



Profiles for HL7 Messages from VistA to Commercial Image Managers (Anatomic Pathology Workflow)

Including Business and Functional Requirements

*Implements the Anatomic Pathology Workflow Profile of the IHE
Anatomic Pathology Technical Framework*

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Foreword

This document contains profiles for all messages using the Health Level Seven (HL7) Standard that are sent from the VistA Laboratory Package Anatomic Pathology module to commercial digital pathology systems (DPS). The purpose of this messaging is to transmit identifying and processing information about cases and slides to robotic slide viewers and whole-slide image managers so that this information can be coordinated with the findings that are entered at the time of slide interpretation.

VA has been a leader in the development of commercial system interfaces for over 10 years. The currently running VA-PACS interface transmits HL7 radiology and admission-discharge-transfer (ADT) registration messages from VistA to PACS that are conformant to the Integrating the Healthcare Enterprise (IHE) Radiology Technical Framework (Rad-TF). For Anatomic Pathology, VA will be sending HL7 Version 2.5.1 messages, as required by the IHE Anatomic Pathology Technical Framework (Pat-TF).

This document serves two purposes. It identifies the VistA health information system (HIS) data elements that will be handled by the new interface, as well as the HL7 fields that contain those data elements. It also defines the functional business requirements of this interface, including the various conditions that can occur during operation and the expected behavior of the commercial image manager under the possible circumstances.

Specifications in this document are organized into conformance profiles covering new order and order update messaging. The methodology used is that of the Conformance section (2.12) of Chapter 2 of HL7 Version 2.5.1. The messages used are intended to support the Anatomic Pathology Workflow (APW) profile of the IHE Pat-TF. As directed by the IHE Anatomic Pathology Technical Framework, HL7 segment definitions are incorporated from that framework and from the IHE IT Infrastructure Technical Framework.

Organization of This Document

This document presents an HL7 profile that is divided into sections as prescribed by the Conformance section of the HL7 Standard:

- **Use case**, including actors and roles
- **Interactions**, showing the message sent and expected processing within the communications portion of the interface
- **Dynamic definition**, which contains the business and functional requirements for message processing
- **Message level static definition**, showing the segment structure of the HL7 message used for the profile
- **Segment level static definition**, showing the elements used in each segment

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- **Field level static definition**, describing how field elements (and, where applicable, sub-elements) are populated, including values for enterprise-wide controlled vocabularies

The sections listed above conform to the conventions used in the discussion of HL7 Conformance Profiles in the *Health Level Seven Standard*, Version 2.5.1, Chapter 2, Section 2.12.

IHE Anatomic Pathology support is provided by the following HL7 messages.

IHE Transaction	Interaction	Message	Trigger Event(s)	Order Code(s)	Status	Originator	Destination
Placer Order Management [PAT-1]	Normal processing	OML	O21	NW (New order/service)	[empty]	VistA	Slide Processor
		ORL	O22	OK (Order/service accepted & OK) UA (Unable to accept order/service)	IP (in process)	Slide Processor	VistA
		OML	O21	SC (Status changed)	SC (scheduled) CM (complete)	Slide Processor (Order Filler)	VistA (Order Placer)
		ORL	O22	OK	SC (scheduled) CM (complete)	VistA (Order Placer)	Slide Processor (Order Filler)

Terminology

The term *file*, when used as a proper term, shall be understood to mean a VA File Manager file on the local VistA system, unless this document explicitly indicates otherwise. Likewise, the term *table*, when used as a proper term, shall be understood to mean a table (HL7-defined or user-defined) cited in the Health Level Seven Standard.

In the static definition portions of the profile, the following abbreviations are employed in the **Usage** column. Note the constraints on the HL7 definitions of **CE** and **X**: the conformant receiving application shall NOT raise an error if such fields are populated.

Value	Description	Comment
R	Required	A conforming sending application shall populate all "R" elements with a non-empty value. A conforming receiving application shall process (save/print/archive/etc.) or ignore the information conveyed by required elements. A conforming receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element.
RE	Required but may be empty	The element may be missing from the message, but must be sent by the sending application if there is relevant data. A conforming sending application must be capable of providing all "RE" elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then that element will be omitted. Receiving applications will be expected to process (save/print/archive/etc.) or ignore data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be generated because the element is missing).
C	Conditional	This usage has an associated condition predicate. If the predicate is satisfied: A conformant sending application must always send the element. A conformant receiving application must process or ignore data in the element. It may raise an error if the element is not present. If the predicate is NOT satisfied: A conformant sending application must NOT send the element. A conformant receiving application must NOT raise an error if the condition predicate is false, whether the element is present or not.

