also populate check digit and code identifying the check digit scheme employed. Occasionally the component assigning authority or assigning facility will be populated in a multi system facility.

Seq	Opt	Type	Len	Description
1	O	SI	4	Set ID - PID
2	B	CX	20	Patient ID
3	R	CX	250	Patient Identifier List
4	B	CX	20	Alternate Patient ID - PID
5	R	XPN	250	Patient Name
6	O	XPN	250	Mother's Maiden Name
7	O	TS	26	Date/Time of Birth
8	O	IS	1	Administrative Sex
9	B	XPN	250	Patient Alias
10	O	CE	250	Race
11	O	XAD	250	Patient Address
12	B	IS	4	County Code
13	O	XTN	250	Phone Number – Home
14	O	XTN	250	Phone Number - Business
15	O	CE	250	Primary Language
16	O	CE	250	Marital Status
17	O	CE	250	Religion
18	O	CX	250	Patient Account Number
19	B	ST	16	SSN Number – Patient
20	O	DLN	25	Driver's License Number - Patient
21	O	CX	250	Mother's Identifier
22	O	CE	250	Ethnic Group
23	O	ST	250	Birth Place
24	O	ID	1	Multiple Birth Indicator
25	O	NM	2	Birth Order
26	O	CE	250	Citizenship
27	O	CE	250	Veterans Military Status

28	**B**	**CE**	**250**	**Nationality**
29	**O**	**TS**	**26**	**Patient Death Date and Time**
30	**O**	**ID**	**1**	**Patient Death Indicator**
31	**O**	**ID**	**1**	**Identity Unknown Indicator**
32	**O**	**IS**	**20**	**Identity Reliability Code**
33	**O**	**TS**	**26**	**Last Update Date/Time**
34	**O**	**HD**	**40**	**Last Update Facility**
35	**C**	**CE**	**250**	**Species Code**
36	**C**	**CE**	**250**	**Breed Code**
37	**O**	**ST**	**80**	**Strain**
38	**O**	**CE**	**250**	**Production Class Code**

Sample:
PID|1||MRN-000009|19|Smith^Alice^A|Mother Lowe
|19560516000000|F||2106^White|987 Last& &APT 6^Allentown^PA^69867-
9879|||||M^Married||000|098709871||||||||||0||Aug 29 2002 7:23PM||1^Employed full-
time|N^Not a student|

Sample:
PID|||666442222^^^MERCY^MR||MULLINS^LARRY||19560312|M
|||6 ASHWOOD DRIVE^^RATHFARNHAM^DUBLIN

7. Order Interface

Matching rules are used to determine if any cached ORM records are to be associated with the demographic data of incoming studies.

Matching rules are used to determine if any cached ADT records are to be associated with the demographic data of incoming studies. The configuration can be made following instructions in the Software Version VA10A *syngo*® Dynamics System Administration Manual (Part Number: P/N 10744367-240-03).

Sample ORM with single SID/PID

MSH|^~\&|SYNGO|MCH|||200808220337||ORM^O01|200823533718906|P|2.5|
PID|1||MCH30007^^^MCH||Last30007^First30007^^^||19830928083552|M||W|9182
WILDERNESS PSGE^^CHAGRIN
FALLS^OH^44023^||4405438026|4405438026||M||124065658^^^MCH^PN|285582624|
PV1||E|HB6^^^MCH|||||^^^^^^^^MCHDRNO|^^^^^^^^MCHDRNO|||||||||116118202^^^MCH^PN||||||
||||||||||||||||||||||||116118202^^^MCH^VN|V|
ORC|SC|P30007|F30007||NW||1^^^20091217033700^^
^^||20090115033700|U70738||705521085^JONES^BOB^M^^^MD^^MCHDRNO||
OBR||P30007|F30007|Cardiac^^VL^MVU8866^US RENAL/MESENT ARTERY COMP -
NR^SYNGO|||20091217033700|||67936361-003|||||^^^^
|705512085^BALD^BOB^M^^^MD^^MCHDRNO||RS^RESULTS
SIGNED||||200808220337||MVU|||1^^^200808210900^^ ^^||||^ABDOM AORTIC
ANEURYSM|||||||||||||| ~ ~ |VDURMS^US RENAL/MESENT ARTERY COMP -NR^FSC~|

Sample ORM with MPI

MSH|^~\&|SYNGO|MCH|||200808220337||ORM^O01|200823533718906|P|2.5|
PID|1||MCH30007^^^MCH~MPI30007^^^MPI||Last30007^First30007^^^||19830928083552|M||W|
9182 WILDERNESS PSGE^^CHAGRIN
FALLS^OH^44023^||4405438026|4405438026||M||124065658^^^MCH^PN|285582624|
PV1||E|HB6^^^MCH|||||^^^^^^^^MCHDRNO|^^^^^^^^MCHDRNO|||||||||116118202^^^MCH^PN||||||
||||||||||||||||||||||||116118202^^^MCH^VN|V|
ORC|SC|P30007|F30007||NW||1^^^20091217033700^^
^^||20090115033700|U70738||705521085^JONES^BOB^M^^^MD^^MCHDRNO||
OBR||P30007|F30007|Cardiac^^VL^MVU8866^US RENAL/MESENT ARTERY COMP -
NR^SYNGO|||20091217033700|||67936361-003|||||^^^^
|705512085^JONES^BOB^M^^^MD^^MCHDRNO||RS^RESULTS
SIGNED||||200808220337||MVU|||1^^^200808210900^^ ^^||||^ABDOM AORTIC
ANEURYSM|||||||||||||| ~ ~ |VDURMS^US RENAL/MESENT ARTERY COMP -NR^FSC~|

Order Control (ORC-1)	Order Status (ORC-5)	Action	Comments
CA, DC, OC, OD	Same as ORC-1 or RP	Delete if existing	Search on PON, FON
SC	CM	Delete, unless already associated with a study	Search on PON, FON
NW	NW	Add order to cache	
NW	RP	Update or Add if not present	Search on PON, FON. Used for replacement orders where the order numbers do not change, otherwise use an ORM CA message followed by an ORM NW message.
PA/CH – See Notes	Same as all of the Order Status values for the SC Order Control type	Add or update child orders if present	Search on PON, FON. Generally used at Invision type environments.
RP/RO or RU/RO – See Notes	RP/NW	Update or Add if not present	Search on PON, FON from RP or RU ORC segment.
SC	NW	Update or Add if not present	Search on PON, FON
SC	CA, DC, HD	Delete if present	Search on PON, FON
SC	SC	Update or Add if not present	Search on PON, FON
SC	IP	Update or Add if not present	Search on PON, FON
SC	A	Ignore	
SC	ER	Delete if present	Search on PON, FON
SC	RP	Update or Add if not present	Search on PON, FON
SN, NA	NW	Ignore	sD at this time will not send a request for a FON or provide one in response to a SN ORM message type. This is needed in Invision type environments with no order intermediary such as SyngoWorkflow

