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HL7 Version 2.5 To HDR 7.0 / HL7 Version 3.0 Message Mappings

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HL7 Version 2.5 To HDR/ HL7 v3.0 Message Mappings

The following slides:

- List the messages that were mapped in the HDR 7.0 Release
- Describe the methodology used for mapping HL7 v2.5 messages to HDR v7.0 messages, which are based on HL7 version 3.0
- Provide a thorough description of the mapping spreadsheets.
  - Illustrate a sample (ADT_A01) HL7 version 2.5 message structure
  - Describe the format and layout of the mapping spreadsheet
  - Describe how unmapped elements are labeled in the spreadsheet
  - Describe where mapping tips are documented in the spreadsheet
- Provide guidelines on how to use the message mappings

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Background Information - HL7 v2.5 Message Structure

HL7 v2.5 messages are hierarchically structured, as described below

<u>Message</u> - Unit of data transferred between systems
Example: Admit Visit Notification (A01)

<u>Segment</u> - Logical grouping of data fields within a message
A group of segments constitute a message
Example: Patient Identification segment (PID), Patient Visit segment (PV1) etc.

<u>Field</u> - Building blocks of segments
Example: In PID Segment -Patient Name, Patient Address, Phone Numbers etc.

<u>HL7 Data Type</u> - One or more simple or complex data types constitute a field
Example: PatientName (XPN) consists of 23 simple and complex data types

Commonality:
- **Segments** are widely reused across messages
<u>Examples:</u>
MSH and SFT segments are common across all messages.
Most of the 60+ ADT messages share common segments in different combinations
Patient Identification (PID) segment is used across ADT and ORU group of messages

- **Fields** and **Data** types are widely reused across segments
<u>Examples:</u>
Addresses (AD, XAD), Phone Numbers (XTN), Religion (CE), Race (CE)
widely reused in PID, NK1, GT1 segments of ADT messages

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Background Information – HL7 v2.5 Message Structure - Example

Message = ADT A01

Segment = PV1

Field = Attending Doctor

Data Type = XCN

Component = ID Number

Admit Visit Notification (A01) -Segments	
MSH	Message Header
[{ SFT }]	Software Segment
EVN	EventType
PID	Patient Identification
[PD1]	Additional Demographics
[{ ROL }	]Role
[{ NK1}]	Next of Kin / Associated Parties
PV1	**Patient Visit**
[PV2]	Patient Visit -Additional Info.
[{ ROL }]	Role
[{ DB1 }]	Disability Information
[{ OBX }]	Observation/Result
[{ AL1 }]	Allergy Information
[{ DG1 }]	Diagnosis Information
[DRG]	Diagnosis Related Group
[{	--- PROCEDURE begin
PR1	Procedures
[{ ROL }]	Role
}]	--- PROCEDURE end
[{ GT1 }]	Guarantor
[{	--- INSURANCE begin
IN1	Insurance
[IN2]	Insurance Additional Info.
[{ IN3 }]	Insurance Additional Info -Cert.
[{ ROL }]	Role
}]	--- INSURANCE end
[	ACC]Accident Information
[UB1]	Universal Bill 92 Information
[UB2]	Universal Bill 92 Information
[PDA]	Patient Death and Autopsy

AutopsyPatient Visit (PV1) –Fields	
Set ID – PV1	SI
…	
Assigned Patient Location	PL
Admission Type	IS
Preadmit Number	CX
Prior Patient Loction	PL
Attending Doctor	**XCN**
Referring Doctor	XCN
…	
Ambulatory Status	IS
VIP Indicator	IS
..	
Admid Date/Time	TS
Discharge Date/Time	TS
…	
(Total 52 fields)	

XCN (Extended comosite ID number and anme for Persons) - Components	
ID number	ST
Family Name	**FN**
Given Name	ST
Second and father Given Names	ST
suffix (e.g JR or III)	ST
Prefix (e.g. DR)	ST
Degree (e.g., MD)	IS
Source Table	IS
…	
…	
…	
(Total 23 components)	

Data Type = FN

Sub-component = Surname

FN (Family Name) - Sub-components	
Surname	ST
Own Surname Prefix	ST
Own Surname	ST
Surname Prefix From Partner/Spouse	ST
Surnme from Partner/Spouse	ST

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Mapping Methodology

The methodology used in creating the mappings was to import an HL7 v2.5 message into a hierarchical structure within the spreadsheet.