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Value	Description	Comment
CE	Conditional but it may be empty	<p>This usage has an associated condition predicate.</p> <p>If the predicate is satisfied:</p> <p>If the conforming sending application knows the required values for the element, then the application must send the element. If the conforming sending application does not know the values required for this element, then the element shall be omitted. The conforming sending application must be capable of knowing the element (when the predicate is true) for all 'CE' elements.</p> <p>If the element is present, the conformant receiving application shall process (display/print/archive/etc.) or ignore the values of that element. If the element is not present, the conformant receiving application shall not raise an error due to the presence or absence of the element.</p> <p>If the predicate is not satisfied:</p> <p>A conformant sending application must NOT send the element. A conformant receiving application must NOT raise an error if the condition predicate is false, whether the element is present or not.</p>
B	Retained for backward compatibility	<p>A conforming sending application may populate this element. However, this element has been deprecated in the HL7 Standard and may be withdrawn from a future version of the Standard. A future version of this Profile may withdraw support for this field.</p> <p>A conforming receiving application shall process (save/print/archive/etc.) or ignore the information conveyed. A conforming receiving application must not raise an error due to the presence or absence of a deprecated element.</p>
X	Not supported	<p>For conformant sending applications, the element will not be sent. Conforming receiving applications shall ignore the element whether it is sent or not.</p>

Open Issues

Issues raised during the review and trial implementation of this document shall be recorded in this section. Their resolution shall be recorded in the appropriate section of this document.

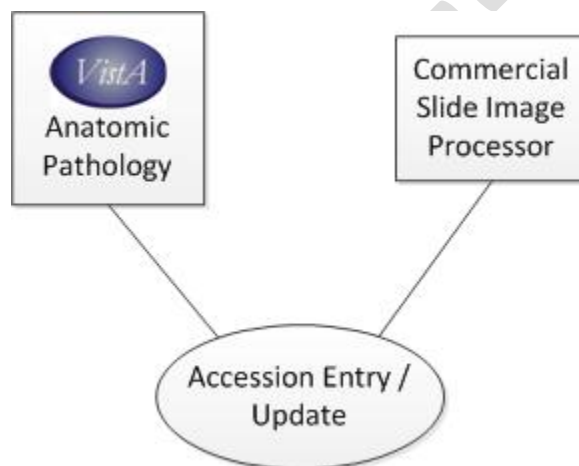
Date	Issue	Message Element	Responsible Party(ies), Action(s)
12-Apr-2012	Will needed information to identify specimen and slide be included in barcoded labels?	ORC-2	VistA Imaging to research
12-Apr-2012	Should HL7 Table 0371, <i>Additive/Preservative</i> (45 entries) be copied into this document from HL7 V2.5.1 Chapter 7 or cited by reference?	SPM-6	VistA Imaging team to schedule for discussion in review meeting
12-Apr-2012	What is relevance of SAC Segment to anatomic pathology, as contrasted with chemistry?	SAC	Awaiting clarification from HL7 AP WG [work in progress on V3 issues – will this work propagate to V2 as well?]
12-Apr-2012	IHE PAT-TF specified [2..*] cardinality for SAC. Why can't that be [1..*]?	SAC	MLH to discuss with IHE PAT TC

1 Accession Entry / Update Profile

1.1 Use Case

1.1.1 Scope

This transaction is used by the VistA Anatomic Pathology Module to inform a vendor system about a new accession. It also allows the VistA Anatomic Pathology Module to inform the vendor system that an accession has been cancelled or otherwise updated, and allows the vendor system to inform VistA that accession processing has begun (*i.e.*, that a slide has been mounted for viewing) or that accession processing is complete (*i.e.*, that slide viewing has ended or that the whole-slide image(s) associated with the accession have been deleted).



1.1.2 Actors and Roles

Actor: VistA Laboratory Package

Role: Notifies ancillary systems when VistA Anatomic Pathology accessions have been placed or updated.

