Visbion Limited

HL7Connector 4.1
HL7 Support Statement
HL7-IA-Iss5

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Commercial in Confidence

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Disclaimer

This document contains examples of data, images and reports used in healthcare environments. To illustrate these as completely as possible, the examples include names of individuals, addresses and other demographic information. All of these names are fictitious and any similarity to the names and addresses of real people is entirely coincidental.

Document Revision History

Date	Document Version	Author	Comments
11/10/05	Iss1 – Iss3	V. Jones	Created initial draft from PACS 3.6 HL7Connector HL7 Support Statement. Made the following corrections: **Global** Use of O-PACS in preference to PACS, unless RIS is mention in which case PACS is retained. Reshaded table heading rows. Re-inserted all images to enhance quality. ADT message number added to each flowchart heading. **1.1 Overview**, added the HL7Connector version number and corrected the definition of PAS. Added HIS. **2.2.1.1 Example Messages and Acknowledgements**, changed KODAK |RIS to vendor|facility in all messages. **3.4.3 Comments**, third para - `exists' changed to `exist'. **3.6.3 Comments**, the two bullets for `Hospital/Ward' have been changed to `Hospital/Ward or Clinic'. Space inserted in DischargeMethod. **3.10.5 Flowchart**, `Extract Home Leave Details from PV1' changed to `Extract Home Leave Details from EVN-3'. **3.11.5 Flowchart**, `Extract Home Leave Details from PV1' changed to `Extract Home Leave Details from EVN-3'. **3.13.5 Flowchart**, `Config Item True?' moved from Update Patient path to Create Patient path. **3.15.3 Comments**, ATD^A08 message is sent changed to `ATD^A31 message is sent'. **3.17.3 Comments**, ATD^A08 message is sent changed to `ATD^A31 message is sent'. Corrected spelling errors within table. **4.1.4 Message Structure**, changed KODAK |RIS to vendor|facility in all messages. **4.2.4 Message Structure**, changed KODAK |RIS to vendor|facility in all messages. **4.3.4 Message Structure**, changed KODAK |RIS to vendor|facility in all messages. **5.1 MSH Segment,** removed PACS from comment column for Seq 3 and 5 and RIS from seq 4.
4 Nov 2010	Iss4	Suzanne Darlington	Rebranded document to conform with latest Visbion Ltd standards.
26 Feb 2013	Iss5	T Falcon	Document control and document code added

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Contents

1 Introduction

This document describes the implementation details of the HL7 interface to Visbion PACS. Health Level Seven (HL7) is an approved standard for the exchange of data between medical systems dealing with clinical and administrative data.

1.1 Overview

HL7 stands for Health Level Seven and is the industry standard protocol for transferring medical data between systems. HL7Connector 4.1 consists of:

- The HL7Connector service - this is a messaging protocol specifically developed to exchange patient information to and from the Visbion PACS server and third-party products, for example, Radiology Information System (RIS), Hospital Information System (HIS) or Patient Administration System (PAS).
- The HL7 Parser - this is an integral part of the HL7Connector service. It is used to generate an intermediate XML file format which is passed to and used by subsequent components.
- The Database Mapping scheme - this is used to update, or write to, the PACS Database.

1.2 Scope

This document states the conformance of Visbion's technology to the HL7 v2.4 standard.

The document has been written for software developers and system integrators who are interested in integrating Visbion's products with existing, HL7-conformant, devices. It is assumed that those reading this document are familiar with the concepts and terminology used within the HL7 v2.4 standard. Readers who require further information on the HL7 v2.4 standard should contact the Health Level Seven (HL7) United Kingdom organisation (*http://www.hl7.org.uk*) for more information.

1.3 Definitions/Abbreviations

DICOM	Digital Imaging and Communications in Medicine
HL7	Health Level Seven
MLLP	Minimal Lower Layer Protocol
PACS	Picture Archiving and Communication Systems
TCP/IP	Transmission Control Protocol over Internet Protocol

1.4 Connectivity and Interoperability

The implementation of the Visbion HL7 interface has been carefully tested to ensure compliance with this support statement. This support statement and the HL7 standard does not guarantee interoperability of Visbion's products with modalities of other vendors. The user must compare the relevant support statements and if a successful association is established, the user is responsible for testing and validating the interoperability that is required.

2 Interface

2.1 Version

Visbion supports HL7 standard version 2.4.

2.2 Connection

HL7 messages are transferred using TCP/IP.

2.2.1 Inbound Interface

HL7Connector supports two message-configured acknowledgement modes, original and enhanced. In original mode, only the application-level acknowledgement is generated, whereas in enhanced mode, the message sender can specify what acknowledgements are required, spanning both the commit and application levels.

To use original mode acknowledgements only, field values for MSH-15 and 16 must be omitted. In this mode, HL7Connector will generate a single acknowledgement per message, with an Application Error (AE), Application Reject (AR) or Application Accept (AA) result code.

To switch HL7Connector into enhanced mode, both MSH-15 and 16 must have a value. The behaviour of the connector in terms of what acknowledgements are generated is controlled via these fields.

The field values themselves are used to filter the acknowledgement result code at each of the two processing levels, with MSH-15 corresponding to the commit level and MSH-16 corresponding to the application level. There are three recognised filter values:

- AL - All results
- SU - Only success results
- ER - Only error results.

The following table shows the allowable result codes for each level:

MSH	MSH Field Values	Allowable ACK codes
MSH-15	AL	CE - Commit Error, CR - Commit Reject, CA - Commit Accept
	SU	CA
	ER	CE, CR
	N (or anything else)	None
MSH-16	AL	AE - Application Error, AR - Application Reject, AA - Application Accept
	SU	AA
	ER	AE, AR
	N (or anything else)	None

2.2.1.1 Example Messages and Acknowledgements

The following message returns only AE/AR/AA:

```
MSH|^~\&|vendor|facility|VISBION|PACS|200508011200||ADT^A01|1000|P|2.4
||||
```

The following message returns only CE/CR followed by AE/AR (Enhanced mode):

```
MSH|^~\&|vendor|facility|VISBION|PACS|200508011200||ADT^A01|1000|P|2.4
|||ER|ER
```

The following message returns only CE/CR followed by AA (Enhanced mode):

```
MSH|^~\&|vendor|facility|VISBION|PACS|200508011200||ADT^A01|1000|P|2.4
|||ER|SU
```

The following message returns only AE/AR (Enhanced mode):

```
MSH|^~\&|vendor|facility|VISBION|PACS|200508011200||ADT^A01|1000|P|2.4
|||N|ER
```

The following message returns only CA (Enhanced mode):

```
MSH|^~\&|vendor|facility|VISBION|PACS|200508011200||ADT^A01|1000|P|2.4
|||SU|N
```

2.3 Protocols

Visbion uses the standard HL7 Minimal Lower Layer Protocol (MLLP):

- Message Start - 0x0B
- Segment End - 0x0D
- Message End - 0x1C, 0x0D

2.4 Delimiters

The HL7Connector message parser supports messages with variable delimiters as per the HL7 specification, as well as supporting separator escape sequences.

Note:	The parser does not support unprintable hexadecimal character, unicode or multi-byte character sequences.

The following separator escape sequences are supported:

- \T\ - sub component separator
- \S\ - component separator
- \F\ - field separator
- \R\ - field repeater
- \E\ - escape character.

2.4.1 Separator Escape Sequence Examples

Separator Escape Sequence	Result
|The field separator is \F|	The field separator is |
.2\F\4.	2.4 (where '.' is the field separator)
|Some \S\ escaped \R\ data!|	Some ^ escaped ~ data!

3 Supported Inbound Events

Visbion currently supports the following inbound events:

HL7 Event	HL7 Event Description
ADT^A01	Admit Patient
ADT^A02	Transfer Patient
ADT^A03	Discharge Patient
ADT^A04	Register Patient
ADT^A05	Pre-admit Patient
ADT^A08	Update Patient Information
ADT^A11	Cancel Admit
ADT^A12	Cancel Transfer
ADT^A13	Cancel Discharge
ADT^A21	Start Home Leave
ADT^A22	End Home Leave
ADT^A28	Add Person
ADT^A31	Update Person Information
ADT^A38	Cancel Pre-admit
ADT^A40	Merge Patient - Patient Identifier List
ORM^O01	General Order
ORU^R01	Unsolicited Observation

3.1 ADT^A01 - Admit Patient

3.1.1 Description

This event is used only for inpatients, that is, patients that are admitted to a ward and assigned to a bed. It signals the beginning of a patient's stay in a healthcare facility.

3.1.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.1.3 Comments

The PID segment is used for identification. If the patient does not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data.

If the patient already exists on the system, the patient demographics are not updated from the PID segment, an Application Reject (AR) message is returned and a separate ADT^A31 message is sent.

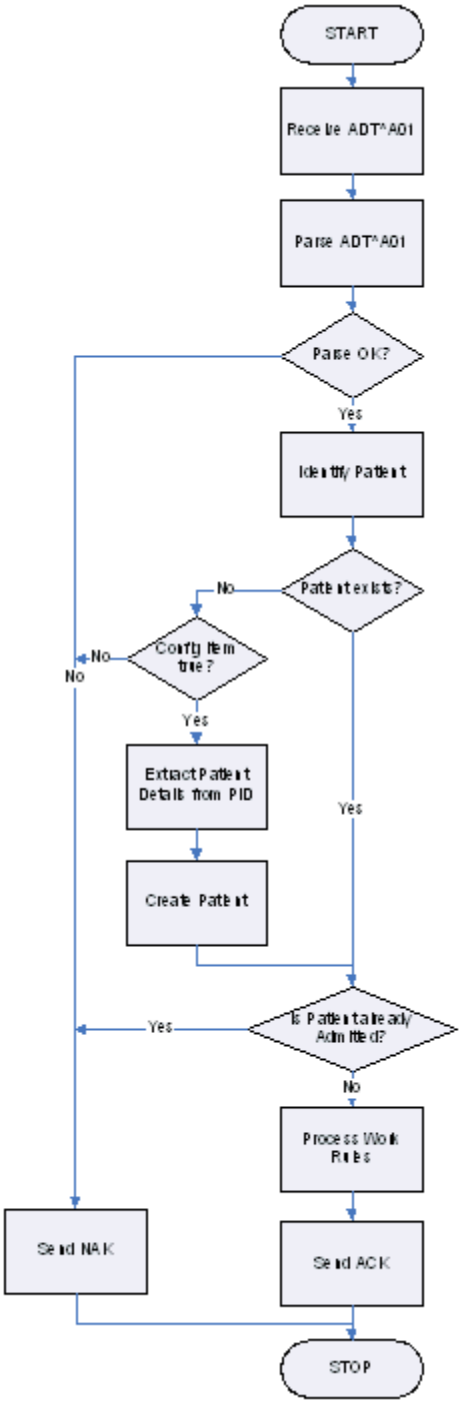
The information that directly relates to the trigger event (admission) is held in the PV1 segment:

- Patient Class must be set to `I' (Inpatient) in PV1-2 for this event to be accepted
- Hospital/Ward is stored in PV1-3
- Admission method is stored in PV1-4
- Referring Physician is stored in PV1-8
- Consulting Physician is stored in PV1-9
- Speciality is stored in PV1-10 (Hospital Service)
- Visit Number is stored in PV1-19
- Admission Date and/or Time is stored in PV1-44
- PV1-51 set to `V'.