Table 1

Notes:

- In case of PA/CH, multiple orders contained in each ORC segment with order control value CH are cached. FON and PON are generated by concatenating child FON and PON with its parents FON and PON from ORC-8.
- In case of RP/RO or RU/RO, the order contained in each ORC segment with order control value RP/RU will be updated with orders in each ORC segment with order control value RO.
- *syngo*® Dynamics will cache multiple orders contained in a single HL7 ORM message with order control value other

8. sDIS

The document is intended as a Standard Specification to be used when implementing *syngo*® Dynamics with SDIS features. The document specifies the details of HL7 interface messages supported by the sDIS features in *syngo*® Dynamics VA10. The implementation team is advised to refer to other HL7 related documents available at www.hl7.org for further HL7 explanation and knowledge on HL7 Standards. *syngo*® Dynamics VA10 sDIS features require a standard HL7 INTERFACE ENGINE which is capable of converting HL7 messages from one version to another, and has functionality which can add, delete, append , Ignore and convert message segments. The Siemens implementation team and the customer should review this document and interface messages during the early implementation phase to assure that all workflows and messages are addressed and/or rerouted via the interface engine.

syngo® Dynamics VA10 supports HL7 VERSION 2.3.1 and all references made are applicable to HL7 2.3.1 standard.

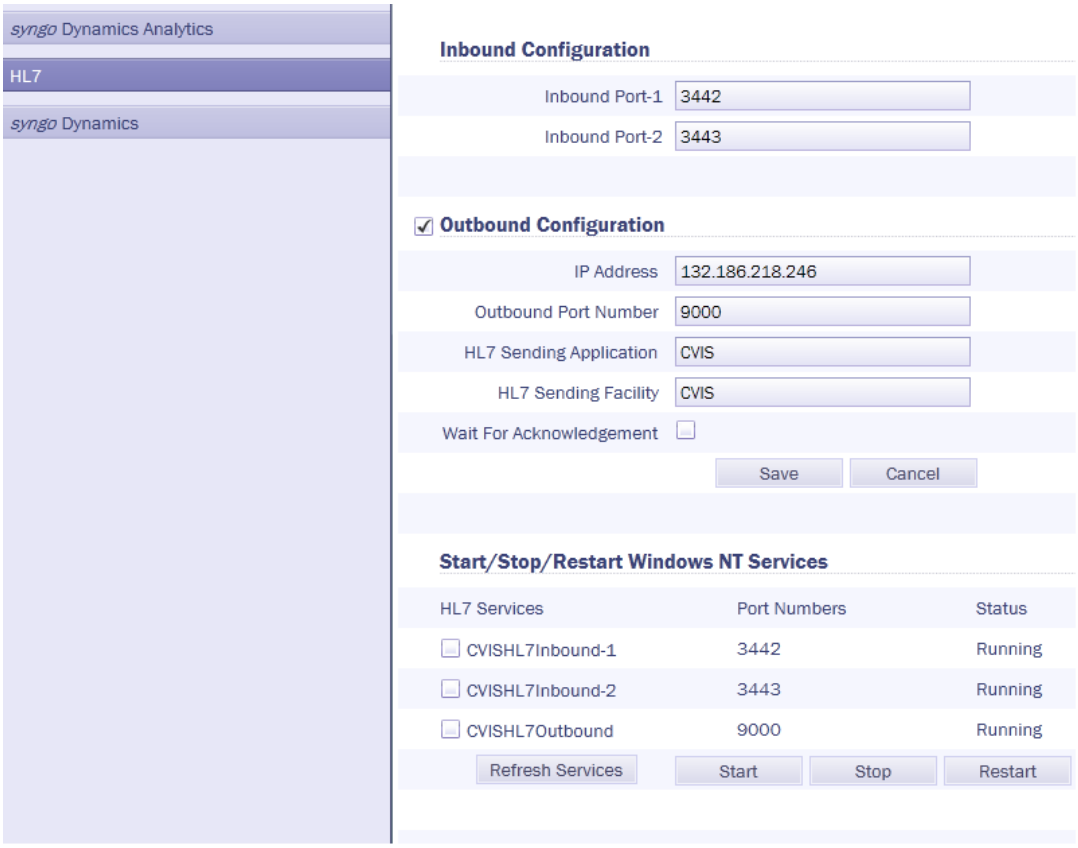
Customers may require a specific solution for ORM to be implemented where SDIS can save the HL7 ORM message, Process and Forward as Outbound with only an addition in Z segment. (Passthrough)

Exclusive Save and forward option available refers only to the HL7 ORM message and the Changes may or may not be incorporated the UI.

If the Interface Engine Supports the Conversion of Appointment Messages to Orders then sDIS can support Converted Orders.

9. Connectivity:

The *syngo*® Dynamics VA10 sDIS features support three Ports:
2 inbound ports can be Used for ADT or ORM (Default and Recommended 3442 and 3443)
1 Outbound port for ORM only Currently (Port No is Configurable)



The Outbound Configuration is only for sending ORMs Currently from the system to the Interface Engine. The attributes that can be configured is as mentioned below.

1) IP address –IP address of the Server
2) Outbound Port
3) Sending Application –Default is sDIS
4) Sending Facility- Default is sDIS
5) Receiving Application- Not Applicable Currently
6) Receiving Facility- Not Applicable Currently
7) Wait for Acknowledgement – if the check box is ticked then all the acknowledgements sent against Outbound ORM will be logged.

Note: In addition to the above the CVIS inbound and Outbound services should be Running.

10. HL7 MESSAGES FOR VA10 sDIS INBOUND

The following are the messages types which are supported in the Current Version

Event	Description	Comments
ADT A01	Admit/Visit notification	
ADT A02	Transfer Patient Location	

Event	Description	Comments
ADT A03	Discharge/end visit	
ADT A04	Register a patient	
ADT A05	Pre-admit a patient	
ADT A08	Update patient information.	If the A08 message is sent to update the demographics the ORM outbound message is sent. If any demographics are updated manually from CVIS the outbound is not sent.
ADT A40	Merge Patient Identifier List	In VA10A A40 message missing the MRG-1-5 field would be ACK'ed with a warning, The message missing the MRG-1-5 is now the same message is ACK'ed with a success.
ADT A41	Account Merge	
ADT A42	Merge Patient Visit	
ORM O-01	New Order, Order Update, Order Cancel or Discontinue.	

