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Use of HL7v2 MDM Message for CDA Package Technical Specification

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Document version history

Document version	Date	Comments
2.0	31 January 2020	• Replacing - Clinical Documents - FAQ - Clarification on Messaging and CDA Packaging v1.4 • Change to new document template and name • Removed unresolvable addresses • Updated requirement for MSH 4 and MSH 6 to align with Australian Profile for Provider Directory Services [AU-FHIR-PD] • Changed TXA.2 back to NEHTA to ensure compliance with validation libraries • Changed TXA.17 to include list of values rather then a single fixed value • Included reference to Event Summary in OBX.3 • Section 5.1.2 – incorrect reference – changed to MSH-4.3 to MSH-4.2 and MSH-6.3 to MSH-6.2
2.1	7 February 2020	• Fixed Event Summary LOINC Code • Fixed TXA.17 field length from 30 to 2 • Fixed PID.3 field length from 20 to 250
2.2	18 February 2020	• Made PV1.9 optional as Message might not contain individual provider
2.3	13 May 2020	• Inclusion of Shared Health Summary and Service Referral document types for completeness • Clarified purpose of MSH.3 and MSH.5 • Clarified that MSH.4 and MSH.6 should match the most appropriate endpoint, which may not always be an endpoint referenced by a HealthcareService. • Updated PV1-9 to describe how to use with the Australian Profile for Provider Directory Services.

Document version	Date	Comments
2.4	30 November2020	• Changed narrative for MSH.4 and MSH.6 to reflect matching using the Endpoint.au-receivingfacility and provided more examples • Updated MSH.15, MSH.16, MSH.17 cardinality to reflect fixed value • Updated MSH.9 for ACK to ACK^T02^ACK_T02 as per specification • Changed narrative for MSH.3 and MSH.5 to reflect matching using the Endpoint.au-receivingapplication and provided more examples • Updated PV1-9 examples to correct error and reflect message structure and include reference to HealthcareService
2.5	20 June 2023	• Remove layer violation and narrative from MSH.10 – “This SHALL map into the InvocationId in an SMD message”

Table of contents

1 Introduction

1.1 Purpose

The purpose of this specification to provide a technical representation of encapsulating the CDA package within an HL7 v2 MDM^T02 message (which covers the delivery of a document). Using this technique, the message payload can be transported through SMD messaging systems and other messaging networks designed to transport HL7 v2 messages.

2 CDA package

The CDA package SHALL be consistent for both provider-to-provider (using ATS-5822) and provider-to-MHR (using IHE XDS B2B Repository interface) as per the CDA package specification.

2.1 CDA package creator

The creator of the CDA package SHALL follow the “Signed CDA package when eSignatures are mandatory” profile as specified in the Clinical Package [CP] and CDA Package [CDAP], and use the XDM-ZIP representation for file naming, namely:

- A single mandatory root CDA XML document (called CDA_ROOT.XML)
- Optional and repeatable packaged attachments
- One eSignature file (called CDA_SIGN.XML)
- Under a directory structure (i.e. /<folder1>/<subset01>/)
- The METADATA.XML file SHALL not exist – i.e. NO repository metadata
- (Concessions may be given to allow this file to be present, in local communities that require it when using SMD)
- The INDEX.HTM file SHALL not exist
- The README.TXT file SHALL not exist

3 HL7 v2 MDM^T02 message

The HL7 v2 MDM message fields SHALL follow in accordance with the HL7 2.3.1 Australian Standards (AS4700, parts 1, 2 and 6), or the HL7 2.3.1 International Standard, where the Australian Standards do not apply.

The HL7 v2 MDM^T02 v2 message SHALL only be used for transporting the CDA package using a single OBX segment, and SHALL NOT contain any other OBX segments that contain another format of the same data (i.e. RTF, PDF or Text). All relevant documents SHALL be contained inside the CDA package.

The HL7 v2 MDM^T02 message is made up of the common v2 Message segments: MSH, EVN, PID and PV1; and SHALL also include a single TXA and OBX segment, as defined below.

In the tables below, Elements in **bold** have been set to a fixed value. Further descriptions are given to certain elements where more information is required, or there is a deviation from the HL7 2.3.1 specification.