3.1.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A01|1000|P|2.4|||AL|AL
EVN|A01|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$|||$PatientLast$^$PatientFi
rst$^$PatientMiddle$^^$PatientPrefix$||$BirthDate$|$Sex$|||$Address1$^
$Address2$^$City$^$County$^$PostCode$^$Country$||$WorkNumber$|$HomeNum
ber$||$Status$|$Religion$|||||$Ethnicity$|$BirthPlace$||||||$DeathDate
$
PV1||I|$Ward$^^^$Hospital$&$HospitalCode$|$AdmissionMethod$||||$RefPhy
sCode$^$RefPhysLast$^$RefPhysFirst$^$RefPhysMiddle$^$RefPhysPostfix$^$
RefPhysPrefix$|$ConPhysCode$^$ConPhysLast$^$ConPhysFirst$^$ConPhysMidd
le$^$ConPhysPostfix$^$ConPhysPrefix$|$HospitalSpecialty$|||||||||$Admi
ssionID$||||||||||||||||||||||||$AdmitDate$|||||||V
```

3.1.5 ADT^A01 Flowchart



3.2 ADT^A02 - Transfer Patient

3.2.1 Description

This event is used only for inpatients, that is, patients that are admitted to a ward and assigned to a bed. It is used for changing the physical location of an inpatient. Changes to admission date and/or time must be done by cancelling the admission and then readmitting the patient.

3.2.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.2.3 Comments

The PID segment is used for identification purposes only.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

The information that directly relates to the trigger event (transfer) is held in the PV1 segment:

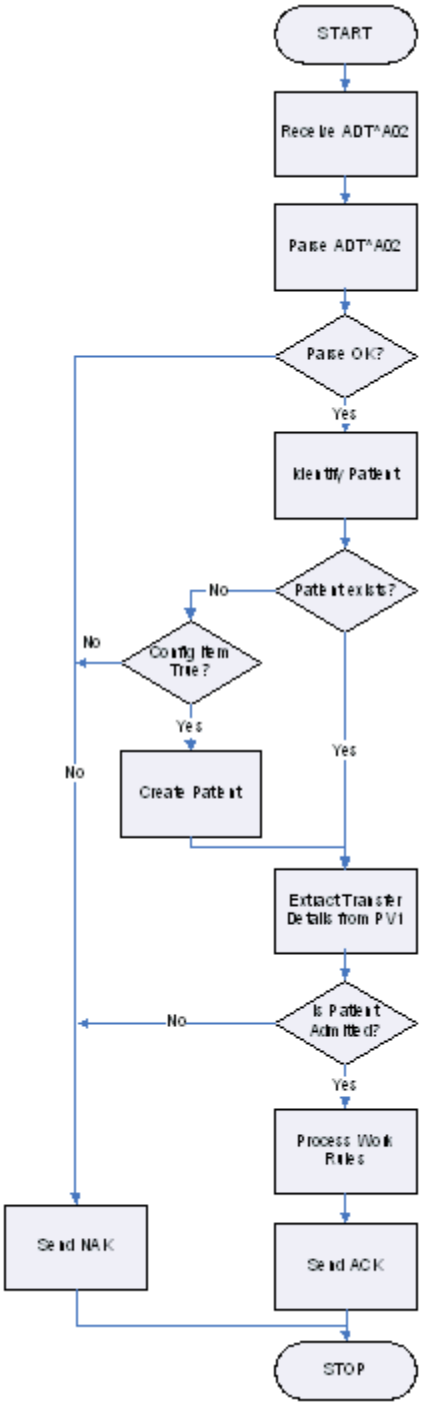
- Patient Class must be set to `I' (Inpatient) in PV1-2 for this event to be accepted
- New Hospital/Ward is stored in PV1-3 (Assigned Patient Location)
- Old Hospital/Ward is stored in PV1-6 (Prior Patient Location)
- Visit Number is stored in PV1-19
- Admission Date and/or Time is stored in PV1-44
- PV1-51 set to `V'.

Note: EVN-3 contains the date and/or time of the transfer.

3.2.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A02|1000|P|2.4|||AL|AL
EVN|A02|$RecordedDateTime$|$TransferDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||I|$Ward$^^^$Hospital$&$HospitalCode$|||$PriorWard$^^^$PriorHospit
al$&$PriorHospitalCode$||||||||||||$AdmissionID$|||||||||||||||||||||
||||$AdmitDate$|||||||V
```

3.2.5 ADT^A02 Flowchart



3.3 ADT^A03 - Discharge Patient

3.3.1 Description

This event is used only for inpatients, that is, patients that are admitted to a ward and assigned to a bed. It is used to signify that the patient's stay in the healthcare facility has ended.

3.3.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.3.3 Comments

The PID segment is used for identification purposes only.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

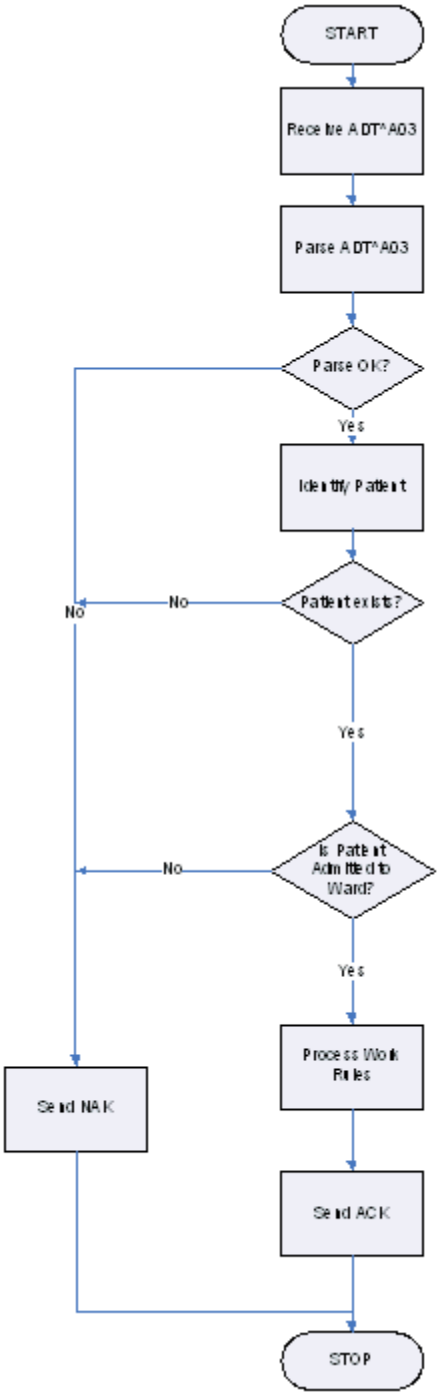
The information that directly relates to the trigger event (discharge) is held in the PV1 segment:

- Patient Class must be set to `I' (Inpatient) in PV1-2 for this event to be accepted
- Hospital/Ward is stored in PV1-3
- Visit Number is stored in PV1-19
- Discharge method is stored in PV1-36
- Discharge Date and/or Time is stored in PV1-45
- PV1-51 set to `V'.