Note:
An A39 message can be supported by converting A39 message to A40 message in the interface engine**.**
Note:
HL7 Inbound ORM message can contain the studyUID in its ZDS segment. • This studyUID is used to create a study when a procedure is scheduled • This studyUID is used to update the studyUID for a study in Unscheduled/Scheduled/Arrived state • When Procedure is Ongoing/Completed this studyUID coming from ORM is not used

11. HL7 MESSAGES FOR VA10 sDIS OUTBOUND

Event	Description
ORM O-01	New Order, Order Update, Order Cancel or Discontinue.

12. MESSAGE SEGMENTS

The list specifies the information at each field level. The Fields are categorized into Field, Field Name, Type and Notes. In the Field Type "M" means Mandatory & "O" means optional with respect to sDIS. All of the the "Not Supported Fields" and "save and forward option available" in the below tables are intended to be supported in future versions and currently they are supported

as save and forward option only. The save and forward option in the ORM will store all fields required mandatorily for MWL providers. Currently the EVN Segment is optional.

Save and Forward Option

The system will provide an option to retain and send all data elements /attributes/values from an inbound ORM to Outbound ORM from *syngo*® Dynamics information system.
The HIS or an ordering information system sends an Cardiology Procedure Order via an Interface Engine to *syngo*® Dynamics System. *syngo*® Dynamics updates the order and processes the order .
Once the order is scheduled in the Whiteboard an ORM –O01 is triggered by *syngo*® Dynamics to MWL providers like MLA where modalities can query for the order information.
The Outbound ORM message will match exactly the Inbound ORM message with respect to the fields and the data.

This feature would help where MWL cannot do an HIS verification.

Note: By Default Store and forward feature is not enabled. i.e "UpdateGenericOutboundORM.sql" script will not be executed during installation. Only when facility wants this feature, will this script be executed.

Demonstration Steps:

1. Enable the save and forward option by running the script on the *syngo*® Dynamics server.
    a. To Enable Store and Forward type the following:

       C:\Acuson\KinetDxServer\bin\sDIS_sqlscripts\UpdateGenericOutboundORM.sql <ServereName> TRUE

    b. To Disable Store and Forward type the following:

       C:\Acuson\KinetDxServer\bin\sDIS_sqlscripts\UpdateGenericOutboundORM.sql <ServereName> FALSE

       Where <ServerName> = Microsoft SQL Server hostname

2. Receive an ORM-O01 from HL7 sender application with updated order and demographic information .(For eg Next of KIN details)

3. Check for the order in the WB unscheduled orders

4. Schedule the Order in WB

5. Check the Outbound Log and match with the inbound log

6. Both should match with each other with respect to data fields. The Outbound message contains an additional Z segment with the Study UID.

12.1.1. MSH

FIELD	FIELD NAME	FIELD TYPE	NOTES
MSH1	Separator		|
MSH 2	Encoding Characters		^~\& Supported Currently

MSH 3	Sending Application	O	
MSH 4	Sending Facility	M	The MSH4 is Sending Facility (Configuration) becomes MSH6 Receiving Facility as per Inbound. For outbound ORM it will be vice versa.
MSH 5	Receiving Application	O	Configurable in SDIS
MSH 6	Receiving Facility	O	
MSH 7	Date and Time of Message	O	
MSH 8	Security	O	
MSH 9.1 MSH 9.2	Message Type Trigger Event	M	E.g. ADT A01
MSH 10	Message Control ID	O	Order ID is used as Message control ID in Outbound ORMs from SDIS.
MSH 11	Processing ID	O	No Validation
MSH 12	Version ID	M	2.3.1 Version only Supported. Any other formats will have to convert to the required format via standard Interface engines.

12.1.2. EVN

FIELD	FIELD NAME	FIELD TYPE	NOTES
EVN 1	Event type Code	O	
EVN 2	Recorded Date and Time	O	Date and Time of the Event

PID

FIELD	FIELD NAME	FIELD TYPE	NOTES
PID 2	Patient ID	O	Save and Forward Only.
PID 3.1	Patient Identifier	M	Patient ID –Unique ID assigned by the HIS.. SDIS supports multiple PIDS (MRNs) which are separated by commas. Values Currently Accepted are MRN and MPI .(EMPI or EE SS Needs to mapped to either MR or MPI Only)
PID 3.4	Assigning Authority	M	PID assigner if Type MR. For MPI it can be optional or blank. Note: - If this value is blank for MR TYPE then SDIS will send NACKS to IE.

PID 3.5	Identifier Type	M	MR or MPI .The type needs to be configured under Tab Patient ID mapping in data porting tool Siemens.Cvis.Utilities.DataPorting which will be located in the server path :- C:\Program Files\Siemens\Cvis\bin
PID 4.1	Alternate Patient ID	O	Save and Forward Option available
PID 5 .1	Family +Last Name	O	Anyone Name (PID 5.1 or 5.2) Should be available else the message is Error Logged. For PV1-2(Patient Class:E) The first name or last name is not mandatory
PID 5.2	Given Name	O	Anyone Name(PID 5.1 or 5.2) Should be available else the message is error logged
PID 5.3	Middle Name	O	Save and Forward Option available
PID 5.4	Suffix	O	Save and Forward Option available
PID 5.5	Prefix	O	Save and Forward Option available
PID 6	Mother's Maiden Name	O	Save and Forward Option available
PID 7.1	Date of Birth	O	Not mandatory field. If PID 7.1 is null, default value 1900/01/01) will be the DOB of the patient (YYMMMMDD)
PID 8	Gender	O	If no value is sent, the gender is updated as unknown. Supported are M,F,U and B .B is not recognized as standard HL7 defined Gender and it will updated as "Unknown "or "ambiguous" in UI
PID 9.1	Alias Last Name	O	UI will display the entire alias name in a single field separated by Comma.(ln,mn,fn)
PID 9.2	Alias Given Name	O	UI will display the entire alias name in a single field separated by Comma.
PID 9.3	Alias Middle Name	O	UI will display the entire alias name in a single field separated by Comma.