3.1 Message Structure

The MDM^T02 message structure is as per below:

```
MSH         Message Header
EVN         Event Type
PID         Patient Identification
PV1         Patient Visit
TXA         Transcription Document Header
OBX         Observation/Result
```

3.2 MSH – Message Header Segment

MSH Example

```
MSH|^~\&|Rhubarb-CPOE^2.16.840.1.113883.19.4.1^ISO|Test Health Service
657^1.2.36.1.2001.1003.0.8003628233366655^ISO|SUPER-LIS^7C3E3681-91F6-11D2-8F2C-
444553540000^GUID|QML^2184^AUSNATA|20120527123345+1000||MDM^T02^MDM_T02|urn:uuid:
f498db3f-a64c-4c44-83b1-836c7728cc1e|P|2.3.1|||AL|NE|AUS
```

For HI numbers (IHI, HPI-I and HPI-O), the unique 10 digit part has been removed. Here (and in the examples below), nnnnnnnnnn SHALL be replaced by the correct Identifier.

MSH Element	Length	HL7 DT	Card	Element Name	Fixed values
MSH.1	**1**	**ST**	**1..1**	**Field Separator**	**|**
MSH.2	**4**	**ST**	**1..1**	**Encoding Characters**	**^~\&**
MSH.3	180	HD	0..1	Sending Application	

MSH Element	Length	HL7 DT	Card	Element Name	Fixed values
MSH.4	180	HD	1..1	Sending Facility	
MSH.5	180	HD	0..1	Receiving Application	
MSH.6	180	HD	1..1	Receiving Facility	
MSH.7	26	TS	1..1	Date/Time Message	
MSH.9	**15**	**CM**	**1..1**	**Message Type**	**MDM^T02^MDM_T02**
MSH.10	199	ST	1..1	Message Control Id	
MSH.11	**3**	**PT**	**1..1**	**Processing Id – P=Production (for Testing use T)**	**P**
MSH.12	**60**	**VID**	**1..1**	**Version Id**	**2.3.1**
MSH.15	**2**	**ID**	**1..1**	**Accept Acknowledgement Type**	**NE**
MSH.16	**2**	**ID**	**1..1**	**Application Acknowledgement Type**	**AL**
MSH.17	**3**	**ID**	**1..1**	**Country Code**	**AUS**

3.2.1 MSH.3 - Sending Application

This is an optional field (in HL7 2.3.1).

Receivers will copy this field into MSH.5 of any acknowledgement so senders SHOULD populate it with any information that they require to route received acknowledgements to the correct application.

When using the Australian Profile for Provider Directory Services, the values from this field must match the sending party's `Endpoint[x].au-receivingapplication` used to receive acknowledgements as published in the directory of the messaging system being used for the transaction.

Each component of the MSH-3 (HD) field must be valued with the FHIR valueString according to each of the extensions Endpoint resource's `au-receivingapplication` as per the following table.

HD Component	au-receivingapplication	ISO example
<namespace ID (IS)>	namespace-id	Rhubarb-CPOE
<universal ID (ST)>	universal-id	2.16.840.1.113883.19.4.1
<universal ID type (ID)>	universal-id-type	ISO

If senders do not need MSH-5 to be populated in received acknowledgements, then they may omit MSH.3 in the message and `au-receivingapplication` in their `Endpoint` listing.

3.2.2 MSH.4 – Sending Facility

When using the Australian Profile for Provider Directory Services [AU-FHIR-PD], the values from this field must match the sending party's `Endpoint[x].au-receivingfacility` as published in the directory of the messaging system being used for the transaction.

Each component of the MSH-4 (HD) field must be valued with the FHIR valueString according to each of the extensions Endpoint resource's `au-receivingfacility` as per the following table.

HD Component	au-receivingfacility	ISO example
<namespace ID (IS)>	namespace-id	Test Health Service 657 *(Registered name with HI service)*
<universal ID (ST)>	universal-id	1.2.36.1.2001.1003.0.8003628233366655
<universal ID type (ID)>	universal-id-type	ISO

When not using the Australian Profile for Directory Services, this could be taken from the CDA document using this XPath:

```
/cda:ClinicalDocument/cda:author/cda:assignedAuthor/cda:assignedPerson/ext:asEmp
loyment/ext:employerOrganization/cda:asOrganizationPartOf/cda:wholeOrganization/
ext:asEntityIdentifier[@classCode='IDENT']/ext:id[@assigningAuthorityName='HPI-
O']/@root
```

The identifier is essentially used to locate the endpoint of the sending facility and will be used by the receiving facility to return an acknowledgement.