3.3.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A01|1000|P|2.4|||AL|AL
EVN|A01|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$|||$PatientLast$^$PatientFi
rst$^$PatientMiddle$^^$PatientPrefix$||$BirthDate$|$Sex$|||$Address1$^
$Address2$^$City$^$County$^$PostCode$^$Country$||$WorkNumber$|$HomeNum
ber$||$Status$|$Religion$|||||$Ethnicity$|$BirthPlace$||||||$DeathDate
$
PV1||I|$Ward$^^^$Hospital$&$HospitalCode$|$AdmissionMethod$||||$RefPhy
sCode$^$RefPhysLast$^$RefPhysFirst$^$RefPhysMiddle$^$RefPhysPostfix$^$
RefPhysPrefix$|$ConPhysCode$^$ConPhysLast$^$ConPhysFirst$^$ConPhysMidd
le$^$ConPhysPostfix$^$ConPhysPrefix$|$HospitalSpecialty$|||||||||$Admi
ssionID$||||||||||||||||||||||||$AdmitDate$|||||||V
```

3.3.5 ADT^A03 Flowchart



3.4 ADT^A04 - Register Patient

3.4.1 Description

This event is used for outpatients. It is sent to PACS when a patient attends a scheduled visit. ADT^A04 can also be used for recording the attendance of non-scheduled cases.

3.4.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.4.3 Comments

The PID segment is used for identification.

If the patient attends a visit and it is found that they do not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data.

If the patient attends a visit and it is found that they already exist on the system then the patient demographics are not updated from the PID segment, an Application Reject (AR) message is returned and a separate ADT^A31 message is sent.

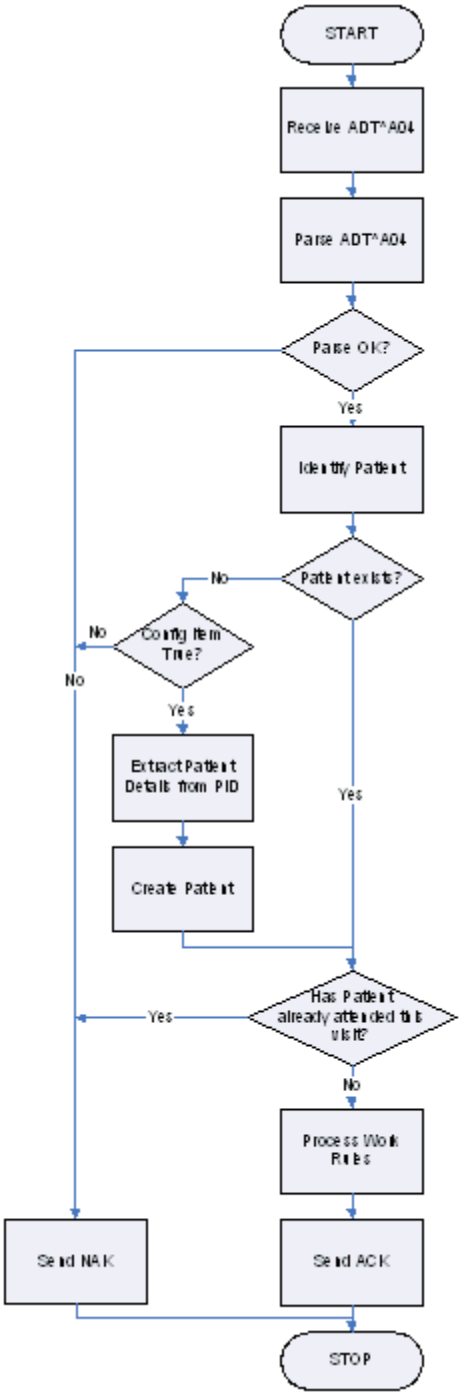
The information that directly relates to the trigger event (Registration) is held in the PV1 segment:

- Patient Class must be set to `O' (Outpatient) in PV1-2 for this event to be accepted
- Clinic/Room attended is stored in PV1-3 (Assigned Patient Location)
- Referring Physician is stored in PV1-8
- Consulting Physician is stored in PV1-9
- Visit Number is stored in PV1-19
- Attendance Date and/or Time is stored in PV1-44
- Completion date and/or time is stored in PV1-45
- PV1-51 set to `V'.

3.4.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A04|1000|P|2.4|||AL|AL
EVN|A04|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$|||$PatientLast$^$PatientFi
rst$^$PatientMiddle$^^$PatientPrefix$||$BirthDate$|$Sex$|||$Address1$^
$Address2$^$City$^$County$^$PostCode$^$Country$||$WorkNumber$|$HomeNum
ber$||$Status$|$Religion$|||||$Ethnicity$|$BirthPlace$||||||$DeathDate
$
PV1||O|$Clinic$^^^$Hospital$&$HospitalCode$|||||$RefPhysCode$^$RefPhys
Last$^$RefPhysFirst$^$RefPhysMiddle$^$RefPhysPostfix$^$RefPhysPrefix$|
$ConPhysCode$^$ConPhysLast$^$ConPhysFirst$^$ConPhysMiddle$^$ConPhysPos
tfix$^$ConPhysPrefix$|$HospitalSpecialty$|||||||||$EpisodeID$|||||||||
|||||||||||||||$AttendenceDate$|||||||V
```

3.4.5 ADT^A04 Flowchart



3.5 ADT^A05 - Pre-admit Patient

3.5.1 Description

This event is used for inpatients and outpatients. For inpatients, it is sent to PACS when a patient is scheduled to be admitted. The same message is also used when a pre-admission is revised, the Visit Number is used to identify an individual pre-admission in this case. For outpatients, it is used to schedule an appointment.

3.5.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.5.3 Comments

The PID segment is used for identification.

If the patient does not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data. If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

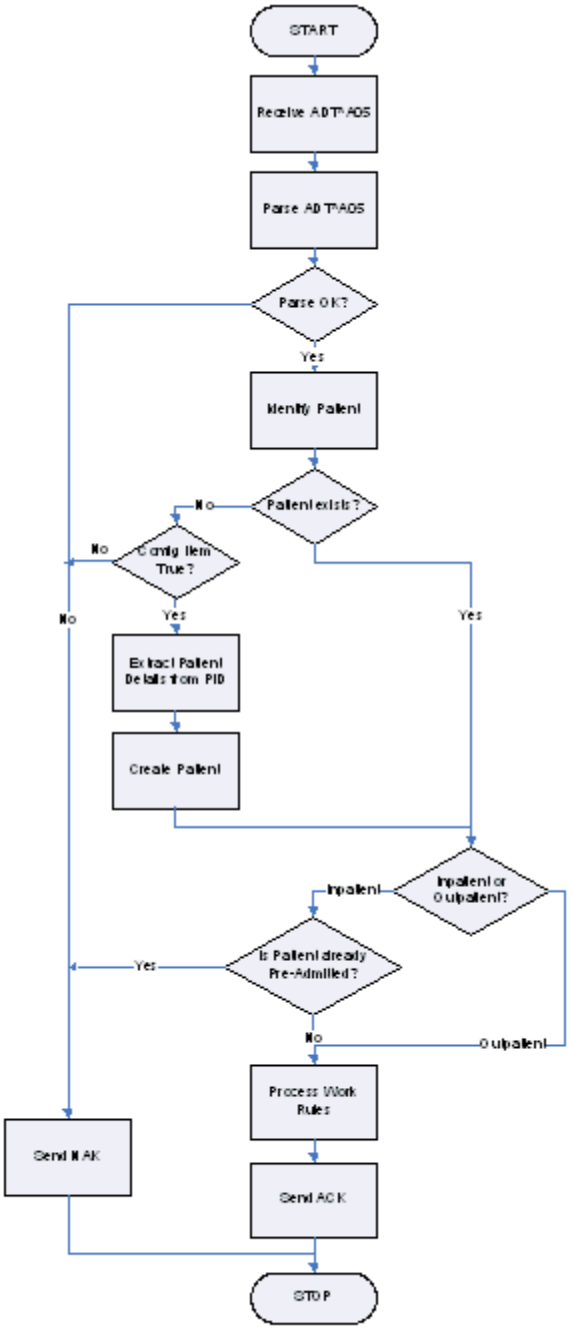
The information that directly relates to the trigger event (Pre-admission) is held in the PV1 segment:

- Scheduled Hospital and Ward/Clinic is stored in PV1-3 (Assigned Patient Location)
- Admission Method is stored in PV1-4 (For inpatients)
- Scheduled Referring Physician is stored in PV1-8
- Scheduled Consulting Physician is stored in PV1-9
- Scheduled Speciality is stored in PV1-10 (Hospital Service)
- Visit Number is stored in PV1-19
- Scheduled Admit or Appointment Date and/or Time is stored in PV1-44
- Completion date time is stored in PV1-45 (For outpatients)
- PV1-51 set to `V'.

3.5.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A05|1000|P|2.4|||AL|AL
EVN|A05|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$|||$PatientLast$^$PatientFi
rst$^$PatientMiddle$^^$PatientPrefix$||$BirthDate$|$Sex$|||$Address1$^
$Address2$^$City$^$County$^$PostCode$^$Country$||$WorkNumber$|$HomeNum
ber$||$Status$|$Religion$|||||$Ethnicity$|$BirthPlace$||||||$DeathDate
$
PV1||$PatientClass$|$Ward$^^^$Hospital$&$HospitalCode$|$AdmissionMetho
d$||||$RefPhysCode$^$RefPhysLast$^$RefPhysFirst$^$RefPhysMiddle$^$RefP
hysPostfix$^$RefPhysPrefix$|$ConPhysCode$^$ConPhysLast$^$ConPhysFirst$
^$ConPhysMiddle$^$ConPhysPostfix$^$ConPhysPrefix$|$HospitalSpecialty$|
||||||||$AdmissionID$||||||||||||||||||||||||||$AdmitDate$|||||||V
```

3.5.5 ADT^A05 Flowchart



3.6 ADT^A08 - Update Patient Details

3.6.1 Description

This event is used for inpatients and outpatients. It is sent to PACS whenever any change is made to a trigger event. The PID segment is used for identification purposes only, the details of the change to the trigger event are stored in the PV1 segment.

The trigger events that this message is used for are:

- Admission

- Transfer
- Discharge
- Outpatient Attendance.

3.6.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.6.3 Comments

The PID segment is used for identification and to update the patient demographic details if the patient exists on the system.

If the patient does not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data.

If the event is a discharge due to patient death then PID-29 (Patient Death Date and/or Time) should be valued.

EVN-3 contains the date and/or time of the Transfer.

The information that directly relates to the trigger event (admission) is held in the PV1 segment:

- Patient Class must be set to `I' (Inpatient) in PV1-2 for ADT events
- Patient Class must be set to `O' (Outpatient) in PV1-2 for Outpatient Attendance

Note: Admission fields are used for Outpatient Attendance.

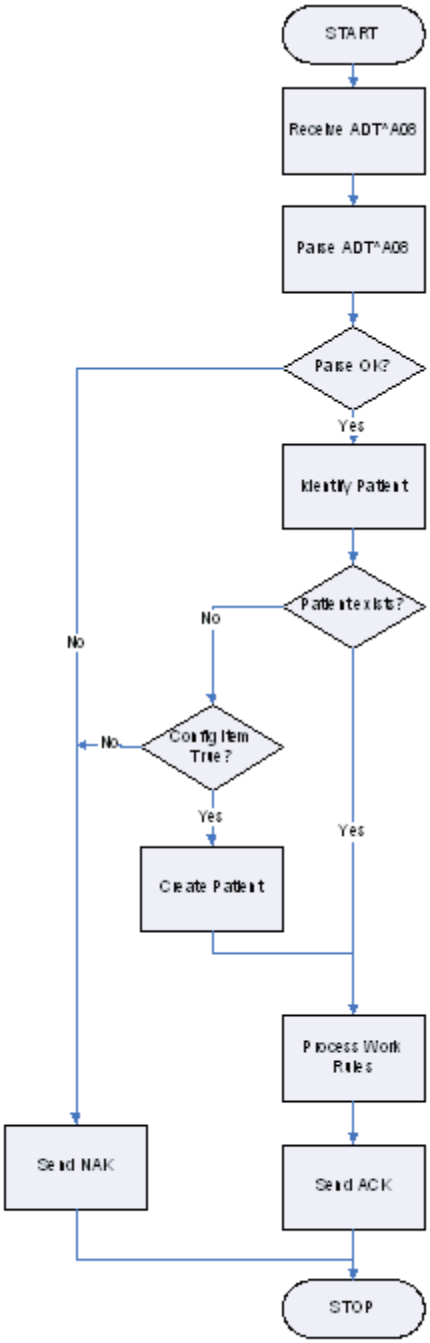
- Hospital/Ward or Clinic is stored in PV1-3 (Assigned Patient Location)
- Admission method is stored in PV1-4
- Old Hospital/Ward or Clinic is stored in PV1-6 (Prior Patient Location)
- Referring Physician is stored in PV1-8.
- Consulting Physician is stored in PV1-9
- Speciality is stored in PV1-10 (Hospital Service)
- Visit Number is stored in PV1-19
- Discharge Method is stored in PV1-36
- Admit Date and/or Time is stored in PV1-44
- Discharge Date and/or Time is stored in PV1-45
- PV1-51 set to `V'.

Note:	All the PV1 fields (except PV1-2) are treated as optional for this message and updates are done solely with the data present.

3.6.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A08|1000|P|2.4|||AL|AL
EVN|A08|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||$PatientClass$|$Ward$^^^$Hospital$&$HospitalCode$|$AdmissionMetho
d$||||$RefPhysCode$^$RefPhysLast$^$RefPhysFirst$^$RefPhysMiddle$^$RefP
hysPostfix$^$RefPhysPrefix$|$ConPhysCode$^$ConPhysLast$^$ConPhysFirst$
^$ConPhysMiddle$^$ConPhysPostfix$^$ConPhysPrefix$|$HospitalSpecialty$|
||||||||$AdmissionID$||||||||||||||||||||||||$AdmitDate$|$DischargeDa
te$||||||V
```