PID 10.1	Race	O	All Supported DDI Should be Part of the Configuration .Users is Advised to create the Same Abbreviation as used in the IE. Also there is an option to edit the Factory Default Abbreviation
PID 11.1 to 6	Patient Address	O	Street Address, Other Designation, City, State, ZIP and Country are Supported Each Value needs to separated by ^ and “&” needs to be replace by \T\(Escape)
PID 13.1	Home Tel No	O	Save and Forward Option Available
PID 14.1	Business Tel no	O	Save and Forward Option Available
PID 13.5,6,7	Telephone No - HOME	O	Supports up to 20 Char .SDIS Checks first this field and then 13.1
PID 14.5,6,7	Telephone No - Office	O	Supports up to 20 Char Checks first this field and then 14.1
PID 15.1	Language	O	All Supported DDI Should be Part of the Configuration .Users are advised to create the Same Abbreviation as used in the IE. Additionally users are allowed to edit DDI abbreviation in SDIS
PID 16.1	Marital status	O	All Supported DDI Should be Part of the Configuration .Users are Advised to create the Same Abbreviation as used in the IE Also there is an option to edit the Factory Default Abbreviation
PID 17.1	Religion	O	All Supported DDI Should be Part of the Configuration .Users are Advised to create the Same Abbreviation as used in the IE Also there is an option to edit the Factory Default Abbreviation
PID 18.1	Account Number	O	Unique Account Number
PID 19	SSN Number	O	Alternate ID Supported
PID 20	Driving License	O	Alternate ID Supported
PID 21	Mothers Identifier	O	Supported as Save and Forward Option.

PID 22	Ethnic Group	O	All Supported DDI Should be Part of the Configuration .Users are Advised to create the Same Abbreviation as used in the IE. Also there is an option to edit the Factory Default Abbreviation
PID 23	Birth Place	O	Save and Forward Option available
PID 24	Multiple Birth Indicator	O	Save and Forward Option available
PID 25	Birth Order	O	Save and Forward Option available
PID 26	Citizenship	O	Save and Forward Option available
PID 27	Veterans Military Status	O	Save and Forward Option available
PID 28	Nationality	O	Save and Forward Option available
PID 29	Patient Death Date and Time	O	Save and Forward Option available
PID 30	Patient Death Indicator	O	Save and Forward Option available

12.1.3. PV1

FIELD	FIELD NAME	FIELD TYPE	NOTES
PV 1-2	Patient Class	M	Only I, O, P and E Classes are Supported. Other Classes are also honored and treated as a separate class “Other” in SDIS. All outbound ORMs will be sent with the same class as received.
PV 1-3.1,2,3	Assigned Patient Location	O	POC, Room and Bed Format Supported
PV 1-4	Admission Type	O	SDIS expects the Patient Class only and not the type .Save and Forward Option Available
PV1 -5	Pre-admit No	O	Save and Forward Option Available
PV1-6.1,2,3	Prior Patient Location	O	POC, Room and Bed Supported –Will be replaced by PV1-3.1 for A02 message
PV 1-7	Attending Doctor	O	Save and forward option available
PV 1-8	Referring Doctor	O	Tool available to import physicians into SDIS. (See sDIS user guide for further details). Performing and admitting

			doctors should be part of referring doctors import list.
PV 1 -9	Consulting Doctor	O	Save and Forward Option Available
PV 1-10	Hospital Service	O	Departments Like Cardiology, EP, Cath.
PV1-14	Admit Source	O	Save and Forward Option Available
PV1-15.1	Ambulatory Status	O	All Supported DDI Should be Part of the Configuration .Users are Advised to create the Same Abbreviation as used in the IE
PV1-16	VIP Indicator	O	Y (1),N (0) Supported
PV1-17.1,2	Admitting Doctor	O	Supported
PV1-18	Patient Type	O	Save and Forward Option Available
PV 1-19	Visit Number	M	Unique Visit ID as received by the Placer Application (HIS). 19.1 SDIS Retains Visit Number and Sends the same as outbound. For 19.2 –Default value is 1 19.3 –AA Should be same as PID AA or Blank .if different the procedure cannot scheduled in WB.
PV 1-19.4	Visit Assigning Authority	M	SDIS expects the value to be similar to PID AA and if different Needs to be Negotiated with SDIS. Save and Forward Option Available
PV1-20.1	Financial Class	O	Save and Forward Option Available
PV1 -44	Admit Date	M	Date of Admission of the Patient Supported. If the Value is absent then Error is Logged
PV1-45	Discharge Date	O	Mandatory only for A03 (Discharge) Message ,else will log error and send positive Ack.

12.1.4. ORM

FIELD	FIELD NAME	FIELD TYPE	NOTES
ORC 1	Order Control	M	Only NW, CA, RP and DC, SC Supported. Any other Order control needs to

			converted or mapped to the Above types by the interface engine.
ORC 2	Placer Order Number (PON)	M	The Placer Order Number is referenced by a unique Filling Order Number (FON) Which is directly mapped to the Study UID generated by *syngo* Dynamics. The Same Filler ID is used as PON for Outbound ORMS from SDIS. Mandatory only for Inbound.
ORC 3	Filler Order ID	M	For Outbound Only. SDIS will retain the FON if send by the placer and send as it is in outbound ORM for IMC and Deprecated for GA. If no FON is sent SDIS will update with new FON number.
ORC 5	Order Status	O	Save and Forward Option Available
ORC 7	Quantity and Timing		Day only is supported in ORC 7.4 and in Outbound ORM the Exact day and time is sent. ORC 7.6 priority Supported as save and forward option available
ORC 12	Order Provider Name	O	SDIS will check OBR 16 first and if no value then the Value in ORC 12.
OBR -1	Observation Request ID	O	Save and Forward Option Available
OBR-2.1	Placer Order Number	M	Unique Order ID generated by HIS (Placer Application). OBR2 or ORC2 either one is mandatory, not both fields.OBR2 is checked first and then ORC 2.If the Value is absent then sDIS will error log and Send Pos ACK.
OBR -3.1	Filler Order Number	O	SDIS to retain id (accession number) sent by HIS/ RIS/inbound. Same value will be sent back IN ORM Outbound. (16 Character Restriction)