Actor: Vendor System

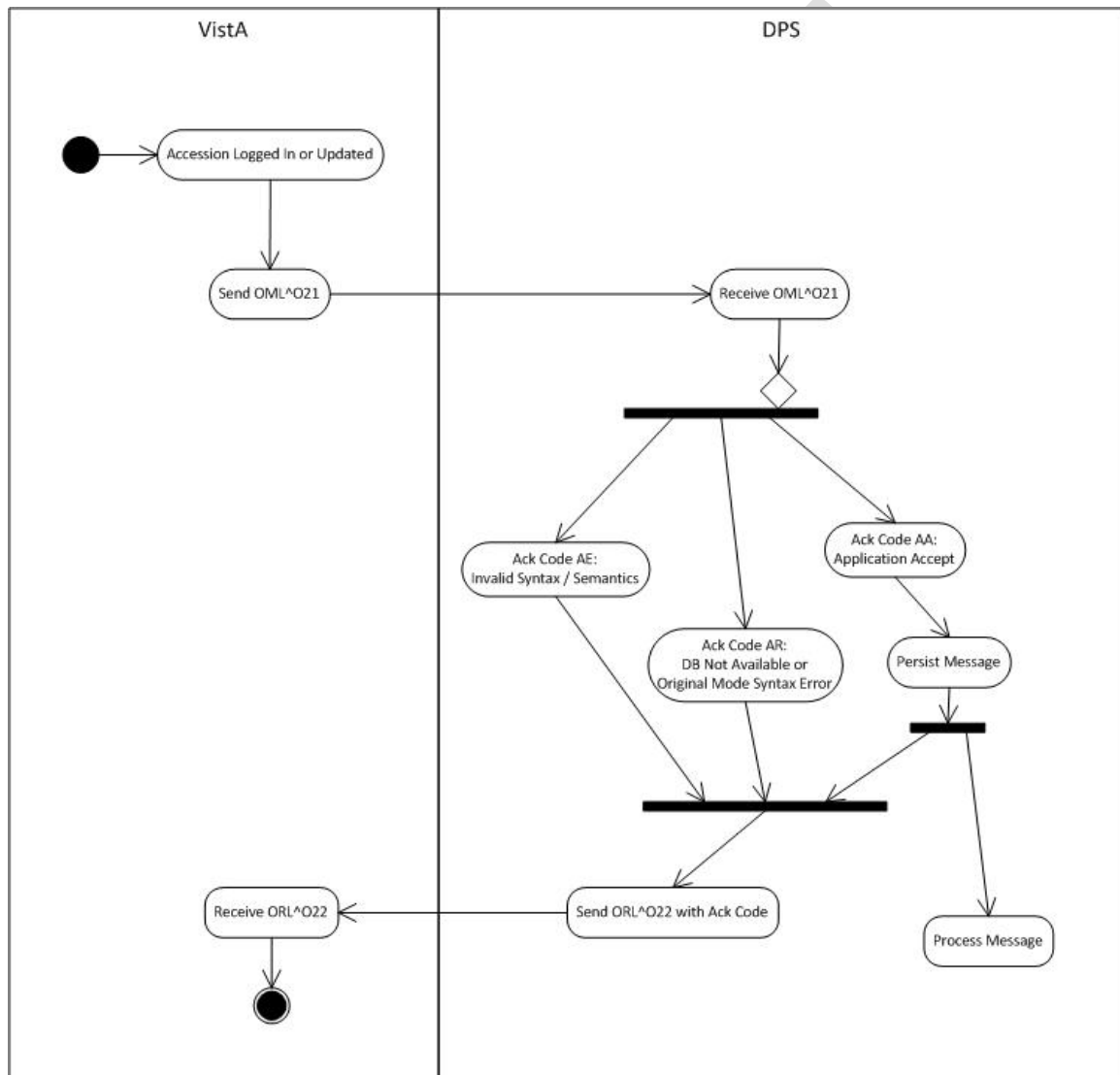
Role: Receives new accession and accession cancellation messages from VistA. Sends accession update and cancellation messages to VistA.

1.2 Interactions

The actors in this use case shall perform the behaviors shown in the following activity diagrams.

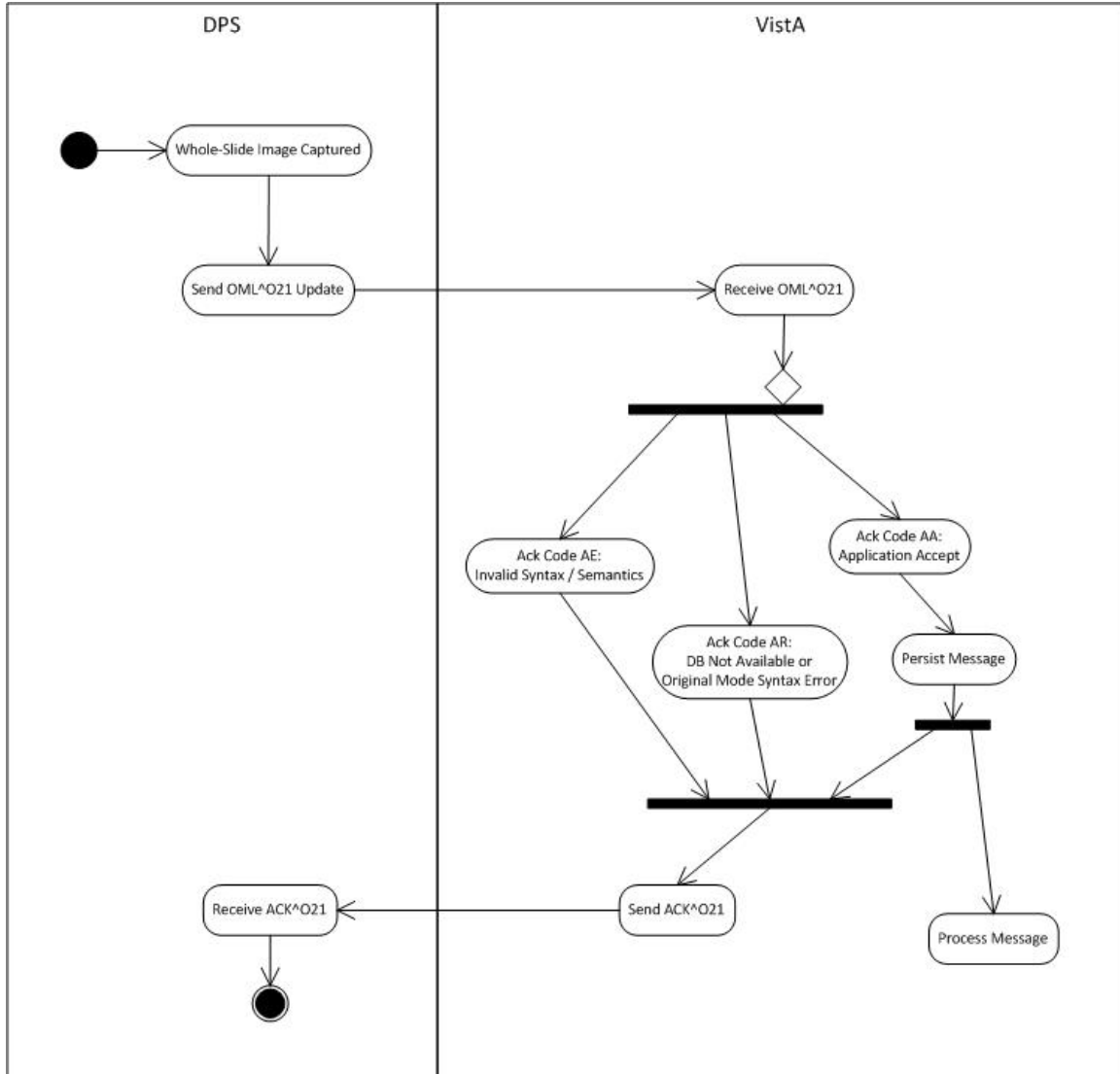
1.2.1 VistA to DPS: New Order or Order Update