3.2.3 MSH.5 – Receiving Application

This is an optional field (in HL7 2.3.1).

When using the Australian Profile for Provider Directory Services, the values from this field must match the receiving party's `Endpoint[x].au-receivingapplication` as published in the directory of the messaging system being used for the transaction.

Each component of the MSH-5 (HD) field must be valued with the FHIR valueString according to each of the extensions Endpoint resource's `au-receivingapplication` as per the following table.

HD Component	au-receivingapplication	GUID example
<namespace ID (IS)>	namespace-id	Super LIS
<universal ID (ST)>	universal-id	7C3E3681-91F6-11D2-8F2C-444553540000
<universal ID type (ID)>	universal-id-type	GUID

Receivers SHOULD populate `au-receivingapplication` in their `Endpoint` listing if they require information to route received messages to the correct application. If this is not required, receivers MAY omit `au-receivingapplication`.

When not using the Australia Profile for Provider Directory Services, this field MAY be omitted or MAY be filled in with the receiving application name if known.

3.2.4 MSH.6 – Receiving Facility

When using the Australian Profile for Provider Directory Services [AU-FHIR-PD], the values from this field must match the receiving party's `Endpoint[x].au-receivingfacility` as published in the directory of the messaging system being used for the transaction.

Each component of the MSH-6 (HD) field must be valued with the FHIR valueString according to each of the extensions Endpoint resource's `au-receivingfacility` as per the following table.

HD Component	au-receivingfacility	AUSNATA example
<namespace ID (IS)>	namespace-id	QML
<universal ID (ST)>	universal-id	2184
<universal ID type (ID)>	universal-id-type	AUSNATA

When not using the Australian Profile for Provider Directory Services, this field could be taken from the CDA document using this XPath, and loop through each information recipient to create each new message sent.

```
/cda:ClinicalDocument/cda:informationRecipient/cda:intendedRecipient/cda:receivedOrganization/ext:asEntityIdentifier[@classCode='IDENT']/ext:id[@assigningAuthorityName='HPI-O']/@root
```

3.2.5 MSH.7 – Date/Time Message

The date and time the message was created. If a time is entered, it is recommended to record the time zone as well. The format SHALL be:

CCYYMMDDHHNNSS+ZZZ

Example:

`20120527121530+1000 which is 27th May 2012 at 12:15:30 in +1000 time zone.`

3.2.6 MSH.10 – Message Control ID

This field should be of length 20 chars (in HL7 2.3.1), but has been extended to 199 chars (as per HL7 v2.6) to accommodate UUIDs (if used). This SHALL NOT be the same as the document ID of the CDA document (which goes in TXA.12).

Example:

`urn:uuid:f498db3f-a64c-4c44-83b1-836c7728cc1e`

3.3 EVN – Event Type Segment

EVN Example:

```
EVN|T02|20110630123000
```

EVN Element	Length	HL7 DT	Card	Element Name	Fixed values
EVN.1	**3**	**SI**	**1..1**	Event Type Code	**T02**
EVN.2	26	TS	1..1	Recorded Date/Time	

3.3.1 EVN.1 – Event Type Code

This should be an optional field (in HL7 2.3.1), but it SHALL be set to "T02".

3.3.2 EVN.2 – Recorded Date/Time

The date and time the event occurred. If a time is put in, it is recommended to put in the time zone as well.

The format SHALL be: **CCYYMMDDHHNNSS+ZZZ**

Example:

20120527121530+1000 this is 27th May 2012 at 12:15:30 in +1000 time zone.

This could be taken from the CDA document using this XPath:

```
/cda:ClinicalDocument/cda:effectiveTime/@value
```

3.4 PID – Patient ID Segment

PID Example:

```
PID|1||1234567890^^^AUSHIC^MC~800360nnnnnnnnnn^^^AUSHIC^NI
||FamilyName^GivenName^^^Prefix||19500527|M|||10 Browning Street^^West
End^QLD^4101^AUS|
```

PID Element	Length	HL7 DT	Card	Element Name	Fixed values
PID.1	**4**	**SI**	**0..1**	**Set Id**	**1**
PID.3	250	CX	1..*	Patient Identifiers	
PID.5	48	XPN	1..*	Patient Name	
PID.7	26	TS	0..1	Date/Time of Birth	
PID.8	1	IS	0..1	Sex	
PID.11	250	XAD	0..n	Patient Address	

3.4.1 PID.1 – Set Id

This SHOULD be an optional field (in HL7 2.3.1), but it SHALL be set to "1".