OBR -4 4.1 –Identifier 4.2 –Text 4.3 – Name of the Coding System	Universal Service ID	M (Only 4.1)	Procedure types are sent here. Only the procedure types which are mapped to factory defaults via procedure mapping tool will be processed .If not Pos Ack is sent and error is logged in SDIS. Any new Procedure created needs to be uploaded via procedure mapping tool to SDIS. 4.1 = sDIS Procedure Type 4.2 = HIS Procedure Code
OBR 5	Priority	O	If no priority is sent then the value is set to elective. No NACKS will be sent
OBR 6	Requested Date and time	O	If no date and time is sent then the value is set to current day and time No NACKS will be sent. Request date should be within next 12 months.
OBR 7	Observation Date and Time	M	If requested time is null, the observation time is taken. No NACKS will be sent
OBR 16	Order Provider Name	O	SDIS will check OBR 16 first and if no value then the Value in ORC 12.
OBR 18	Placer Field 1	O	Custom Field-**Not Supported**
OBR 19	Placer field 2	O	Custom Field-**Not Supported**
OBR 27.4	Start Date and Time	O	Not Supported. Available only for outbound ORM
OBR 27.6	Priority	O	Save and Forward Option Available
OBR 44	Procedure Code	O	Save and Forward Option Available
OBR 45	Procedure Code Modifier	O	Save and Forward Option Available

12.1.5. MRG

FIELD	FIELD NAME	FIELD TYPE	NOTES
MRG 1.1	Source Patient ID	M	Destination Patient Info is same as PID segment
MRG 1.4	Assigning Authority	M	PID assigning Authority. Mandatory only if the MRG1.5 value is ‘MR’.

MRG 1.5	Identifier Code	M	MR or MPI
MRG 1.6	Assigning Facility	O	
MRG 3 .1	Prior Patient Account Number	M	Only FOR A41
MRG 5.1	Prior Patient Visit Number	M	Only for A42

DG1

FIELD	FIELD NAME	FIELD TYPE	NOTES
DG 1.3.2	Diagnosis Code Text	O	Only the Description or Text is supported and other attributes of diagnosis are ignored.
DG 1.4	Diagnosis Description	O	Supported

12.1.6. AL1

FIELD	FIELD NAME	FIELD TYPE	NOTES
AL 1.3	Allergy Code ,Mnemonic or Description	O	Currently only Text is supported and other attributes are ignored by SDIS

12.1.7. NK1

FIELD	FIELD NAME	FIELD TYPE	NOTES
NK 1.1	ID	O	Supported
NK 1.2	Name	O	Supported
NK 1.3	Relationship	O	Supported
NK 1.4	Address	O	Supported
NK 1.5	Phone No	O	Supported
NK 1.6	Business Phone No	O	Supported

12.1.8. ZDS (Customized Segment)

FIELD	FIELD NAME	FIELD TYPE	NOTES
ZDS 1	Study ID	O	Only for ORM outbound only if it's Scheduled. The field is mandatory for all outbound ORMs from SDIS.

Note: - If the Mandatory Fields are absent in the message then the system sends NACKS or Positive ACKs based on the sanity check .Its advised to configure the Interface Engine appropriately to receive or to ignore NACKS.

syngo® Dynamics VA10 does not natively support SIU (Scheduling Messages) , However if the interface engine is capable of converting SIU messages to ORM O01, *syngo*® Dynamics Information System will accept and process the ORM message. Outbound ORM updates can be used to update the SIU status in Interface Engine, if the interface engine can support this capability.

13. Appendix A - Sample sDIS HL7 Messages

13.1.1. Sample ORM-O01 Message

MSH|^~\&|7EDIT|HL7EDIT|SDIS|SIEMENS|20110826160426||ORM^O01|MSGID200205122028|
P|2.3.1
PID|||PS4234241^^^CVIS^MR||Donald^Duck^^^Mr.||20110826160411|M|||123 West
St.^^MICHIGAN^CO^80020^USA||2498652892|2304972374||||
PV1||O|OP^20A^||||2342^Jones^Bob|||CAR||||||||239668^^^CVIS|||||||||||||||||||||||||20110826160426|
ORC|NW|2010825122028
OBR|1|20110825160426||003038^AdultEcho^L|Elective|20110826160358|20110826160404|||||||||
||||||||||

Sample ADT-A01 Message
MSH|^~\&|7edit|1|||20110826110607||ADT^A01|599102|P|2.3.1|||ER|AL|20110825095518|||||
EVN|A01|200708181123|
PID|1||10016604^^^CVIS^MR^1||Dido^Bear^D||19391010|M||1|111 Helm
ST^^NoMansland^CA^54321^^P|1|88853451212|8885551212|1|2||4047716^^^7edit^VN^1|12356
1234||||||||||N
PV1|1|I|PREOP^101^1^1^^^S|3|||37^Mickey Mouse (AT)^^^^^^7edit^^^^CI|33337^ Mickey Mouse
(R)||CAR||||1|||37^ Micky Mouse
(ADM))^^^^^^7edit^^^^CI|2|41047334^^^CVIS^VN|4||||||||||||||||||1||G|||20110826115152|20110826
115156|||||
DG1|1|I9|71596^CMP ^I9|CMP ||A|

13.1.2. Sample ADT –A40 Message (Merge Identifier)

MSH|^~\&||Test lab^00D0000000^GUID|
ELR|DOH|20061101102700||ADT^A40|2006280000002|T|2.3.1|
EVN|A40|20061101102700|
PID|||PID0700^5^M11^ADT1^MR^GOOD HEALTH
HOSPITAL|Road^^City^State^DI^^M||^^^^^123^5551212|^^^^^123^5551213|||||345678901|||U|P
V1||N||U|||20090223150551|5101^KELL^DON ^P^^DR|A|PUL||A|R|4|B4~A8|A|A|A|V105-
1^^^ADT1|A|A|A|A|A|||A|A||A|||A||04|A|A|A|H|A|||200008161300||||||TAX|V|A|
MRG|PID0701^5^M11^ADT1^MR^GOOD HEALTH HOSPITAL

13.1.3. SAMPLE MESSAGE WITH Z Segment

The ZDS segment is used to send the study UID in all of the outbound ORMs from SDIS. The study UID is required for the Modality Work List.
Inbound Z segments are not supported currently. If any other miscellaneous info needs to be supported then SDIS needs a mutual understanding between the interface Engine and sDIS

MSH|^~\&|sDIS|sDIS|||20110906143321||ORM^O01^ORM_O01|ORD0000000003691|P|2.3.1
PID|||PAT0000000003379^^^^MR||Donald^Duck||190101010012|U
PV1||E|||||||||||||||VIS0000000003390
ORC|RP||sDIS_00000003720^^sDIS_00000003720||SC||^^^201109062130^^Emergency|||||^^ad
ministra|||201109062130