3.6.5 ADT^A08 Flowchart



3.7 ADT^A11 - Cancel Admit/Attendance

3.7.1 Description

This event is used for inpatients and outpatients. It is sent to PACS when an admission for a patient has been cancelled, or when a patient fails to attend a scheduled outpatient appointment.

3.7.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.7.3 Comments

The PID segment is used for identification.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

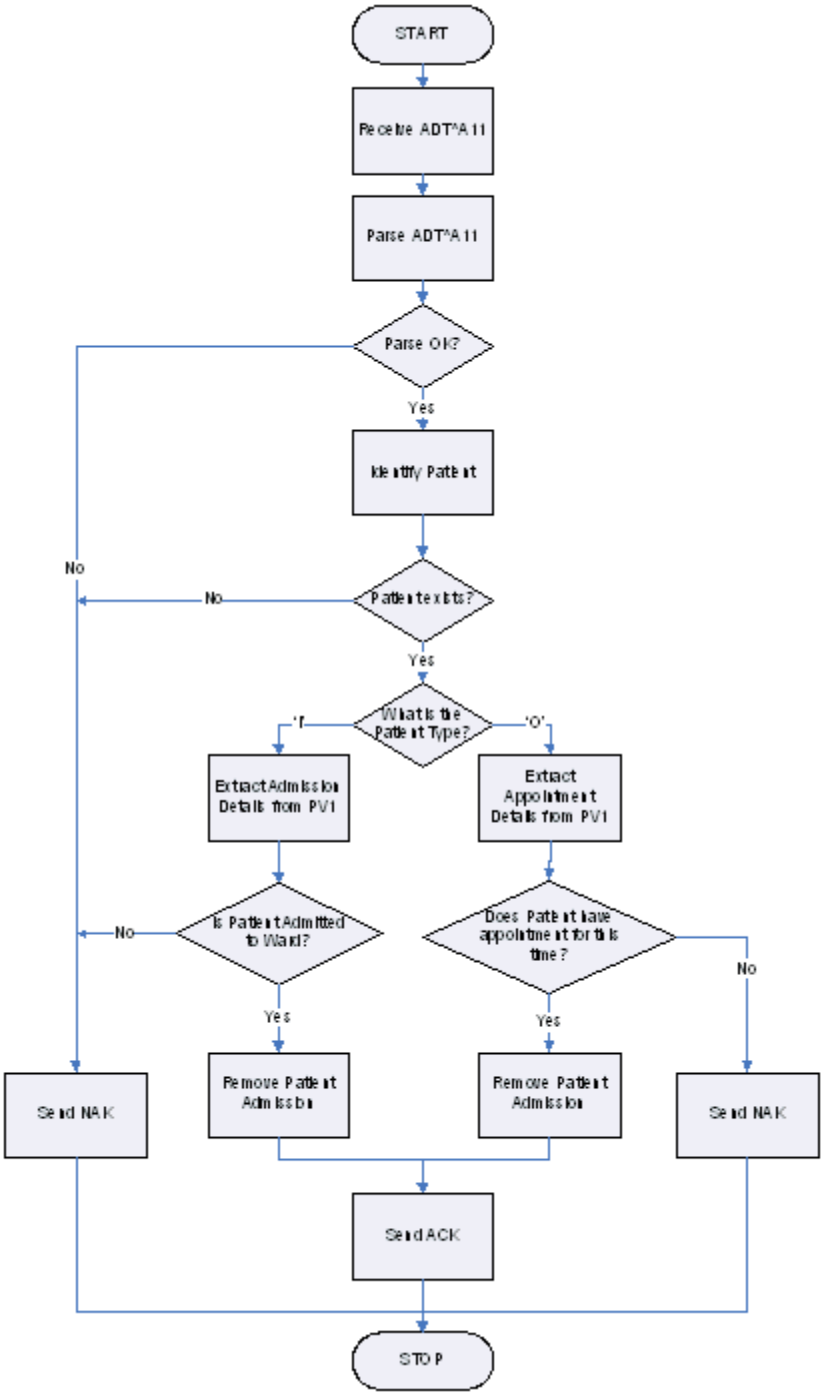
The information that directly relates to the trigger event (Admission) is held in the PV1 segment:

- Patient Class is set to `I' for cancel admission and set to `O' for cancel attendance in PV1-2
- Visit Number is stored in PV1-19
- PV1-51 set to `V'.

3.7.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A11|1000|P|2.4|||AL|AL
EVN|A11|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||$PatientClass$|||||||||||||||||$AdmissionID$|||||||||||||||||||
||||||||||V
```

3.7.5 ADT^A11 Flowchart



3.8 ADT^A12 - Cancel Transfer

3.8.1 Description

This event is used only for inpatients, that is, patients that are admitted to a ward and assigned to a bed. It is used to cancel a change of the physical location of an inpatient.

3.8.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.8.3 Comments

The PID segment is used for identification purposes only.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

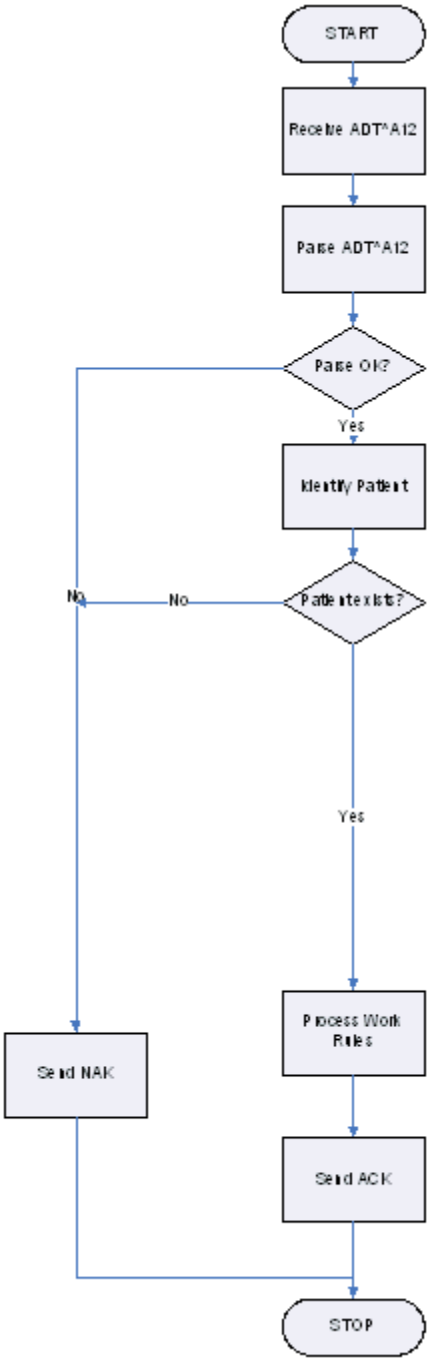
The information that directly relates to the trigger event (transfer) is held in the PV1 segment:

- Patient Class must be set to `I' (Inpatient) in PV1-2 for this event to be accepted
- New Hospital/Ward is stored in PV1-3 (Assigned Patient Location)
- Old Hospital/Ward is stored in PV1-6 (Prior Patient Location)
- Visit Number is stored in PV1-19
- Admission Date and/or Time is stored in PV1-44
- PV1-51 set to `V'.

3.8.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A12|1000|P|2.4|||AL|AL
EVN|A12|$RecordedDateTime$|$TransferDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||I|$Ward$^^^$Hospital$&$HospitalCode$|||$PriorWard$^^^$PriorHospit
al$&$PriorHospitalCode$||||||||||||$AdmissionID$|||||||||||||||||||||
||||$AdmitDate$|||||||V
```

3.8.5 ADT^A12 Flowchart



3.9 ADT^A13 - Cancel Discharge

3.9.1 Description

This event is used for inpatients only, that is, patients that are admitted to a ward and assigned to a bed. It is sent to PACS when a discharge for a patient has been cancelled.