3.4.2 PID.3 – Patient Identifiers

This field contains the patient identifiers. It is recommended to place all known identifiers in this field.

The format SHALL be: **<identifier>^^^<Assigning Authority>^<Identifier Type>**

This is a repeating field (~).

Suggested values for <Assigning Authority> are "AUSHIC" (Medicare) and "AUSDVA" (Department of Veterans' Affairs)

Suggested values for <Identifier Type> are "MC" (Medicare card), "NI" (IHI Number), "DVW" (DVA Card White), "DVG" (DVA Card Gold) and "DVO" (DVA Card Orange).

Other codes might also be used to represent local or regional identifier types.

The IHI could be taken from the CDA document using this XPath, and stripping out the prefix OID (1.2.36.1.2001.1003.0.):

```
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:patient/ext:asEntityIdentifier[@classCode='IDENT']/ext:id[@assigningAuthorityName='IHI']/@root
```

The Medicare Number could be taken from the CDA document using this XPath:

```
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:patient/ext:asEntityIdentifier[@classCode='IDENT']/ext:id[root='1.2.36.1.5001.1.0.7.1']/@extension
```

Example:

```
1234567890^^^AUSHIC^MC~800360nnnnnnnnnn^^^AUSHIC^NI
```

For more information about the representation of patient identifiers, see the *Representation of Common Australian Identifiers in v2 and CDA* [CAI]. These identifiers are documented in Standard Australia's handbook *HB 234 – Healthcare identifier HL7 implementation guide* [HB234].

3.4.3 PID.5 – Patient Name

This field contains the patient's name. The format SHALL be:

```
FamilyName^GivenName^^^Prefix
```

This is a repeating field (~).

These values could be taken from the CDA document using these XPath:

```
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:patient/cda:name/cda:family
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:patient/cda:name/cda:given[0]
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:patient/cda:name/cda:prefix
```

3.4.4 PID.7 – Date/Time of Birth

This field contains the patient's date of birth. This field is optional, but when sending an IHI, this field SHALL be provided, as it is required for validation. The format SHALL be:

CCYYMMDD

Example: **19700527**

The date of birth could be taken from the CDA document using this XPath:

```
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:patient/cda:birthTime
/@value
```

3.4.5 PID.8 – Sex

This field contains the patient's sex. This field is optional, but when sending an IHI, this field SHALL be provided, as it is required for validation. Allowable values M,F,A,O,U

Example: **M**

The sex could be taken from the CDA document using this XPath:

```
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:patient/cda:administr
ativeGenderCode/@code
```

3.4.6 PID.11 – Patient Address

This field contains the patient's address. The format SHALL be:

`<Address line 1>^<Address line 2>^<suburb>^<state>^<postcode>^<country>`
And this is a repeating field (~).

These values could be taken from the CDA document using these XPaths, although addresses can be represented in a number of ways within a CDA document:

```
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:addr/cda:streetAddres
sLine
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:addr/cda:city
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:addr/cda:state
/cda:ClinicalDocument/cda:recordTarget/cda:patientRole/cda:addr/cda:postalCode
```

3.5 PV1 – Patient Visit Segment

PV1 Example:

`PV1|1|N|||||||00000000^FamilyName^GivenName^^^Prefix^^AUSHICPR^L^^^UPIN`

PV1 Element	Length	HL7 DT	Card	Element Name	Fixed values
PV1.1	**4**	**SI**	**0..1**	Set Id	**1**
PV1.2	1	IS	1..1	Patient Class	
PV1.9	250	XCN	0..*	Consulting Doctor	

3.5.1 PV1.1 – Set Id

This is an optional field (in HL7 2.3.1), but it SHALL be set to "1".

3.5.2 PV1.2 – Patient Class

This field is used by hospitals to classify a patient's mode of treatment. Additional values SHALL be supported based on AS4700.1 (2005) 2.4 to include the following list:

Value*	Description
I	Inpatient/Overnight patient
S	Same day patient
O	Outpatient
E	Emergency patient
Y	Community client
P	Pre-admit
C	Commercial account
N	Not-applicable
U	Unknown

*Recommend to use "N" by default, if no data available.