OBR|||sDIS_00000003720^^sDIS_00000003720|Biopsy US^Biopsy US|Emergency||201109062130||||||||||||US||||||^^^201109062130^^Emergency
ZDS|1.3.12.2.1107.5.8.11.104110162960070568.634509161808692986

13.1.4. SAMPLE ACK AND NACK MESSAGES

ACK –ACK messages are sent when the message is successfully received. An ACK does not guarantee that a message will be fully processed (e.g. a duplicate ADT^A01 may return an ACK but may not be fully processed).
MSH|^~\&||GOOD HEALTH HOSPITAL|sDIS|sDIS|201109021104||ACK^O01^ORM_O01|ORD0000000002056|P|2.3.1
MSA|AA|ORD0000000002056

NACK –NACK messages are sent when the message is not valid HL7 or mandatory data is missing or invalid.
MSH|^~\&||GOOD HEALTH HOSPITAL|sDIS|sDIS|201109021104||ACK^O01^ORM_O01|ORD0000000002056|P|2.5
MSA|AE| Invalid Version

Sample ACK or NACK sent by SDIS
<Entry>
<TimeReceived>10/27/2011 12:23:13 PM</ TimeReceived >
<Message>Exactly as received</Message>
<Ack>Exact text sent</Ack>
<Reply>ACK/NACK</Reply>
<Status>provide WARNING/FAILURE/SUCCESS based on SDIS processing result </Status>
<Comments>Reason for failure; warning</Comments>
<TimeProcessed >10/27/2011 12:23:15 PM</ TimeProcessed >
</Entry>

13.2. NACK Scenarios currently handled by sDIS

Message	Segment & Field	Message issue/scenario	Expected Behavior	Reason for NACK & Additional Info
General		HL7 Version Number Mismatch	NACK	Sanity Check
General		HL7 Format is not proper	NACK	Sanity Check
All	PID 3.5	PID 3 segment does not contain MR or MPI number	NACK	Cannot identify/create the patient
All	PID 3	Patient Identifier(PID 3) is missing	NACK	Cannot identify/create the patient
ADT	PV1.19	Visit Number is missing	NACK	Cannot identify/create the Visit uniquely

ADT	PV1.44	Date of Admission is missing	NACK	Not able to create the Visit without the Admission Date
ADT	PV1.2	Visit type is not mentioned or not handled	NACK	I, E, O, P is handled by the sDIS. sDIS supports the business logic only for above admission types.
ADT	PID 5	Both Patient Last name and First name is empty	NACK (Only for Non-Emergence Patient)	For Non emergency Patient, at least one of the names need to be present there. For emergency patient both names are optional
ADT	PID 7	Date of Birth Cannot be in future	NACK	
ORM (All)	OBR2	Order Placer Number is missing	NACK	Cannot create/identify order without the ID
ORM (All)	OBR 4.2	Requested Procedure is not supported	ACK	Unknown procedure s cannot be scheduled in WB. If the Procedure is not available in mapping table then positive ACK is sent and the error is logged in the system.
ORM (All)	ORC 1	Requested Order Control is Not supported	NACK	Order Control is not RP, NW, cancel, DL. No business logic for handling other than RP, NW, cancel, DL
ORM (All)	OBR 4.2	Procedure Type is Missing	NACK	Cannot create Procedure without procedure Type
Merge - All	PID 3	Patient ID type is neither MPI nor the MRN	NACK	Not supporting other ID types
Merge - A40	MRG1	Patient ID type is neither MPI nor the MRN	NACK	Not supporting other ID types
Merge - A41	PID 18	Target patient Account Number is missing	NACK	Not able to identify the account to do the account merge
Merge - A41	MRG 3	Source Patient Account Number is missing	NACK	Not able to identify the account to do the account merge
Merge - A42	PV1 19	Target patient Visit Number is missing	NACK	Not able to identify the visit to do the visit merge
Merge - A42	MRG 5	Source Patient Visit Number is missing	NACK	Not able to identify the visit to do the visit merge
ORM	Enable /Disable	Option to Configure Outbound ORM	Y/N	SDIS will provide a feature to Disable and Enable ORM outbound from SDIS.

ORM (RP, Cancel)	OBR 2	Order with the given Placer Number is not found in the system (RP)	ACK, Do not Process; log error	Send ACK & log. Do not process
ORM (All)	OBR 6	Orders can be placed only for 12 months in future	ACK	Send ACK; Do not process; Log error if Order date is beyond 12 months.
ADT	PV1.19.4	Assigning Authority is not provided for the Visit	ACK	AA is expected when type is MRN. SD integration requires AA for creating Study (Under discussion)
ADT	PID 7.1	DOB missing	ACK	Accept & Process even if the DOB is missing
A03	PV1 19	Visit ID missing	ACK	Accept and Process and log error
ORM – O01		Repeat ORMs	ACK	Process and Log Error

Appendix B – sDIS validations

The following table indicates the types of field, number of characters supported, and its type and the necessary validations in sDIS.

Patient Admission and Jacket:

		DB Field Data Type		Is Nullable (Y/N)?	Validations
	CVIS Field	SDIS	SDIS	SDIS	SDIS
Patient Information					
	Identifiers				
	- Internal	int		N	(Autogenerated ID)
	- MR - AA	nvarchar	64	Y	At least one MRN-AA should be present for HL7 patient
	- MPI	nvarchar	64	Y	No validations

	- DL	nvarchar	64	Y	No validations
	- SSN	nvarchar	64	Y	No validations
	- National Identifier	nvarchar	64	Y	No validations
	- Passport number	nvarchar	64	Y	No validations
	Name				
	- FirstName	nvarchar	64	N	Mandatory in UI, Auto populated for Emergency Patients Shall be Mandatory in Patient admission screen; optional in Patient Jacket.
	- LastName	nvarchar	64	N	Mandatory in UI, Auto populated for Emergency Patients Shall be Mandatory in Patient admission screen; optional in Patient Jacket.
	- Prefix	nvarchar	64	Y	No validations
	- Suffix	nvarchar	64	Y	No validations
	Date Of Birth	date	10	Y	Mandatory in UI, Auto populated for Emergency Patients Age has to be less than 150 years. Shall be Mandatory in Patient admission screen; optional in Patient Jacket.
	Gender	tinyint	16	N	Mandatory in UI, Auto populated for Emergency Patients Possible values: Male/Female/Unknown/Other Shall be Mandatory in Patient admission screen; optional in Patient Jacket.
Study Information					
	Study Instance Uid	nvarchar	64	N	No validations
	Study Description	nvarchar	64	Y	No validations
	Study Status	nvarchar	1	Y	No validations
	No. Of Images	int		Y	No validations