The actions in the following activity diagram shall be performed when a new accession or accession update is sent from VistA to the digital pathology system.



1.2.2 DPS to VistA: Order Update

The actions in the following activity diagram shall be performed when an accession update is sent from the digital pathology system to VistA.



1.3 Dynamic Definition

VistA and the vendor system shall generate and process HL7 messages according to the following functional and business requirements.

1.3.1 Accession Message (OML)

The VistA Anatomic Pathology module shall transmit an OML message to the vendor system upon entry of an anatomic pathology accession or when an anatomic pathology accession is updated.

The vendor system shall process the message in conformance with the following requirements.

1.3.1.1 VistA Sends New Accession – Accession Number Not Found on Vendor System

When the vendor system receives an accession message containing order control code **NW** for an accession number not now in its system, the vendor system shall extract from the HL7 message, and shall store, the patient and accession information contained in the accession message. The vendor system shall generate and transmit an HL7 application acknowledgment message containing a value of **ORL** in component *MSH-9.1-message type*, **O22** in component *MSH-9.2-event type*, **AA** (application accept) in field *MSA-1-acknowledgment code*, **OK** in field *ORC-1-order control code*, and **IP** in field *ORC-5-order status*.

1.3.1.2 VistA Sends New Accession – Accession Number Found on Vendor System

When the vendor system receives an accession message containing order control code **NW** for an accession number already in its system, the vendor system shall generate and transmit an HL7 application acknowledgment message containing a value of **ORL** in component *MSH-9.1-message type*, **O22** in component *MSH-9.2-event type*, **AE** (application error) in field *MSA-1-acknowledgment code*, a fully populated **ERR** segment as described in Section 1.6.12 below, including code **205** (duplicate key identifier) in field *ERR-3-HL7 error code*, and **UA** in field *ORC-1-order control code*, and will not update the accession. The vendor system shall notify support staff and users of anomalies as needed.

1.3.1.3 VistA Sends Accession Update – Accession Number Not Found on Vendor System

When the vendor system receives an accession message containing order control code **XO** (change order/service request) for an accession number not in its system, the vendor system shall extract from the HL7 message, and shall store, the patient and accession information contained in the accession message. The vendor system shall generate and transmit an HL7 application acknowledgment message containing a value of **ORL** in component *MSH-9.1-message type*, **O22** in component *MSH-9.2-event type*, **AA** (application acknowledgment) in field *MSA-1-acknowledgment code*, and **OK** in field *ORC-1-order control code*, and **IP** in field *ORC-5-order status*.

1.3.1.4 VistA Sends Accession Update – Accession Number Found on Vendor System

When the vendor system receives an accession message containing order control code **XO** (change order/service request) for an accession number already in its system, the vendor system shall validate the values of *OBR-4-universal service ID*, *PID-3-patient ID list*, *PID-5-patient name*, *PID-7-date/time of birth*, and *PID-8-administrative sex* against the values previously received for the accession.

1.3.1.4.1 Universal Service ID and All PID Values Match

If all the values of *OBR-4-universal service ID*, *PID-3-patient ID list*, *PID-5-patient name*, *PID-7-date/time of birth*, and *PID-8-administrative sex* match the values previously received for the accession, the vendor system shall generate and transmit an HL7 application acknowledgment message containing a value of **ORL** in component *MSH-9.1-message type*, **O22** in component *MSH-9.2-event type*, **AA** (application accept) in field *MSA-1-acknowledgment code*, and **XR** (changed as requested) in field *ORC-1-order control code*, and will update the accession. The vendor system shall notify support staff and users of anomalies as needed.