3.9.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.9.3 Comments

The PID segment is used for identification purposes only.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

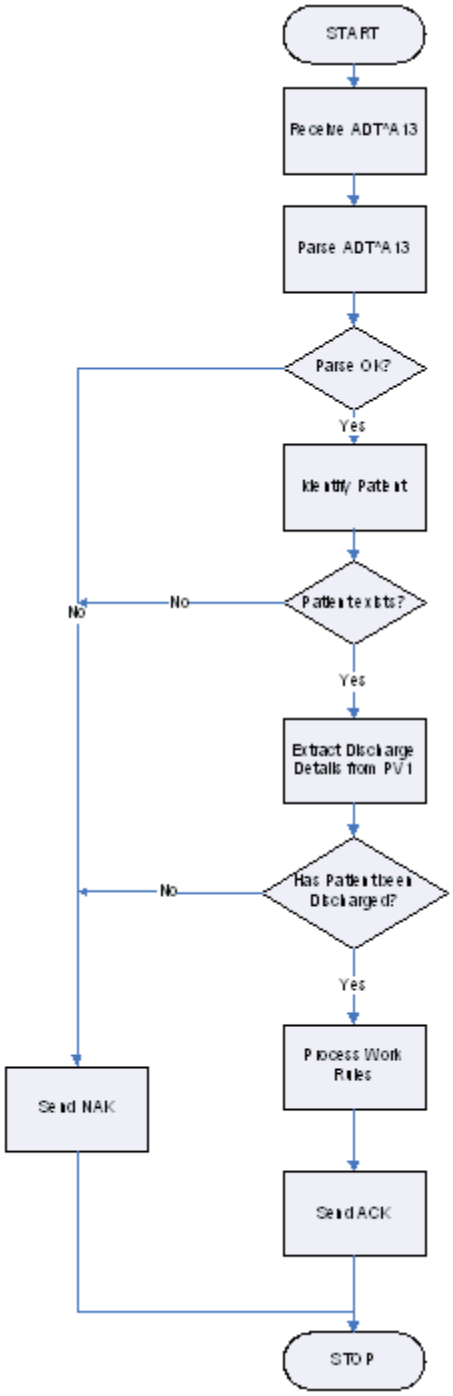
The information that directly relates to the trigger event (discharge) is held in the PV1 segment:

- Patient Class must be set to `I' (Inpatient) in PV1-2 for this event to be accepted
- Visit Number is stored in PV1-19
- PV1-51 set to `V'.

3.9.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A13|1000|P|2.4|||AL|AL
EVN|A13|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||I|||||||||||||||||$AdmissionID$|||||||||||||||||||||||||||||V
```

3.9.5 ADT^A13 Flowchart



3.10 ADT^A21 - Start Home Leave

3.10.1 Description

This message is used for inpatients, that is, patients that are admitted to a ward and assigned to a bed. It is sent to PACS when a patient goes on home leave.

3.10.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.10.3 Comments

The PID segment is used for identification only.

The information held in the PV1 segment is:

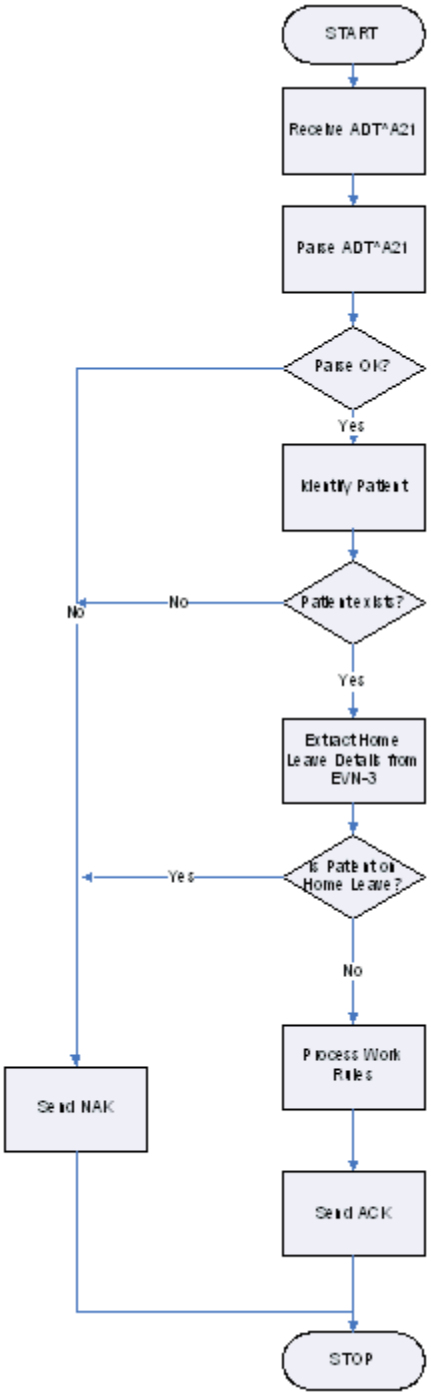
- Patient Class must be set to `I' in PV1-2
- Visit Number is stored in PV1-19
- PV1-51 set to `V'.

Note: EVN-3 contains the date and/or time that home leave started.

3.10.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A21|1000|P|2.4|||AL|AL
EVN|A21|$RecordedDateTime$|$StartHomeLeaveDate$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||I|||||||||||||||$AdmissionID$|||||||||||||||||||||||||||||V
```

3.10.5 ADT^A21 Flowchart



3.11 ADT^A22 - End Home Leave

3.11.1 Description

This message is used for inpatients, that is, patients that are admitted to a ward and assigned to a bed. It is sent to PACS when a patient returns from home leave.

3.11.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.11.3 Comments

The PID segment is used for identification only.

The information held in the PV1 segment is:

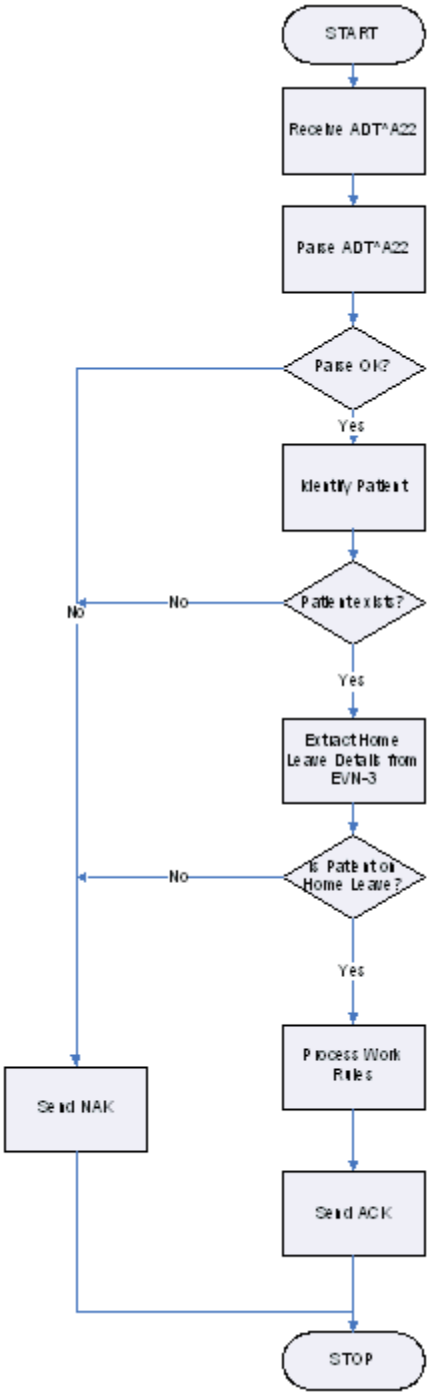
- Patient Class must be set to `I' in PV1-2
- Visit Number is stored in PV1-19
- PV1-51 set to `V'.

Note: EVN-3 contains the date and/or time that home leave ended.

3.11.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A22|1000|P|2.4|||AL|AL
EVN|A22|$RecordedDateTime$|$EndHomeLeaveDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||I|||||||||||||||$AdmissionID$|||||||||||||||||||||||||||||V
```

3.11.5 ADT^A22 Flowchart



3.12 ADT^A28 - Add Patient

3.12.1 Description

This event is used for inpatients and outpatients. It is sent to PACS whenever a patient is added to the sending system. It is normally sent when there is not a suitable trigger event, for example, admission or registration.

Details in the PID segment are used to populate the patient's demographic data. The PV1 segment is retained for backwards compatibility only.

3.12.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.12.3 Comments

The PID segment is used for identification.

If the patient does not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data.

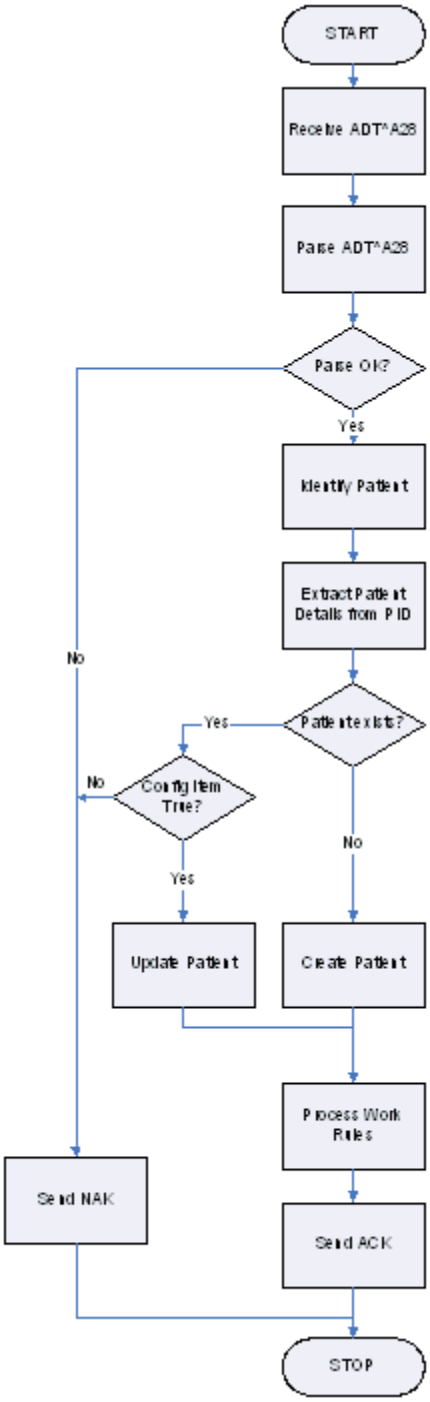
The information held in the PV1 segment is:

- Patient Class must be set to `N' in PV1-2.

3.12.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A28|1000|P|2.4|||AL|AL
EVN|A28|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$|||$PatientLast$^$PatientFi
rst$^$PatientMiddle$^^$PatientPrefix$||$BirthDate$|$Sex$|||$Address1$^
$Address2$^$City$^$County$^$PostCode$^$Country$||$WorkNumber$|$HomeNum
ber$||$Status$|$Religion$|||||$Ethnicity$|$BirthPlace$||||||$DeathDate
$
PV1||N
```

3.12.5 ADT^A28 Flowchart



3.13 ADT^A31 - Update Person Details

3.13.1 Description

This event is used for inpatients and outpatients. It is sent to PACS whenever any demographic details in the PID segment are changed and no other trigger event has occurred (for example, Admission). The PV1 segment is retained for backwards compatibility only.