3.5.3 PV1.9 – Consulting Doctor

The HL7 2.3.1 specification states this SHOULD be the consulting doctor.

As per the MSIA/AHML HL7 Industry Interoperability Workgroup Report (Version 2.1, August 2011) it was agreed this SHALL be used for the Intended Recipient.

When using the Australian Profile for Provider Directory Services and sending to a specific provider, the values in this field must match the receiving `Endpoint[x].au-receivingfacility` as published in the directory of the messaging system being used for the transaction. This field must be repeated for each identifier. The mapping is as per table below as it pertains to a PractitionerRole and HealthcareService

3.5.3.1 PractitionerRole

XCN Component	AU-PD-IG FHIR element
<ID number (ST)>	PractitionerRole.identifier.value
<family name (FN)>	
<surname (ST)>	PractitionerRole.practioner.name[usual].family
<own surname prefix (ST)>	
<own surname (ST)>	
<surname prefix from partner/spouse (ST)>	
<surname from partner/spouse (ST)>	

XCN Component	AU-PD-IG FHIR element
<given name (ST)>	PractitionerRole.practioner.name[usual].given[0]
<second and further given names (ST)>	PractitionerRole.practioner.name[usual].given[1..*]
<suffix (e.g., JR or III) (ST)>	PractitionerRole.practioner.name[usual].suffix
<prefix (e.g., DR) (ST)>	PractitionerRole.practioner.name[usual].prefix
<degree (e.g., MD) (IS)>	
<source table (IS)>	
<assigning authority (HD)>	
<namespace ID (IS)>	PractitionerRole.identifier.au-assigningauthority.namespace-id
<universal ID (ST)>	PractitionerRole.identifier.au-assigningauthority.universal-id
<universal ID type (ID)> [Table 0301]	PractitionerRole.identifier.au-assigningauthority.universal-id-type
<name type code (ID)> [Table 0200]	PractitionerRole.practioner.name[usual].use
<identifier check digit (ST)>	
<code identifying the check digit (ID)>	
<identifier type code (IS)> [Table 0203]	PractitionerRole.identifier.type.coding.code
<assigning facility (HD)>	
<Name Representation code (ID)>	

Example with a Provider Number or HPI-I Number or both, as it is a repeating field:

```
PV1|1|N|||||||0191324T^Test1Familyname^John^^^Dr^^^AUSHICPR^L^^^UPIN
~8003614566700392@8003620436745452^Test2Familyname^Peter^^^Dr^^^Some Vendor
1&33443682-91F6-11D2-8F2C-444553540123&GUID^L^^^NPIO
```

3.5.3.2 HealthcareService

XCN Component	AU-PD-IG FHIR element
<ID number (ST)>	HealthcareService.identifier.value
<family name (FN)>	
<surname (ST)>	HealthcareService.providedBy
<own surname prefix (ST)>	
<own surname (ST)>	
<surname prefix from partner/spouse (ST)>	
<surname from partner/spouse (ST)>	

XCN Component	AU-PD-IG FHIR element
<given name (ST)>	HealthcareService.name
<second and further given names (ST)>	HealthcareService.location.name
<suffix (e.g., JR or III) (ST)>	
<prefix (e.g., DR) (ST)> <degree (e.g., MD) (IS)> <source table (IS)>	
<assigning authority (HD)>	
<namespace ID (IS)>	HealthcareService.identifier.au-assigningauthority.namespace-id
<universal ID (ST)>	HealthcareService.identifier.au-assigningauthority.universal-id
<universal ID type (ID)> [Table 0301]	HealthcareService.identifier.au-assigningauthority.universal-id-type
<name type code (ID)> [Table 0200]	No mapping to AU-PD-IG FHIR element. **Fixed value:** D
<identifier check digit (ST)>	
<code identifying the check digit (ID)>	
<identifier type code (IS)> [Table 0203]	HealthcareService.identifier.type.coding.code
<assigning facility (HD)>	
<Name Representation code (ID)>	

Example with a HPI-O Number:

```
PV1|1|N|||||||8003623868712345^Fernside General Hospital - Cardiology^Department
of Cardiology^State Health^^^^^ Some Vendor
2&http://ns.somevendor2.com.au/smd/id/SM999999&URI^D^^^NPI
```