1.3.1.4.2 Universal Service ID and/or One or More PID Values Do Not Match

If one or more of the values of *OBR-4-universal service ID*, *PID-3-patient ID list*, *PID-5-patient name*, *PID-7-date/time of birth*, and *PID-8-administrative sex* do not match the values previously received for the accession, the vendor system shall generate and transmit an HL7 application acknowledgment message containing a value of **ORL** in component *MSH-9.1-message type*, **O22** in component *MSH-9.2-event type*, **AE** (application error) in field *MSA-1-acknowledgment code*, a fully populated ERR segment as described in Section 1.6.12 below, including code **204** (unknown key identifier) in field *ERR-3-HL7 error code*, and **UX** (unable to change) in field *ORC-1-order control code*, and will not update the accession. The vendor system shall notify support staff and users of anomalies as needed.

1.3.1.5 VistA Requests Deletion of Images – Accession Number Found on Vendor System

When the vendor system receives an accession message containing order control code **ZX** for an accession number already in its system, the vendor system shall delete the snapshot or whole-slide images from its system.

1.3.1.5.1 Deletion Successful

If the snapshot or whole-slide images were deleted successfully, the vendor system shall generate and transmit an HL7 order update message containing a value of **OML** in component *MSH-9.1-message type*, **O21** in component *MSH-9.2-event type*, and **XR** in field *ORC-1-order control code*.

1.3.1.5.2 Deletion Unsuccessful

If the snapshot or whole-slide images were not deleted successfully, the vendor system shall generate and transmit an HL7 order update message containing a value of **OML** in component *MSH-9.1-message type*, **O21** in component *MSH-9.2-event type*, and **UX** in field *ORC-1-order control code*.

1.3.1.6 VistA Requests Deletion of Images – Accession Number Not Found on Vendor System

When the vendor system receives an accession message containing order control code **ZX** for an accession number not in its system, the vendor system shall generate and transmit an HL7 application acknowledgment message containing a value of **ORL** in component *MSH-9.1-message type*, **O22** in component *MSH-9.2-event type*, **AE** (application error) in field *MSA-1-acknowledgment code*, a fully populated ERR segment as described in Section 1.6.12 below, including code **204** (unknown key identifier) in field *ERR-3-HL7 error code.*, and **UX** in field *ORC-1-order control code*. The vendor system shall notify support staff and users of anomalies as needed.

1.3.1.7 Vendor System Completes Whole-Slide Image Acquisition

When the vendor system has completed acquisition of a whole-slide image, the vendor system shall generate and transmit an HL7 order update message.

1.3.1.7.1 WSI Acquisition Order Update Message – MSH Segment

The order update message sent by the vendor system at the completion of whole-slide image acquisition shall contain a value of **ORL** in component *MSH-9.1-message type* and a value of **O21** in component *MSH-9.2-event type.*,

1.3.1.7.2 WSI Acquisition Order Update Message – ORC Segment

The order update message sent by the vendor system at the completion of whole-slide image acquisition shall contain a value of **SC** in field *ORC-1-order control code*, **IP** in field *ORC-5-order status*, and **IMAGEACQ** in component *ORC-16.2-order control code reason-text*.

1.3.1.7.3 WSI Acquisition Order Update Message – OBX Segment

The order update message sent by the vendor system at the completion of whole-slide image acquisition shall include an OBX segment containing a value of **RP** in field *OBX-2-value type*, **IMAGE URI** in component *OBX-3-observation identifier-text*, and the uniform resource identifier of the whole-slide image in field *OBX-5-observation value*.

1.3.2 Acknowledgment Message (ACK)

1.3.2.1 ERR Segment To Be Sent for AE and AR Conditions

When an exception condition is determined to exist after processing a received message, the receiver shall return an application acknowledgment message whose MSA segment contains acknowledgment code **AE** (Application Error) or **AR** (Application Reject) as appropriate, and shall populate the message's ERR segment with all relevant error information including the error location and the

appropriate error code from HL7 Table 0357. See Sections 1.5.12 and 1.6.12 for more information on populating the ERR segment.

1.3.2.2 Incorrect Message Type, Trigger Event, Version ID, or Processing Code to Cause Reject

If the value received in *MSH-9.1-message type*, *MSH-9.2-trigger event*, *MSH-11-processing code*, or *MSH-12-version ID* is invalid, the receiver shall return an acknowledgment message of type ACK containing the value **AR** (application reject) in *MSA-1-acknowledgment code*, and an ERR segment containing all relevant error information including the error location and the appropriate error code from HL7 Table 0357. See Sections 1.5.12 and 1.6.12 for more information on populating the ERR segment.

1.3.2.3 Incorrect Receiving Application or Receiving Facility to Cause Error

If the value received in *MSH-5-receiving application* or *MSH-6-receiving facility* is invalid, the receiver shall return an acknowledgment message of type ACK containing the value **AE** (application error) *MSA-1-acknowledgment code*, and the value **103** (table value not found) in *ERR-3-error code*. See Sections 1.5.12 and 1.6.12 for more information on populating the ERR segment.

1.4 Static Definition – Message Level

HL7 messages shall be populated and processed according to the following abstract message definitions.

1.4.1 Accession Message

An Anatomic Pathology accession may comprise multiple specimen accessions, and each specimen accession may be present on multiple slides. Thus, in conformance with the IHE Anatomic Pathology Technical Framework, VistA shall send accessions using the OML^021 message, which contains a list of ordered procedures, a list of specimen accessions under each procedure, and a list of slides under each specimen accession. When the commercial Anatomic Pathology image manager receives a valid OML^021 message, it shall send an ORL^022 acknowledgment message (see Section 1.4.2 below).