HL7Connector is able to configure this event to act as an ADT^A28 - Add Patient in the event that the patient does not exist. This is useful when a database synchronisation is not possible prior to the implementation of the interface.

3.13.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.13.3 Comments

The PID segment is used for identification and to update the patient demographic details if the patient exists on the system.

If the patient does not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data.

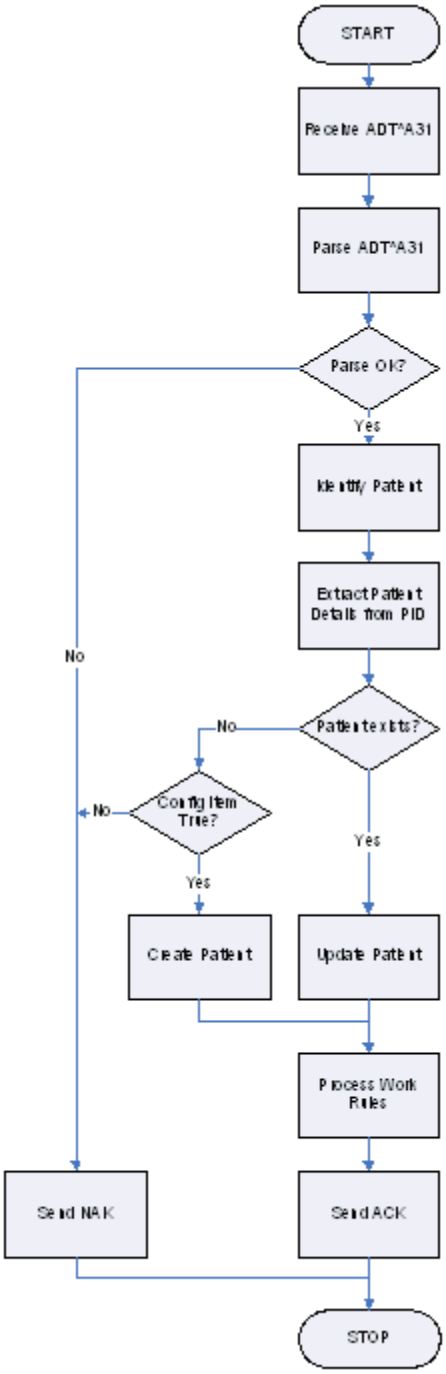
The information held in the PV1 segment is:

- Patient Class must be set to `N' in PV1-2.

3.13.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A31|1000|P|2.4|||AL|AL
EVN|A31|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$|||$PatientLast$^$PatientFi
rst$^$PatientMiddle$^^$PatientPrefix$||$BirthDate$|$Sex$|||$Address1$^
$Address2$^$City$^$County$^$PostCode$^$Country$||$WorkNumber$|$HomeNum
ber$||$Status$|$Religion$|||||$Ethnicity$|$BirthPlace$||||||$DeathDate
$
PV1||N
```

3.13.5 ADT^A31 Flowchart



3.14 ADT^A38 - Cancel Pre-admit

3.14.1 Description

This event is used for inpatients and outpatients. For inpatients, it is sent to PACS when a scheduled admission for a patient is cancelled. For outpatients, it is used to cancel an appointment.

3.14.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N

3.14.3 Comments

The PID segment is used for identification. If the patient does not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

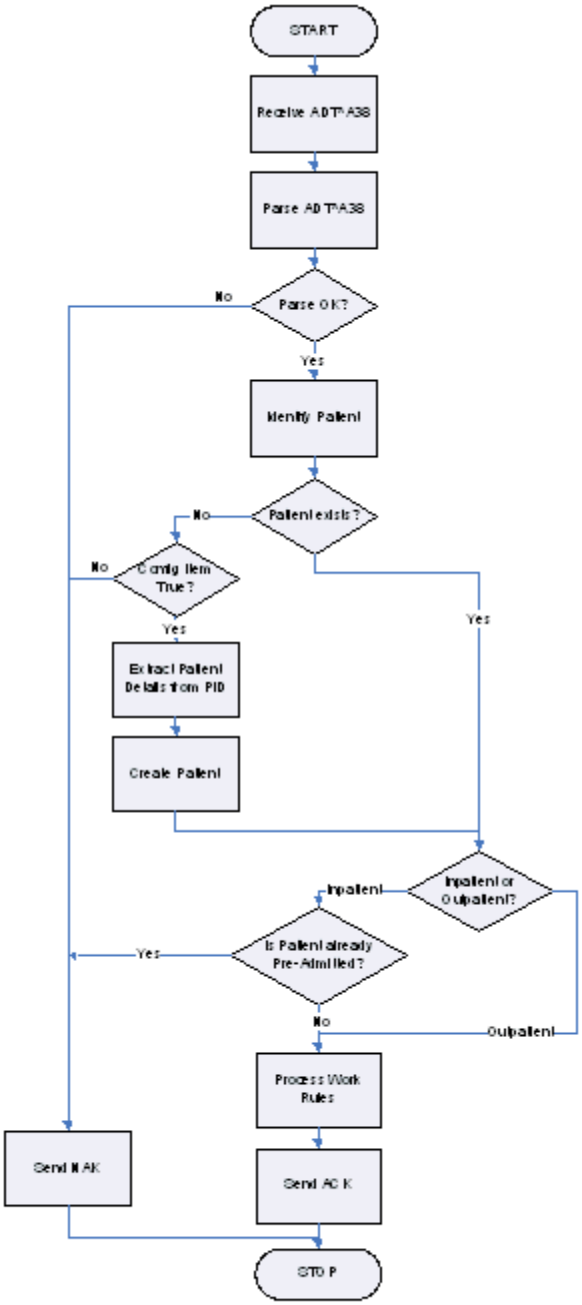
The information that directly relates to the trigger event (Pre-admission) is held in the PV1 segment:

- Patient Class must be set to `I' for inpatient (Cancel Pre-admission) or `O' for outpatient (Cancel Appointment) in PV1-2
- Visit Number is stored in PV1-19
- PV1-51 set to `V'.

3.14.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A38|1000|P|2.4|||AL|AL
EVN|A38|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||$PatientClass$||||||||||||||||||$AdmissionID$||||||||||||||||||||
||||||||||V
```

3.14.5 ADT^A38 Flowchart



3.15 ADT^A40 - Merge Patients

3.15.1 Description

This event is used for inpatients and outpatients. It is sent to signal a merge of records for a patient that was incorrectly filed under two different identifiers.

HL7Connector also uses this event to change a patient's identifier. If the correct patient identified in the PID segment does not exist, it will be created and the patient identified in the MRG segment will be merged into it.

3.15.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
EVN	Event Type	Y	N
PID	Patient Identification	Y	N
MRG	Merge Information	Y	Y

3.15.3 Comments

The PID segment is used for identification.

If the patient does not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

The information that directly relates to the trigger event (merge) is held in the PID and MRG segments:

- Patient to be retained is identified in the PID segment
- Patient(s) to be merged is identified in the MRG segment(s).

3.15.3.1 Merge Patients

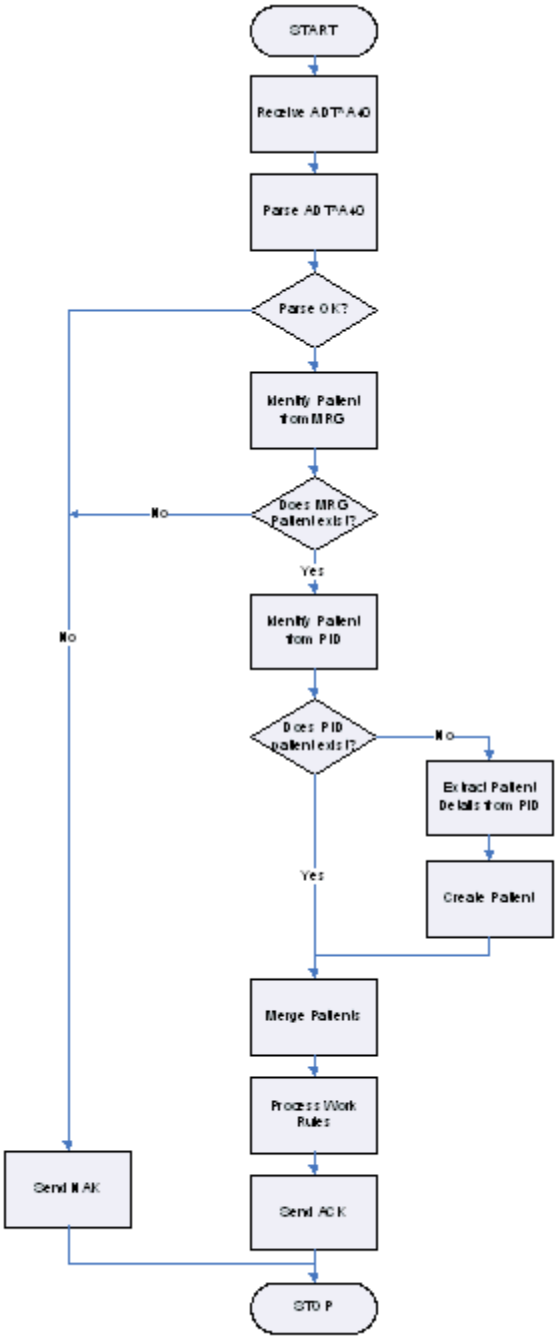
- Each MRG segment in the message is used to identify a unique single merge of a patient.
- MRG-1 can repeat to specify multiple patient number and number type pairs for that single patient.
- Merge patient matching is carried out in exactly the same way as master patient matching, and is therefore subject to the same rules.
- For each MRG segment, exactly one patient should be matched for merging. At least one merge patient must match.