If not using the Australian Profile for Provider Directory Services, these values could be taken from the CDA document using these XPaths, and loop through each intended recipient:

```
/cda:ClinicalDocument/cda:informationRecipient/cda:intendedRecipient/cda:informa
tionRecipient/cda:name/cda:family
/cda:ClinicalDocument/cda:informationRecipient/cda:intendedRecipient/cda:informa
tionRecipient/cda:name/cda:given[1]
/cda:ClinicalDocument/cda:informationRecipient/cda:intendedRecipient/cda:informa
tionRecipient/cda:name/cda:title
```

For HPI-O:

```
/cda:ClinicalDocument/cda:informationRecipient/cda:intendedRecipient/cda:receive
dOrganization/ext:asEntityIdentifier[@classCode='IDENT']/ext:id[@assigningAuthor
ityName='HPI-O']/@root
```

For HPI-I:

```
/cda:ClinicalDocument/cda:informationRecipient/cda:intendedRecipient/cda:informa
tionRecipient/ext:asEntityIdentifier[@classCode='IDENT']/ext:id[@assigningAuthor
ityName='HPI-I']/@root
```

For Medicare Provider Number:

```
/cda:ClinicalDocument/cda:informationRecipient/cda:intendedRecipient/cda:informa
tionRecipient/ext:asEntityIdentifier[@classCode='IDENT']/ext:id[@root='1.2.36.17
4030967.0.2']/@extension
```

3.6 TXA – Transcription Document Header Segment

TXA Example:

```
TXA|1|NEHTA|AP|20110630123000|||||||5974ff00-f26e-4afd-9848-
1a906bd5bcb1||||PACKAGE.ZIP|LA
```

TXA Element	Length	HL7 DT	Card	Element Name	Fixed values
TXA.1	**4**	**SI**	**1..1**	**Set ID**	**1**
TXA.2	**30**	**IS**	**1..1**	**Document Type – User Defined**	**NEHTA**
TXA.3	**2**	**ID**	**0..1**	**Document Content Presentation**	**AP**
TXA.4	26	TS	0..1	Activity Date/Time	
TXA.12	427	EI	1..1	Unique Document Number	
TXA.16	**22**	**ST**	**1..1**	**Unique Document File Name**	**PACKAGE.ZIP**
TXA.17	2	ID	1..1	Document Completion Status	As per list of values

3.6.1 TXA.3 – Document Content Presentation

This field is required when the message contains an OBX segment and SHALL be set to “AP”.

3.6.2 TXA.4 – Activity Date/Time

This field is optional (in HL7 2.3.1). The activity date/time could be taken from the CDA document using this XPath:

```
/cda:ClinicalDocument/cda:effectiveTime/@value
```

3.6.3 TXA.12 – Unique Document Number

This field should be of length 30 chars (in HL7 2.3.1), but has been extended to 427 chars (as per HL7 v2.6) to contain a unique document number (UUID) assigned by the sending system. This SHALL be taken from the CDA document using this XPath:

```
/cda:ClinicalDocument/cda:id/@root

/cda:ClinicalDocument/cda:id/@root + /cda:ClinicalDocument/cda:id/@extension (if
used)
```

3.6.4 TXA.16 – Unique Document File Name

This field is optional (in HL7 2.3.1) but SHALL be set to “PACKAGE.ZIP”.

3.6.5 TXA.17 – Document Completion Status

This field identifies the current completion status of the document being sent. This is a required field and SHALL be set to one of the values in the below table.

Value*	Description
DI	Dictated
DO	Documented
IP	In Progress
IN	Incomplete
PA	Pre-authenticated
AU	Authenticated
LA	Legally Authenticated

*For “Final” CDA documents use “LA”

3.7 OBX – Observation Segment

OBX Example:

```
OBX|1|ED|18842-5^Discharge Summarization
Note^LN||^application^zip^Base64^<package>||||||F
```

Where <package> is a base64string of the cda package (zip file).