The commercial Anatomic Pathology image manager may send one or more OML^021 order update messages. These may be used, for example, to record specimen receipt or to inform VistA of the completion of an interpretation or of the deletion of whole slide images. When VistA receives a valid OML^021 message, it shall send an ORL^022 acknowledgment message (see Section 1.4.2 below).

Segment	OML Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
[--- PATIENT begin	RE	[0..1]	
PID	Patient Identification	R	[1..1]	3
[PV1]	Patient Visit	RE	[0..1]	3

Segment	OML Message	Usage	Cardinality	HL7 Chapter
]	--- PATIENT end			
{	--- ORDER begin	R	[1..99]	
ORC	Common Order (for one battery)	R	[1..1]	4
[TQ1]	Timing Quantity	RE	[0..1]	4
	--- OBSERVATION REQUEST begin	R	[1..1]	
OBR	Observation Request	R	[1..1]	4
{ [NTE] }	Notes and Comments	RE	[0..*]	2
[{	--- OBSERVATION begin	RE	[0..*]	
OBX	Observation Result	R	[1..1]	7
[{NTE}]	Comments of the result	CE	[0..*]	2
}]	--- OBSERVATION end			
[{	--- SPECIMEN begin	R	[1..*]	
SPM	Specimen	R	[1..1]	7
[{SAC}]	Container	C	[2..*]	13
}]	--- SPECIMEN end			
	--- OBSERVATION REQUEST end			
}	--- ORDER end			
{ IPC }	Imaging Procedure Control	R	[1..99]	4

1.4.2 Commit Acknowledgment Message

The ACK^021 message is sent by the receiver of an OML^021 message to indicate that the message has been received and committed to safe storage.

Segment	ACK Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
MSA	Message Acknowledgment	R	[1..1]	2
[{ERR}]	Error	RE	[0..99]	2

1.4.3 Application Acknowledgment Message

The ORL^022 message is sent by the receiver of an OML^021 message to indicate that the message has been processed.

Segment	ORL Message	Usage	Cardinality	HL7 Chapter
MSH	Message Header	R	[1..1]	2
MSA	Message Acknowledgment	R	[1..1]	2
[{ERR}]	Error	RE	[0..99]	2
[PID]	Patient Identification	RE	[0..1]	3
{	--- ORDER begin	R	[1..*]	
ORC	Common Order	R	[1..1]	4
OBR	Observation Request	R	[1..1]	4
}	--- ORDER end			

1.5 Static Definition – Segment Level

Fields in HL7 messages shall be populated and processed according to the following Segment Attribute Tables.

1.5.1 MSH Segment

The following is a listing of all the fields defined for the MSH Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.1, “MSH Segment Fields,” for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	1	SI	R	[1..1]		00001	Field Separator
2	4	ST	R	[1..1]		00002	Encoding Characters
3	227	HD	R	[1..1]		00003	Sending Application
4	227	HD	R	[1..1]		00004	Sending Facility
5	227	HD	R	[1..1]		00005	Receiving Application
6	227	HD	R	[1..1]		00006	Receiving Facility
7	26	TS	R	[1..1]		00007	Date/Time of Message
8	40	ST	X	[0..0]		00008	Security
9	15	MSG	R	[1..1]		00009	Message Type
10	20	ST	R	[1..1]		00010	Message Control ID
11	3	PT	R	[1..1]		00011	Processing ID
12	60	VID	R	[1..1]		00012	Version ID
13	15	NM	X	[0..0]		00013	Sequence Number
14	180	ST	X	[0..0]		00014	Continuation Pointer
15	2	ID	X	[0..0]	0155	00015	Accept Acknowledgment Type
16	2	ID	X	[0..0]	0155	00016	Application Acknowledgment Type
17	3	ID	R	[1..1]	0399	00017	Country Code
18	16	ID	X	[0..0]	0211	00692	Character Set
19	250	CE	R	[1..1]		00693	Principal Language of Message
20	20	ID	X	[0..0]	0356	01317	Alternate Character Set Handling Scheme
21	427	EI	RE	[0..19]		01598	Message Profile Identifier

1.5.2 PID Segment

The following is a listing of all the fields defined for the PID Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.2, “PID Segment Fields,” for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00104	Set ID - PID
2	20	CX	X	[0..0]		00105	Patient ID
3	250	CX	R	[3..3]		00106	Patient Identifier List
4	20	CX	X	[0..0]		00107	Alternate Patient ID - PID