	No. Of Reports	int		Y	No validations
	Study Date	Date		Y	No validations
	Study Time	Time(0)		Y	No validations
	Accession number	nvarchar	16	Y	No validations
	Has Scanned Docs	bit		N	No validations
	Server	varchar	64	N	No validations
	Department	nvarchar	64	N	No validations
	Study Type	nvarchar	64	Y	No validations
	Xml Bolus	text		Y	No validations
	Report Uid	varchar	64	N	No validations
	Report Status	nvarchar	40	N	No validations
	Report PDF	image		N	No validations
	Modalities	nvarchar	16	N	Entry should be available in Modalities table
Procedure Information					
	Procedure ID	nvarchar		N	(Auto generated)
	Arrived Date Time	datetime		Y	No validations
	Actual Start Date time	datetime		Y	No validations
	Completed Date Time	datetime		Y	No validations
	Cancelled Date Time	datetime		Y	No validations
Address Info					
	Street	nvarchar	40	Y	No validations
	OtherDetails	nvarchar	40	Y	No validations
	Zip	nvarchar	10	Y	No validations
	City	nvarchar	20	Y	No validations
	Country	nvarchar	64	Y	No validations
	PrimaryPhone	varchar	20	Y	No validations
	OtherPhone	varchar	20	Y	No validations
	State	nvarchar	20	Y	No validations

User Information:

	CVIS Field	DB Field Data Type SDIS	Field Size SDIS	Is Nullable (Y/N)? SDIS
User				
	UserName	nvarchar	64	N

	Password	nvarchar	20	Y
	City	nvarchar	50	Y
	Email	varchar	80	Y
	Fax1	varchar	50	Y
	FirstName	nvarchar	64	Y
	LastName	nvarchar	64	Y
	MiddleName	nvarchar	64	Y
	Address1	nvarchar	40	Y
	Address2	nvarchar	40	Y
	Prefix	nvarchar	64	Y
	Suffix	nvarchar	64	Y
	State	nvarchar	20	Y
	Zip	nvarchar	10	Y
	Title	nvarchar	64	Y
	PhoneNumber	varchar	20	Y
	Fax2	varchar	50	Y
	FaxLocation1	nvarchar	40	Y
	FaxLocation2	nvarchar	40	Y
	Pager	nvarchar	20	Y
	Clinic	nvarchar	64	y
	Comment	nvarchar	120	y
	Country	nvarchar	64	y
	Country_Id	int		
	Speciality	nvarchar	50	
	NationalProviderIdentification	nvarchar	50	
	StaffEmployeeID	nvarchar	50	

Clinical Information: Field Character validations are available onscreen also and text fields are limited to 255 characters.

	SDIS Field	**Validations**
		CVIS
Clinical History	Hypertension	
	Dyslipidemia	
	FamilyHistoryofPrematureCAD	
	CurrentOrRecentTobaccoUse	
	HistoryOfCongestiveCardiacFailure	
	PreviousMyocardialInfarction	
	CerebroVascularDisease	
	PheripheralArteryDisease	

	ChronicRenalFailure	
	ChronicLungDisease	
	CurrentlyOnDialysis	
	ValvularHeartDisease	
	CongenitalHeartDisease	
	PericardialDisease	
	MyocardialDisease	
	HistoryOfArrhythmias	
	PreviousPCI_Done	
	PreviousPCI_Date	
	PreviousCABG_Done	
	PreviousCABG_Date	
	PriorValveSurgeryProcedure_Done	
	PriorValveSurgeryProcedure_Date	
	DiabetesMellitus	
	StabilityofChestPainSymptoms_Id	
	StabilityofChestPainSymptoms	255 characters
	NYHAFunctionalClass	
	Allergy	255 characters
	PrematureBirth	
	PriorCardiacCatheterizations_Done	
	PriorCardiacCatheterizations_NumberOfPriors	UI will have a validation
	PriorCardiacCatheterizations_DateOfLastCath	
	PriorCardiacSurgeries_Done	
	PriorCardiacSurgeries_NumberOfPriors	UI will have a validation
	PriorCardiacSurgeries_DateOfLastCath	
	CoagulationDisorders_Present	
	CoagulationDisorders_Type	
	HepaticDisease	
	RenalInsuffiency	
	SeizureDisorder	
	SickleCellAnemia	

	SingleVentricle	
	Stroke	
	HistoryOfRepRespTrackInfections	
	Sepsis	
	CyanoticSpells	
	NecrotizingEntrocolitis	
	NormalGrowthAndDevelopment	
	Breathlessness	
	GCC22q11DeletionDiGeorgeSyndrome	
	GCCAlagilleSyndrome	
	GCCCongenitalDiaphragmaticHernia	
	GCCDownSyndrome	
	GCCHeterotaxy	
	GCCMarfanSyndrome	
	GCCNoonanSyndrome	
	GCCRubella	
	GCCTrisomy13	
	GCCTrisomy18	
	GCCTurnerSyndrome	
	GCCWilliamsBeurenSyndrome	
Current Modifications	DrugName	50 Characters
	Dosage	total 9digits with 3 decimals
	DosageUnit	50 Characters
	Route	
	Administration	
Lab Results	BUN	0 - 1000 (No Decimal option)
	SrCreatinine	0 - 100 (2 decimal option)
	PT	0 - 1000 (2 decimal option)
	PTT	0 - 1000 (2 decimal option)
	INR	0 - 100 (2 decimal option)
	ACT	0 - 1000 (2 decimal option)

	Platelets	1 - 10000 (No Decimal option)
	Hb	0 - 100 (2 decimal option)
	Hct	0 - 100 (2 decimal option)
	CKMB	0 - 1000 (2 decimal option)
	TroponinI	0 - 100 (2 decimal option)
	TroponinT	0 - 100 (2 decimal option)
	SrPotassium	0 - 100 (2 decimal option)
	O2Saturation	0 - 100 (No Decimal option)
	WBC	0 - 1000 (2 decimal option)
	RandomBloodSugar	0 - 1000 (No Decimal option)
Clinical Status	HeightIncm	10 - 304.8 (2 decimal option)
	WeightInkg	1 - 1000 (2 decimal option)
	PregnancyStatus	
Cardiac Investigations	**Stress ECG (Tread Mill Test)**	
	StressECG_EvidenceOfIschemia	
	StressECG_Assessment	255 characters
	Baseline ECG	
	BaselineECG_EvidenceOfIschemia	
	BaselineECG_Rhythm	255 characters
	BaselineECG_Rhythm_Id	
	BaselineECG_AdditionalFindings	255 characters
	Stress ECHO	
	StressEcho_EvidenceOfIschemia	
	StressEcho_Assessment	255 characters