As the mapping is constructed, a corresponding HL7 version 3.0 hierarchical structure was then created, as a result of performing the mapping to a HDR / HL7 v3.0 message structure.

You will notice that the granularity of the HDR/ HL7 v3.0 structures are more detailed and have a separate and distinct hierarchy from the HL7 v2.5 message.

The following slides provide more details, including definitions and descriptions that help clarify the methodology.

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Mapping Methodology

For HL7v2.5 Message structures mapped to HDR / HL7v3.0 Message structures mapping is done at the following levels in the messages

HL7 v2.5 structure	HDR / HL7 v3.0 message structure
Message	**Message Type**
Example: Admit Visit Notification(ADT A01) ======>	Encounter Event Message
Segment	**Classes and CMETs in a V3 Message**
Example: ADT-Patient Identification segment (PID) ======>	EncounterEvent.subject.Patient (CMET) [Patient Role and Person playing the role) EncounterEvent (Focal class) + other classes and CMETs
ADT-Patient Visit segment (PV1) ======>	
Example: ADT-Patient Identification segment (PID) ======>	EncounterEvent.subject.Patient (CMET) [Patient Role and Person playing the role) EncounterEvent (Focal class) + other classes and CMETs
ADT-Patient Visit segment (PV1) ======>	
Field and their sub-components	**Classes and Attributes (Depending on complexity of data type)**
Example: ADT–PV1-Assigned Patient Location (PL) ======> ADT–PV1–Attending Doctor (XCN) ======> ADT–PID-Patient Address (XAD) ======> ADT–PID-Date/TimeofBirth (TS) ======> FN (Subcomponent of XCN) ======>	EncounterEvent.location.ServiceDeliveryLocation.Place (Class) EncounterEvent.attender.AssignedPerson.Person (Class) EncounterEvent.subject.Patient.addr (Attribute) EncounterEvent.subject.Patient.Person.birthTime (Attribute) name.use.partType<FAM>

Mapping Methodology

- **Items that require HDR/ HL7 v3.0 message modifications**

  - In all of these cases the possible mapping model is suggested

  - Recommendation to users: Customize HDR / HL7 v3.0 messages using MTK. Refer to the information available in mappings.

  Examples:

  1. ADT- Patient Death and Autopsy segment (PDA): The information in this segment can be modeled as a part of the encounter message such that autopsy is represented by a procedure and is a component of encounter. Death is an observation, with a set of observations attached to it for representing the information specific to the death like cause of death, death certificate etc. Location of death can be represented by a location participating in the death observation.

  2. ADT – NK1 - Next of Kin Birth Place => Modify the HDR / HL7 v3.0 Person Registry message as follows:

  In the CMET E_LivingSubject (COCT_RM030000HT01), use E_Person Universal (COCT_MT030200HT04) instead of E_Person Identified/Confirmable (COCT_MT030202HT04) to represent the NextOfKin. After this change, the information related to birthplace of the next of kin can be represented by the Place entity playing the role of birthplace.(COCT_RM030000HT01 - Person.BirthPlace.Place)

- **Items that were not mapped are represented in the spreadsheet with a different color – gray**

  Example:

  ADT – UB2 (Universal Bill 92 Information segment):

  ADT - PV2 - Signature on File Date, Patient Charge Adjustment Code, Recurring Service Code

  ADT - GT1 - Guarantor Credit Rating Code, Guarantor Charge Adjustment Code

  Recommendation to users for such cases: If the information from HL7 v2.5 message structure needs to be mapped, customize HDR / HL7 v3.0 messages as per specific requirements, use MTK for customization of messages.

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Mapping Artifacts

- ## Mappings are available as:

  - **Individual Excel Workbooks for individual HL7 v2.5 message trigger events**
    - **Excel Worksheets for individual segments within a HL7 v2.5 message trigger event**
      - Sequential indented rows for Fields and their components within a segment

  - The first worksheet with name of the trigger event (e.g. 'ADT^A01') in each Excel workbook describes the HL7 v2.5 message structure at the level of Segments. The columns 'Mapped to..' and 'Comments' describe how the HL7 v2.5 segments are mapped to HDR / HL7 v3.0 message structures. For some of the unmapped segments, suggested modeling is described in the column 'Comments'

  - In the segment level worksheets, the HL7 v2.5 message structure is documented as indented rows.
    - Rows for fields are not indented and the field names are in **bold.**
      Mapped rows are dark yellow and unmapped are gray.
      - Components and sub-components of the fields are at the subsequent indentation levels.
      - Mapped component and sub-component level rows are light yellow. Unmapped rows are gray.
    - For some of the fields suggested modeling is documented in the column 'Comments' and such rows are also highlighted in yellow.