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
5	250	XPN	R	[1..1]		00108	Patient Name
6	250	XPN	X	[0..0]		00109	Mother's Maiden Name
7	26	TS	RE	[0..1]		00110	Date/Time of Birth
8	1	IS	R	[1..1]	0001	00111	Administrative Sex
9	250	XPN	X	[0..0]		00112	Patient Alias
10	250	CE	RE	[0..1]	0005	00113	Race
11	250	XAD	RE	[0..1]		00114	Patient Address
12	4	IS	X	[0..0]	0289	00115	County Code
13	250	XTN	RE	[0..1]		00116	Phone Number - Home
14	250	XTN	RE	[0..1]		00117	Phone Number - Business
15	250	CE	X	[0..0]	0296	00118	Primary Language
16	250	CE	X	[0..0]	0002	00119	Marital Status
17	250	CE	X	[0..0]	0006	00120	Religion
18	250	CX	X	[0..0]		00121	Patient Account Number
19	16	ST	X	[0..0]		00122	SSN Number - Patient
20	25	DLN	X	[0..0]		00123	Driver's License Number - Patient
21	250	CX	X	[0..0]		00124	Mother's Identifier
22	250	CE	RE	[0..1]	0189	00125	Ethnic Group
23	250	ST	X	[0..0]		00126	Birth Place
24	1	ID	X	[0..0]	0136	00127	Multiple Birth Indicator
25	2	NM	X	[0..0]		00128	Birth Order
26	250	CE	X	[0..0]	0171	00129	Citizenship
27	250	CE	X	[0..0]	0172	00130	Veterans Military Status
28	250	CE	X	[0..0]	0212	00739	Nationality
29	26	TS	X	[0..0]		00740	Patient Death Date and Time
30	1	ID	X	[0..0]	0136	00741	Patient Death Indicator
31	1	ID	X	[0..0]	0136	01535	Identity Unknown Indicator
32	20	IS	X	[0..0]	0445	01536	Identity Reliability Code
33	26	TS	X	[0..0]		01537	Last Update Date/Time
34	40	HD	X	[0..0]		01538	Last Update Facility
35	250	CE	X	[0..0]	0446	01539	Species Code
36	250	CE	X	[0..0]	0447	01540	Breed Code
37	80	ST	X	[0..0]		01541	Strain
38	250	CE	X	[0..0]	0429	01542	Production Class Code

1.5.3 PV1 Segment

The following is a listing of all the fields defined for the PV1 Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.3, "PV1 Segment Fields," for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	X	[0..0]		00131	Set ID - PV1
2	1	IS	R	[1..1]	0004	00132	Patient Class
3	80	PL	C	[0..1]		00133	Assigned Patient Location
4	2	IS	X	[0..0]	0007	00134	Admission Type
5	250	CX	X	[0..0]		00135	Preadmit Number
6	80	PL	X	[0..0]		00136	Prior Patient Location
7	250	XCN	X	[0..0]	0010	00137	Attending Doctor

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Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
8	250	XCN	X	[0..0]	0010	00138	Referring Doctor
9	250	XCN	X	[0..0]	0010	00139	Consulting Doctor
10	30	IS	X	[0..0]	0069	00140	Hospital Service
11	80	PL	X	[0..0]		00141	Temporary Location
12	2	IS	X	[0..0]	0087	00142	Preadmit Test Indicator
13	2	IS	X	[0..0]	0092	00143	Re-admission Indicator
14	6	IS	X	[0..0]	0023	00144	Admit Source
15	2	IS	X	[0..0]	0009	00145	Ambulatory Status
16	2	IS	RE	[0..1]	0099	00146	VIP Indicator
17	250	XCN	X	[0..0]	0010	00147	Admitting Doctor
18	2	IS	X	[0..0]	0018	00148	Patient Type
19	250	CX	R	[1..1]		00149	Visit Number
20	50	FC	X	[0..0]	0064	00150	Financial Class
21	2	IS	X	[0..0]	0032	00151	Charge Price Indicator
22	2	IS	X	[0..0]	0045	00152	Courtesy Code
23	2	IS	X	[0..0]	0046	00153	Credit Rating
24	2	IS	X	[0..0]	0044	00154	Contract Code
25	8	DT	X	[0..0]		00155	Contract Effective Date
26	12	NM	X	[0..0]		00156	Contract Amount
27	3	NM	X	[0..0]		00157	Contract Period
28	2	IS	X	[0..0]	0073	00158	Interest Code
29	1	IS	X	[0..0]	0110	00159	Transfer to Bad Debt Code
30	8	DT	X	[0..0]		00160	Transfer to Bad Debt Date
31	10	IS	X	[0..0]	0021	00161	Bad Debt Agency Code
32	12	NM	X	[0..0]		00162	Bad Debt Transfer Amount
33	12	NM	X	[0..0]		00163	Bad Debt Recovery Amount
34	1	IS	X	[0..0]	0111	00164	Delete Account Indicator
35	8	DT	X	[0..0]		00165	Delete Account Date
36	3	IS	X	[0..0]	0112	00166	Discharge Disposition
37	25	CM	X	[0..0]	0113	00167	Discharged to Location
38	250	CE	X	[0..0]	0114	00168	Diet Type
39	2	IS	X	[0..0]	0115	00169	Servicing Facility
40	1	IS	X	[0..0]	0116	00170	Bed Status
41	2	IS	X	[0..0]	0117	00171	Account Status
42	80	PL	X	[0..0]		00172	Pending Location
43	80	PL	X	[0..0]		00173	Prior Temporary Location
44	26	TS	X	[0..0]		00174	Admit Date/Time
45	26	TS	X	[0..0]		00175	Discharge Date/Time
46	12	NM	X	[0..0]		00176	Current Patient Balance
47	12	NM	X	[0..0]		00177	Total Charges
48	12	NM	X	[0..0]		00178	Total Adjustments
49	12	NM	X	[0..0]		00179	Total Payments
50	250	CX	X	[0..0]	0203	00180	Alternate Visit ID
51	1	IS	X	[0..0]	0326	01226	Visit Indicator
52	250	XCN	X	[0..0]	0010	01274	Other Healthcare Provider