The given list of merge patients will be merged into the master patient record, including all patient demographics and clinical data. Merge patients are then logically deleted.

3.15.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ADT^A40|1000|P|2.4|||AL|AL
EVN|A40|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$|||$PatientLast$^$PatientFi
rst$^$PatientMiddle$^^$PatientPrefix$||$BirthDate$|$Sex$|||$Address1$^
$Address2$^$City$^$County$^$PostCode$^$Country$||$WorkNumber$|$HomeNum
ber$||$Status$|$Religion$|||||$Ethnicity$|$BirthPlace$||||||$DeathDate
$
MRG|$MergePatientNumber$^^^^$MergePatientNumberType$
```

3.15.5 ADT^A40 Flowchart



3.16 ORM^O01 - General Order

3.16.1 Description

This event is used for inpatients and outpatients. It is sent to PACS every time a scan is scheduled on the RIS. It contains information about the scheduled visit and order that can be used to generate a DICOM Modality Worklist and/or to validate information received from the modality at the time of scan against the order. The ORM message also maintains the PACS Diary List.

An ORM^O01 message is sent for each requested procedure required to fill a single order. A `Revise Order' message should be considered as a `Cancel Order' followed by an `Add Order'.

HL7Connector is able to configure this event to act as an **ADT^A28 - Add Patient** in the event that the patient does not exist. This is useful when a database synchronisation is not possible prior to the implementation of the interface.

3.16.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
PID	Patient Identification	Y	N
PV1	Patient Visit	Y	N
ORC	Common Order	Y	Y
OBR	Order Detail	Y	Y

3.16.3 Comments

The PID segment is used for identification. If the patient does not exist in the database then, depending on configuration settings, it is added to the database using the details taken from the PID segment to populate the patient demographic data.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

A common use of this message is to populate the database with accession numbers generated by the sending system. This can be achieved during the XSLT transformation stage of message processing by generating <accession> `segment' elements with accession numbers in them. The message handling code for this message will insert these elements as accession numbers associated with the patient identified by the PID segment. Each <accession> element shall have an attribute named `type' that identifies the Visit number type the accession number will be created as. An example is given below:

```
<accession type="AccessionNumber">123456</accession>
<accession type="AccessionNumber">123457</accession>
```

The information that directly relates to the trigger event (add order) is held in the PV1, ORC and OBR segments:

- Patient Class must be set to `O' (Outpatient) in PV1-2
- Clinic/Room to be attended (Assigned Patient Location) is stored in PV1-3
- Consulting Physician is stored in PV1-9
- PV1-51 is set to `V'
- ORC-1 is set to `NW' (New Order), `CA' (Cancel Order) or `XO' (Change Order)
- Unique Order Number is stored in ORC-3
- Order date and/or time is stored in ORC-7
- Accession Number is stored in OBR-18.

3.16.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ORM^O01|1000|P|2.4|||AL|AL
EVN|O01|$RecordedDateTime$
PID||$PatientNumber$^^^^$PatientNumberType$
PV1||O|$Clinic$^^^$Hospital$&$HospitalCode$||||||$ConPhysCode$^$ConPhy
sLast$^$ConPhysFirst$^$ConPhysMiddle$^$ConPhysPostfix$^$ConPhysPrefix$
|||||||||||||||||||||||||||||||||||||V
ORC|$Mode NW/CA/XO$||$OrderID$||||$OrderDateTime$
```

```
OBR|||||||||||||||||||$AccessionNumber[1]$
OBR|||||||||||||||||||$AccessionNumber[n]$
```

3.17 ORU^R01 - Unsolicited Observation

3.17.1 Description

This event is used to send reports from a RIS to Visbion PACS. It is sent to PACS every time that a report is created, updated or has a status change.

This message gives PACS all the information it needs to send a DICOM SR message.

3.17.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
PID	Patient Identification	Y	N
OBR	Order Detail	Y	N
OBX	Observation/Result	Y	Y

3.17.3 Comments

The PID segment is used for identification. If the patient does not exist in the database then they are added to the database using the details taken from the PID segment to populate the patient demographic data.

If the patient already exists on the system, the patient demographics are not updated from the PID segment and a separate ADT^A31 message is sent.

The XSLT transform applied to this message generates a custom element called <structured-report> if the message is to be used to update or create a radiology report.

The <structured-report> element should be a plain-text version of the report extracted from the incoming message. In addition to the plain text of the report, in the body the <structured-report> element should have the following elements:

Element	Description
<booking-item-type>	A work type ID indicating the type of item being used to represent a booking.
<filler-order-number>	The filler order number of the booking this report is about.
<report-date>	The date the observations were made.
<reporting-body>	The organisation the report originated from.
<reporting-physician>	The physician who provided the observations. The following information is contained in the element: • code • prefix • first • middle • last • postfix

<title>	The title of the report as found in the patient record system.
<body>	The body or the lines of the report.
<completion>	Status of the report. This is an enumeration that can take the following values: • Partial • Completed Partial indicates that the observations are incomplete or observations have been made before all the images to report on were available. Completed indicates that the reporting-physician has recorded all relevant observations.
<verification>	The current verification status of the report. This is an enumeration with the following values: • Unverified • Verified An Unverified report is not currently verified. It is possible for a report to be verified and then updated requiring further verification. A Verified report indicates that the current observations in the report are verified.
<verification-body>	The name of the organisation providing the verification.
<verifying-physician>	The physician who has verified the report. The following information is contained in the segment: • code • prefix • first • middle • last • postfix
<verification-date>	The date the report was verified.

If a report element is found in the transformed incoming message the following process happens.

- The <booking-item-type> is used to select an existing work item by type. This is further filtered by selecting a work item that has a work parameter called <filler-order-number> that matches the supplied attribute <filler-order-number>. If no matches are found the rest of this process is skipped and an error alert generated to indicate that a work item with booking information about the report could not be found.
- The structured report is created/updated as required with information extracted from the <structured-report> segment. The message will be treated as an update if an existing form is found of the correct type (as defined by the configuration item ORUR01SRFormType) and has a filler order number matching the current work item.

The information that directly relates to the trigger event is held in the OBR and OBX segments:

- Report date and/or time is stored in OBR-22
- Report Status is stored in OBR-25
- Referring Physician is stored in OBR-32.

For each structured report a minimum of two OBX segments are required:

- The first OBX segment contains the report information, that is:
  - If the Report Status in OBR-25 is set to `O' then only the Report Title (OBX-5) is displayed

- If the Report Status in OBR-25 is set to `F' then the Report Title (OBX-5) and the verification information (OBX-14) is displayed.
    - The second and subsequent OBX segments contain each line of the report (including blank lines).

3.17.4 Message Structure

```
MSH|^~\&|$SendingApp$|$SendingFac$|$ReceivingApp$|$ReceivingFac$|$Mess
ageDateTime$||ORU^R01|1000|P|2.4|||AL|AL
PID||$PatientNumber$^^^^$PatientNumberType$
ORC|||$OrderID$
OBR|||||||||||||||||||||$ReportDateTime$|||$ReportStatus
O/F$|||||||$RepPhysCode$^$RepPhysLast$^$RepPhysFirst$^$RepPhysMiddle$^
$RepPhysPostfix$^$RepPhysPrefix$^$ReportingBody$
OBX|||||$ReportTitle$|||||||||$VerificationDateTime$||$VerPhysCode$^$V
erPhysLast$^$VerPhysFirst$^$VerPhysMiddle$^$VerPhysPostfix$^$VerPhysPr
efix$^$VerifyingBody$
OBX|1||||$ReportLine[1]$
OBX|n||||$ReportLine[n]$
```

4 Supported Outbound Responses

Visbion currently supports the following outbound responses:

HL7 Event	HL7 Event Description
ACK^Ann	ADT Acknowledgement
ORR^O02	General Order Acknowledgment
ACK^R01	Observation Acknowledgement

4.1 ACK^Ann - ADT Acknowledgement

4.1.1 Description

This message is sent as an acknowledgement to ADT messages.

4.1.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
MSA	Message Acknowledgment	Y	N

4.1.3 Comments

MSA-1 contains one of the following:

- CA - Commit Accept
- CR - Commit Reject
- CE - Commit Error
- AA - Application Accept
- AR - Application Reject
- AE - Application Error.

MSH-9 can contain `ACK' or `ACK^Ann'.

Note: Where *ACK* is the message type, *Ann* is the trigger event and *nn* is the inbound message trigger event, for example, inbound = ADT^A03, Outbound = ACK*A03.

4.1.4 Message Structure

ACK^A0n CR

```
MSH|^~\&|Visbion|PACS|||2005080001150738||ACK||P|2.4
MSA|CR||Parse failed: unexpected character 0x64 at buffer offset 78
```

ACK^A0n CA

```
MSH|^~\&|Visbion|PACS|vendor|facility|2005080001150520||ACK^A01|1000|P
|2.4
MSA|CA|1000|Success
```

ACK^A0n AR

```
MSH|^~\&|Visbion|PACS|vendor|facility|2005080001150520||ACK^A01|1000|P
|2.4
MSA|AR|1000|Patient Name (PID-5[1]) incorrectly formed
```

ACK^A0n AA

```
MSH|^~\&|Visbion|PACS|vendor|facility|2005080001150520||ACK^A01|1000|P
|2.4
MSA|AA|1000|Success
```

4.2 ORR^O02 - General Order Acknowledgement

4.2.1 Description

This message is sent as an acknowledgement to ORR^O01 messages.