OBX Element	Length	HL7 DT	Card	Element Name	Fixed values
OBX.1	**4**	**SI**	**1..1**	**Set Id**	**1**
OBX.2	**3**	**ID**	**1..1**	**Value Type**	**ED**
OBX.3	250	CE	1..1	Observation Identifier	
OBX.5	16777216	ED	1..1	Observation Value	
OBX.11	**1**	**ID**	**1..1**	**Observation Result Status**	**F**

3.7.1 OBX.3 – Observation Identifier

This field contains a coded description of the package type. The format SHALL be:

<document code>^<document description>^<document code system>

These SHALL be taken from the CDA document using these XPaths:

```
/cda:ClinicalDocument/cda:code/@code
/cda:ClinicalDocument/cda:code/@displayName
```

Document type	Format:
Discharge Summary	18842-5^Discharge summarization note^LN
eReferral	57133-1^Referral note^LN
Service Referral	57133-1^Referral note^LN
Specialist Letter	51852-2^Letter^LN
Event Summary	34133-9^Summary of episode note^LN
Shared Health Summary	60591-5^Patient summary^LN

3.7.2 OBX.5 – Observation Value

This field (type ED – Encapsulated Data) should be of length 6556 chars (in HL7 2.3.1) but has been extended to 16MB to support CDA packages (as per the MSIA/AHML HL7 Industry Interoperability Workgroup Report, Version 2.1, August 2011).

The format SHALL be: **^application^zip^Base64^<cda package represented as a base64string>**

4 HL7 v2 ACK^T02 message

4.1 Message Structure

The ACK^T02 message structure is as per below:

```
MSH         Message Header
MSA         Message Acknowledgement
[ERR]       Error
```

4.2 MSH – Message Header Segment

The message header segment structure will be the same as the as for MDM^T02 with the only difference being the message type MSH.9

The Message Type SHALL be:

MSH Element	Length	HL7 DT	Card	Element Name	Fixed values
MSH.9	**15**	**CM**	**1..1**	**Message Type**	**ACK^T02^ACK_T02**

4.3 MSA – Message Acknowledgement Segment

MSA Element	Length	HL7 DT	Card	Element Name	Fixed values
MSA.1	2	SI	1..1	Acknowledgment Code	
MSA.2	199	ID	1..1	Message Control ID	
MSA.3	80	CE	0..1	Text Message	

4.3.1 MSA.1 – Acknowledgement Code

This field informs the recipient whether the original message was processed successfully or not. See the processing rules in HL7 2.3.1 section 2.12 for more information and values for this field.

4.3.2 MSA.2 – Message Control ID

This field is the message control ID of the original message to which this message is a response. This field allows the sending system to relate the acknowledgement to the original message sent.

This field should be of length 20 chars (in HL7 2.3.1) but has been extended to 199 chars (as per HL7 v2.6) to accommodate UUIDs (if used).

Example:

```
urn:uuid:f498db3f-a64c-4c44-83b1-836c7728cc1e
```

4.4 ERR – Message Acknowledgement Segment

This is an optional segment that can be included to help resolve issues with the original message sent. See HL7 2.3.1 section 2.24.3 for more information.

ERR Element	Length	HL7 DT	Card	Element Name	Fixed values
ERR.1	80	CM	1..*	Error Code and Location	

Error messages can include reason for rejection, like a malformed CDA document (as this is part of the HL7 v2 message).

5 Transporting the Message/Package

5.1 Methods

There are three defined methods for transporting the CDA package:

1. Via an SMD network service: CDA document package is contained within the SMD secure payload element with no additional wrapping.
2. Via an SMD network service: CDA document package is encapsulated within an HL7 v2 message, which in turn is contained within the SMD secure payload element.
3. Via an alternate messaging scheme: CDA document package is encapsulated within a HL7 v2 message. The messaging network is capable of routing HL7 v2 messages that adopt the format defined in this specification.

5.1.1 Method 1

As stated in the method 1 above, only the CDA package is transported via SMD. This is wrapped in the secure payload as shown below:

```
<q1:message
xmlns:q1="http://ns.electronichealth.net.au/smd/xsd/Message/2010">
  <q1:data> … Base64-encoded CDA Package file… </q1:data>
</q1:message>
```

Note: This method and payload type has been deprecated in the Australian Profile for Provider Directory Services [AU-FHIR-PD].

5.1.2 Method 2

Where this alternate method is used with SMD (i.e. HL7 MDM^T02 message), the HL7 message file is wrapped as shown below:

```
<q1:message
xmlns:q1="http://ns.electronichealth.net.au/smd/xsd/Message/2010">
  <q1:data> … Base64-encoded HL7 v2 message file … </q1:data>
</q1:message>
```

The messaging agent SHALL pull out certain information from the HL7 v2 message in order to deliver it.