    - For the suggested field level mappings, the component level rows are not mapped. Similar mappings from other fields, segments or messages should be referred.

    Important: The available mappings are not generic or complete solutions for mapping HL7 v2.5 messages to HDR v7.0 messages. They are intended to be used as initial reference documents and must be reviewed, evolved and customized for individual solutions/setups.

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Usability of mapping artifacts

- **Oracle supplied mappings may be used with 'HL7 V2 –V3 Mapping Tool'(developed by Robert Worden), which is downloadable from HL7's website www.hl7.org.**

- **Excel workbooks containing mappings for trigger events can be imported individually in the tool environment via ODBC. Refer to the documentation available with the tool for importing Excel files in the tool.**

- **After importing the Oracle supplied mappings into the mapping tool, you may need to perform edits to address differences in formatting, indentation, and sequence of segments or any other changes specific to your requirements.**

- **For one trigger event mapped in an Excel workbook, the tool can export all the segment level mappings in one XML and an associated XSL file.**

  The tool requires specific column headers in the worksheets for parsing information. Because of this it will not export the information from the first worksheet, which is named as the trigger event (e.g. 'ADT^A01') or from the unmapped segment level worksheets because the column headers in these worksheet do no conform to the requirements of the tool.

- **XML and XSL files generated by the mapping tool may be used to incorporate the mappings into customer projects. As always projects should evaluate and verify the mappings and assure that the business needs of the customers are addressed.**

Disclaimer: Oracle is not responsible for providing any kind of support for 'HL7 V2 –V3 Mapping Tool'

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Mappings available with this release

HL7 v2.5 Message	HDR 7.0 / HL7 v3.0 Message	Excel Workbook
Admit Visit Notification (ADT^A01)	Encounter Event (PRPA_RM400001HT04)	ADT^A01 -Admit Visit Notification.xls
Transfer Patient (ADT^A02)	Encounter Event (PRPA_RM400001HT04)	RM400001HT04)ADT^A02 -Transfer Patient.xls
Discharge Patient (ADT^A03)	Encounter Event (PRPA_RM400001HT04)	ADT^A03 -Discharge Patient.xls
Register Patient (ADT^A04)	Encounter Event (PRPA_RM400001HT04)	ADT^A04 -Register Patient.xls
Pre-Admit Patient (ADT^A05)	Encounter Event (PRPA_RM400001HT04)	ADT^A05 -Pre-Admit Patient.xls
Change an Inpatient to an Outpatient (ADT^A07)	Encounter Event (PRPA_RM400001HT04)	ADT^A07 -Change an Inpatient to an Outpatient.xls
Update Patient (ADT^A08)	Encounter Event (PRPA_RM400001HT04)	ADT^A08 -Update Patient.xls
Cancel Discharge Or End Of Visit (ADT^A13)	Encounter Event (PRPA_RM400001HT04)	ADT^A13 -Cancel Discharge Or End Of Visit.xls
Cancel Pending Admit (ADT^A27)	Encounter Event (PRPA_RM400001HT04)	ADT^A27 -Cancel Pending Admit.xls
Add Person or Patient Information (ADT^A28)	Person Registry (PRPA_RM201000HT03)	ADT^A28 -Add Person or Patient Information.xls
Delete Person Information (ADT^A29)	Person Registry (PRPA_RM201000HT03)	ADT^A29 -Delete Person Information.xls
Update Person Information (ADT^A31)	Person Registry (PRPA_RM201000HT03)	ADT^A31 -Update Person Information.xls
Merge Patient -Patient Identifier List (ADT^A40)	Merge Person (PRPA_RM203000HT04)	ADT^A40 -Merge Patient -Patient Identifier List.xls
Update Adverse Reaction Information (ADT^A60)	Intolerance Observation Event (PRPA_RM470001HT03)	ADT^A60 -Update Adverse Reaction Information.xls
Diagnostic Report Observation (ORU^R01)	Results Event (POLB_RM004000HT01)	ORU^R01 -Diagnostic Report Observation.xls

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