4.2.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
MSA	Message Acknowledgment	Y	N
ORC	Common Order	N	Y

4.2.3 Comments

MSA-1 contains one of the following:

- CA - Commit Accept
- CR - Commit Reject
- CE - Commit Error
- AA - Application Accept
- AR - Application Reject
- AE - Application Error.

MSH-9 contains `ORR^O02'.

4.2.4 Message Structure

ORR^O02 CA

```
MSH|^~\&|Visbion|PACS|vendor|facility|2005080001151138||ORM^O02|1000|P
|2.4
MSA|CA|1000|Success
```

ORR^O02 AR

```
MSH|^~\&|Visbion|PACS|vendor|facility|2005080001151138||ORM^O02|1000|P
|2.4
MSA|AR|1000|No accession numbers specified (OBR[]-18)
```

4.3 ACK^R01 - Observation Acknowledgement

4.3.1 Description

This message is sent as an acknowledgement to ORU^R01 messages.

4.3.2 Relevant Segments

Segment	Description	Mandatory	Recurring
MSH	Message Header	Y	N
MSA	Message Acknowledgment	Y	N

4.3.3 Comments

MSA-1 contains one of the following:

- CA - Commit Accept
- CR - Commit Reject
- CE - Commit Error
- AA - Application Accept
- AR - Application Reject
- AE - Application Error.

MSH-9 can contain `ACK' or `ACK^R01'.

Note: Where *ACK* is the message type, *R01* is the trigger event, for example, Inbound = ORU^R01, Outbound = ACK^R01.

4.3.4 Message Structure

ACK^R01 CA

```
MSH|^~\&|Visbion|PACS|vendor|facility|2005080001151216||ACK^R01|1000|P
|2.4
MSA|CA|1000|Success
```

ACK^R01 AR

```
MSH|^~\&|Visbion|PACS|vendor|facility|2005080001151216||ACK^R01|1000|P
|2.4
MSA|AR|1000|Identify PID Patient failed
```

5 Segment Definitions

This section describes the HL7 segments that are used by Visbion.

Note: Field data validation does not occur at the parse stage.

Key:

R = Required

O = Optional

B = Backwards Compatible

C = Conditional.

Note: A 'Y' in the Repeat column denotes that the item can be repeated as a list.

5.1 MSH Segment

Seq	HL7 Field Name	R/O/B/C	Repeat	Comment
1	Field Separator	R		Usually `|'
2	Encoding Characters	R		Usually `^~\&'
3	Sending Application	R		
4	Sending Facility	R		
5	Receiving Application	R		
6	Receiving Facility	R		Site Code
7	Date and/or Time of Message	O		Current date and/or time
9	Message Type	R		For example, ADT^A04
10	Message Control ID	R		Unique Message ID, for example, 12506
11	Processing ID	R		`P'
12	Version ID	R		2.4
15	Accept Acknowledgement Type	O		`SU' - Only success results `ER' - Only error results `AL' - All results other or None
16	Application Acknowledgement Type	O		`SU' - Only success results `ER' - Only error results `AL' - All results other or None

5.2 EVN Segment

Seq	HL7 Field Name	R/O/B/C	Repeat	Comment
1	Event Type Code	O		For example, A04
2	Recorded Date and/or Time	R		In the format Year/Month/Day/Hour/Minutes/Seconds, for example, YYYYMMDDHHMMSS
3	Planned Date	C		In the format Year/Month/Day/Hour/Minutes/Seconds, for

	and/or Time (Transfer)			example, YYYYMMDDHHMMSS

5.3 PID Segment

Seq	HL7 Field Name	R/O/B/C	Length	Repeat	Comments
2 2.1 2.4 2.5	Patient Identifier Patient ID Assigning Authority Type Code	B	64	**5.3.1.1.1.1**	**5.3.1.1.1.2**
3 3.1 3.4 3.5	Patient Identifier List Patient ID Assigning Authority Type Code	R	64	Y	**5.3.1.1.1.3**
4 4.1 4.4 4.5	Alternate Patient ID Patient ID Assigning Authority Type Code	B	64	Y	
5 5.1 5.2 5.3 5.4 5.5	Patient Name Surname Forename Prefix Middle Suffix	R	64 64 64	Y	If an entry is made in the Surname field then the other fields are required (with the exception of middle and suffix which are optional).
7	Date of Birth	O	8		In the format Year/Month/Day, for example, YYYYMMDD
8	Administrative Sex	O	16		M - Male F - Female O - Other U - Unknown
9 9.1 9.2 9.3 9.4 9.5	Patient Alias Surname Forename Prefix Middle Suffix	B	64 64 64		If an entry is made in the Surname field then the other fields are required (with the exception of middle and suffix which are optional).
11 11.1 11.2 11.3 11.4 11.5 11.6	Patient Address Address 1 Address 2 City State Postal Country	O	64 64 64 64 64 64	Y	If an entry is made in the Address 1 field then the other fields are required (with the exception of Address 2 which is optional). For a full list of the Country Codes contact Visbion.

13	Phone Number - Home	O	64	Y	None
14	Phone Number - Business	O	64	Y	None
16	Marital Status Code	O	64		S - Single M - Married D - Divorced A - Separated
17	Religion Text	O	64		Actual values will be site specific. These are determined pre-implementation.
22	Ethnic Group Text	O	64		
23	Birth Place	O	64		Free Text
29	Patient Death Date and/or Time	O	8		None

5.4 **PV1 Segment**

Seq	HL7 Field Name	R/O/B/C	Repeat	Comment
2	Patient Class	R		`I' (Inpatient) or `O' (Outpatient)
3 3.1 3.4 3.4.1 3.4.2	Assigned Patient Location Point of Care Facility Hospital Name Hospital Code	O		Ward (if Patient Class = `I') Clinic (if Patient Class = `O') Hospital
4	Admission Method	R		`A' - Accident `E' - Emergency `L' - Labour or Delivery `R' - Routine
6 6.1 6.2 6.3 6.4	Prior Patient Location Point of Care Facility Hospital Name Hospital Code	O		Prior Hospital/Ward
8 8.1 8.2 8.3 8.4 8.5 8.6	Referring Physician Code Surname Forename Middle Suffix Prefix	O	Y	Referring Doctor. If an an entry is made in the Code field then the other fields are required (with the exception of middle and suffix which are optional).
9 9.1 9.2 9.3 9.4 9.5 9.6	Consulting Physician Code Surname Forename Middle Suffix Prefix	O	Y	Reporting Doctor/Radiologist. If an an entry is made in the Code field then the other fields are required (with the exception of middle and suffix which are optional).
10	Hospital Service	O		Speciality Code

19	Visit Number (Admission/Attendance ID)	C		Required for Update Messages
36	Discharge Method	R		`01' - On Clinical Advice `02' - By Self or Relative `03' - By MH Tribuneral or Court `04' - Patient Died `05' - Still Birth
44	Admit Date and/or Time	O		In the format Year/Month/Day/Hour/Minutes/Seconds, for example, YYYYMMDDHHMMSS
45	Discharge/Completion Date and/or Time	R	Y	In the format Year/Month/Day/Hour/Minutes/Seconds, for example, YYYYMMDDHHMMSS
51	Visit Indicator	O		`V'

5.5 MRG Segment

Seq	HL7 Field Name	R/O/B/C	Length	Repeat	Comment
1	Prior Patient Identifier List Patient ID and Type	R	64	Y	None

5.6 MSA Segment

Seq	HL7 Field Name	R/O/B/C	Repeat	Comment
1	Acknowledgement Code	R		CA - Commit Accept CR - Commit Reject CE - Commit Error AA - Application Accept AR - Application Reject AE - Application Error
2	Message Control ID	R		Unique Message ID, for example, 12506
3	Text Message	O		None

5.7 ORC Segment

Seq	HL7 Field Name	R/O/B/C	Length	Repeat	Comments
1	Order Control	R	2		NW - Created CA - Cancelled XO - Revised
3	Filler Order Entity Identifier	O	75		Unique Order Number
7	Order Date and/or Time	R	12	Y	Scheduled Date and Time of Procedure Performed

5.8 OBR Segment

Seq	HL7 Field	R/O/B/C	Length	Repeat	Comments

	Name				
18	Accession Number	R			
22	Report Date and/or Time	R			Date Report created
25	Result Status	R	1		O - Created F - Approved
32 32.1 32.2 32.3 32.4 32.5 32.6 32.7	Principle Results Interpreter Code Surname Forename Middle Suffix Prefix Facility	O	69		Reporting Physician (If an an entry is made in the Code field then the other fields are required with the exception of middle and suffix which are optional) and Reporting Organisation (for example, Hospital).

5.9 OBX Segment

The OBX segment is actual displayed as two seperate segments in an **ORU^R01 - Unsolicited Observation** message.

The first OBX segment displays information relating to the header of the report:

Seq	HL7 Field Name	R/O/B/C	Length	Repeat	Comments
5	Report Title	R			
14	Verification Date and/or Time	O			
16 16.1 16.7	Responsible Observer Name Facility Namescope	O			Verifying Physician and Verifying Organisation

The second and subsequent OBX segments display information relating to the body of the report:

Seq	HL7 Field Name	R/O/B/C	Length	Repeat	Comments
1	Set ID	R	4		
5	Report Line	O			A line of the report. (This can include a blank line.)

6 Contacting Visbion

Visbion delivers diagnostic imaging solutions to meet the demanding needs of clinicians. Our emphasis is on providing better patient care by maximising the efficiency and accuracy with which clinicians work. To do this we rely on extensive clinical feedback as we develop and deliver our products to institutions around the world.

Our product suite consists of solutions and applications developed to meet the requirements of individuals and large imaging departments alike. Visbion's manufacturer-independent, standards-based, enterprise-wide solutions, IPACS and VPACS, are delivered and supported by dedicated and comprehensive professional services.

To learn more about the Visbion range of solutions, visit our website at: www.visbion.com

6.1 Technical Support

If you have a technical question that cannot be answered by this guide, the online help or the system administrator, please visit the support area on our website to access customer support:

www.visbion.com/support

6.2 Visbion Headquarters

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