The following table shows the mapping and how to fill in the SMD Metadata from the HL7 v2 message:

HL7 v2 Element	SMD Element	Description
	msg.metadata.creationTime	Creation time should be the current datetime
MSH.10	msg.metadata.invocationId	Unique Universal Identifier (UUID) from this segment
MSH.4.2	msg.metadata.senderOrganisation	Get the Sender Identifier (HPI-O) number from this segment

HL7 v2 Element	SMD Element	Description
MSH.6.2	msg.metadata.receiverOrganisation	Get the Receiver Identifier (HPI-O) number from this segment
OBX3.1	msg.metadata.serviceCategory	Map the LOINC Code to the service category – See section 5.2 below
	msg.metadata.serviceInterface	http://ns.electronichealth.net.au/smd/intf/SealedMessageDelivery/TLS/2010 for SMD Deferred mode for example
	msg.metadata.routeRecord[]	SMD Client should know what to place in here or leave up to intermediary

The following table shows where the above payload goes in the SMD Message:

HL7 v2 Element	SMD Element	Description
OBX5.5	msg.encryptedPayload	Take base64string, wrap in <message> element and sign and encrypt as per XSP profile [ATS 5821-2010]

Note: SMD can only be supported if HPI-O numbers are used.

5.1.3 Method 3

Where other transports mechanisms are used, the HL7 message file is delivered using the current method.

5.2 Service Categories for SMD

It should be used and published by the receiving organisation in their Australian FHIR profile for Provider Directory Services, to broadcast the receiving capability for each document type.

http://ns.electronichealth.net.au/<documentType>/sc/deliver/<payloadType>/2012

Where document type is:

Document Type description	<documentType>
Discharge Summary	ds
eReferral	er
Service Referral	sr
Specialist Letter	sl
Event Summary	es
Shared Health Summary	shs
Acknowledgement (only for hl7Ack)	ack

Where payload type is:

Transaction	<payloadType>
Deliver	`hl7Mdm`
Application Acknowledgement	`hl7Ack`

The link below outlines the supported Australian Endpoint Payload Types:

https://build.fhir.org/ig/hl7au/au-fhir-pd//ValueSet-endpoint-payload-type.html

5.3 Receiving Systems

The receiving system for any of the above standards SHALL support the following messaging formats when importing the data:

- a HL7 v2 MDM message (with the CDA Package in the OBX segment)
- a CDA Package

This could be in the format of a file drop or through an API.

5.4 Acknowledgements

Two defined levels of acknowledgements can be supported:

- Transport – confirmation that the message has arrived at its destination.
- Application – confirmation that the message has been received within the intended recipient's clinical system.

5.4.1 Transport Acknowledgements

SMD provides the mechanism for Transport acknowledgements through the Transport Response Deliver (TRD) message (see ATS5822-2010).

This is a part of the SMD messaging process and SHALL be supported as directed in the specification.

5.4.2 Application Acknowledgements

Where an HL7 v2 message is sent, an Application Acknowledgment SHALL be sent back to the source system as defined in HL7 v2 ACK^T02 section.

HL7 v2 supports this acknowledgement process in its workflow.

See HL7 v2.3.1: section 2.24.2 and the AS4700.1 v2.3.1: section 6.3.

Appendix A References and Definitions

A.1 References

[REF]	Document name/term
[ATS5820-2010]	ATS_5820-2010_E-health_web_services_profiles.pdf https://infostore.saiglobal.com/
[ATS5821-2010]	ATS_5821-2010_E-health_XML_secured_payload_profiles.pdf https://infostore.saiglobal.com/
[ATS5822-2010]	ATS_5822-2010_E-health_secure_message_delivery.pdf https://infostore.saiglobal.com/
[CAI]	Representation of Common Australian Identifiers in v2 and CDA http://www.healthintersections.com.au/?p=721
[HB234]	HB 234 – Healthcare identifier HL7 implementation guide https://infostore.saiglobal.com/
[CDAP]	CDA Package v1.0.pdf https://developer.digitalhealth.gov.au/specifications/clinical-documents/ep-2807-2019/nehta-1229-2011
[CP]	Clinical Package v1.0.pdf https://developer.digitalhealth.gov.au/specifications/clinical-documents/ep-2807-2019/nehta-1226-2011
[AU-FHIR-PD]	Australian Profile for Provider Directory Implementation http://hl7.org.au/fhir/pd/

A.2 Definitions

Term	Definition
SHALL	Indicates a mandatory requirement
SHOULD	Indicates an optional requirement