	Cardiac MR Scan / Stress CMR	
	CardiacMRScan_Assessment	255 characters
	Transthoracic ECHO	
	TransthoracicEcho_EvidenceOfIschemia	
	TransthoracicEcho_RestingLVSystolicFunction_Id	
	TransthoracicEcho_RestingLVSystolicFunction	255 characters
	TransthoracicEcho_Assessment	255 characters
	CCTA	
	CCTA_Assessment	255 characters
	CCTA_CoronaryCalciumScore	
	Vascular Ultrasound Study	
	VascularUltrasoundStudy_Assessment	255 characters
	Transoesophageal ECHO	
	TransoesophagealEcho_Assessment	255 characters
	Stress SPECT / PET Scan	
	StressSPECTPETScan_EvidenceOfIschemia	
	StressSPECTPETScan_LVEF	0 - 100 (No decimal option)
	StressSPECTPETScan_ViableMyocardium	
	SPECTPETScan_Assessment	255 characters
	Cardiac CT Scan	
	CCTA_Assessment	255 characters
	Cardiac MR Scan	
	CardiacMRScan_Assessment	255 characters
	Holter ECG	
	HolterMonitor_Assessment	255 characters

Appendix B – Configuration files for ADT/ORM option

These files are only used for the ADT or ORM reconciliation options and are not used by the sDIS option.

Two xml configuration files can be located on the *syngo*® Dynamics server at F:\Acuson\Configuration\HL7Cache

The first file HL7CacheConfiguration.xml contains the list of ADT messages we will listen for. To prevent *syngo*® Dynamics from receiving one of these message types you must remove its entry from this file and restart the ADT Cache Manager service.

```
<HL7CacheConfig>
<Version>4.0</Version>
<Enable>True</Enable>
<EnterpriseAssigningAuthority>MPI</EnterpriseAssigningAuthority>
<PIDTypeBlackList>SS</PIDTypeBlackList>
<ADTCacheConfig>
<Enable>True</Enable>
<TCPPort>8000</TCPPort>
<PurgeTimerInterval>86400000</PurgeTimerInterval>
<CacheDays>3</CacheDays>
 <SupportedADTMessages>
<ADTMessage>ADT^A01</ADTMessage>
<ADTMessage>ADT^A02</ADTMessage>
<ADTMessage>ADT^A04</ADTMessage>
<ADTMessage>ADT^A06</ADTMessage>
<ADTMessage>ADT^A07</ADTMessage>
<ADTMessage>ADT^A08</ADTMessage>
<ADTMessage>ADT^A18</ADTMessage>
<ADTMessage>ADT^A34</ADTMessage>
<ADTMessage>ADT^A36</ADTMessage>
<ADTMessage>ADT^A40</ADTMessage>
<ADTMessage>ADT^A47</ADTMessage>
  </SupportedADTMessages>
<ADTReconciliationRules>
<ADTReconciliationRule Matches="Site ID,Patient ID,First Name,Last Name,Date
   of Birth" Enabled="true" />
<ADTReconciliationRule Matches="Site ID,Patient ID,First Initial,Last Name"
   Enabled="true" />
<ADTReconciliationRule Matches="Site ID,Patient ID,Date of Birth" Enabled="true"
   />
<ADTReconciliationRule Matches="Site ID,Patient ID" Enabled="true" />
<ADTReconciliationRule Matches="Patient ID,First Name,Last Name,Date of Birth"
   Enabled="true" />
<ADTReconciliationRule Matches="First Initial,Last Name,Date of Birth,"
   Enabled="true" />
<ADTReconciliationRule Matches="First Initial,Last Name" Enabled="true" />
<ADTReconciliationRule Matches="Master Patient Index must exist in successful
   match" Enabled="true" />
```

```
    </ADTReconciliationRules>
    </ADTCacheConfig>
<ORMCacheConfig>
    </HL7CacheConfig>
```

The second file is the HL7SegmentMapping.xml file which contains the mapping info for each item we accept. This file is not intended to be modified. This information is presented for your reference only.

```
- <HL7MessageMapping xmlns:xs="http://www.w3.org/2001/XMLSchema"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" Version="1.0"
    xsi:schemaLocation="syngoDynamics
    Z:\Server\Implementation\HL7MessageParser\Schemas\MessageDefinitio
    n.xsd" xmlns="syngoDynamics">
  <Platform />
  <PlatformVersions />
  <ObservationIDFieldPath>3</ObservationIDFieldPath>
- <SegmentDefinitions>
- <NonOBXSegment>
  <SegmentName>PID</SegmentName>
- <MappedFields>
  <ValueFieldPath>3</ValueFieldPath>
  <sDxName>PatientIDList</sDxName>
  <IsTableValue>false</IsTableValue>
  <DefaultUnits>unitless</DefaultUnits>
  <DataType>Text</DataType>
  <Description>MRN_PatientIDList</Description>
    </MappedFields>
- <MappedFields>
  <ValueFieldPath>3.1</ValueFieldPath>
  <sDxName>PatientID</sDxName>
  <IsTableValue>false</IsTableValue>
  <DefaultUnits>unitless</DefaultUnits>
  <DataType>Text</DataType>
  <Description>MRN_PatientID</Description>
    </MappedFields>
- <MappedFields>
  <ValueFieldPath>3.4</ValueFieldPath>
  <sDxName>SiteID</sDxName>
  <IsTableValue>false</IsTableValue>
  <DefaultUnits>unitless</DefaultUnits>
  <DataType>Text</DataType>
  <Description>MRN_SiteID</Description>
    </MappedFields>
- <MappedFields>
  <ValueFieldPath>3.5</ValueFieldPath>
  <sDxName>PIDType</sDxName>
  <IsTableValue>false</IsTableValue>
  <DefaultUnits>unitless</DefaultUnits>
  <DataType>Text</DataType>
  <Description>MRN_Type</Description>
    </MappedFields>
- <MappedFields>
  <ValueFieldPath>5</ValueFieldPath>
```

```
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