1.5.4 ORC Segment

The following is a listing of all the fields defined for the ORC Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their

usage in the messages defined in this profile. Refer to Section 1.6.4, “ORC Segment Fields,” for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	2	ID	R	[1..1]	0119	00215	Order Control
2	22	EI	C	[0..1]		00216	Placer Order Number
3	22	EI	C	[0..1]		00217	Filler Order Number
4	22	EI	X	[0..1]		00218	Placer Group Number
5	2	ID	C	[0..1]	0038	00219	Order Status
6	1	ID	X	[0..0]	0121	00220	Response Flag
7	200	TQ	X	[1..1]		00221	Quantity/Timing
8	200	EIP	X	[0..1]		00222	Parent
9	26	TS	R	[1..1]		00223	Date/Time of Transaction
10	250	XCN	RE	[0..1]		00224	Entered By
11	250	XCN	RE	[0..1]		00225	Verified By
12	250	XCN	RE	[0..1]		00226	Ordering Provider
13	80	PL	X	[0..0]		00227	Enterer's Location
14	250	XTN	RE	[0..8]		00228	Call Back Phone Number
15	26	TS	X	[0..0]		00229	Order Effective Date/Time
16	250	CE	RE	[0..1]		00230	Order Control Code Reason
17	250	CE	RE	[0..1]		00231	Entering Organization
18	250	CE	X	[0..0]		00232	Entering Device
19	250	XCN	X	[0..0]		00233	Action By
20	250	CE	X	[0..0]	0339	01310	Advanced Beneficiary Notice Code
21	250	XON	RE	[0..1]		01311	Ordering Facility Name
22	250	XAD	X	[0..0]		01312	Ordering Facility Address
23	250	XTN	X	[0..0]		01313	Ordering Facility Phone Number
24	250	XAD	X	[0..0]		01314	Ordering Provider Address
25	250	CWE	X	[0..0]		01473	Order Status Modifier
26	60	CWE	X	[0..0]	0552	01641	Advanced Beneficiary Notice Override Reason
27	26	TS	X	[0..0]		01642	Filler's Expected Availability Date/Time
28	250	CWE	X	[0..0]	0177	00615	Confidentiality Code
29	250	CWE	X	[0..0]	0482	01643	Order Type
30	250	CNE	X	[0..0]	0483	01644	Enterer Authorization Mode
31	250	CWE	X	[0..0]		02286	Parent Universal Service Identifier

1.5.5 TQ1 Segment

The following is a listing of all the fields defined for the TQ1 Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.5, “TQ1 Segment Fields,” for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		01627	Set ID – TQ1
2	20	CQ	X	[0..0]		01628	Quantity
3	540	RPT	X	[0..0]	0335	01629	Repeat Pattern
4	20	TM	X	[0..0]		01630	Explicit Time
5	20	CQ	X	[0..0]		01631	Relative Time and Units
6	20	CQ	X	[0..0]		01632	Service Duration

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Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
7	26	TS	X	[0..0]		01633	Start Date/Time
8	26	TS	X	[0..0]		01634	End Date/Time
9	250	CWE	R	[1..1]	0485	01635	Priority
10	250	TX	X	[0..0]		01636	Condition Text
11	250	TX	X	[0..0]		01637	Text Instruction
12	10	ID	X	[0..0]	0427	01638	Conjunction
13	20	CQ	X	[0..0]		01639	Occurrence Duration
14	10	NM	X	[0..0]		01640	Total Occurrences

1.5.6 OBR Segment

The following is a listing of all the fields defined for the OBR Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.6, "OBR Segment Fields," for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00237	Set ID - OBR
2	22	EI	R	[1..1]		00216	Placer Order Number
3	22	EI	RE	[0..1]		00217	Filler Order Number
4	250	CE	R	[1..1]		00238	Universal Service Identifier
5	2	ID	X	[0..1]		00239	Priority - OBR
6	26	TS	X	[0..0]		00240	Requested Date/Time
7	26	TS	X	[0..0]		00241	Observation Date/Time
8	26	TS	X	[0..0]		00242	Observation End Date/Time
9	20	CQ	X	[0..0]		00243	Collection Volume
10	250	XCN	RE	[0..*]		00244	Collector Identifier
11	1	ID	RE	[0..1]	0065	00245	Specimen Action Code
12	250	CE	X	[0..0]		00246	Danger Code
13	300	ST	X	[0..0]		00247	Relevant Clinical Information
14	26	TS	X	[0..0]		00248	Specimen Received Date/Time
15	300	SPS	X	[0..0]		00249	Specimen Source
16	250	XCN	R	[1..1]		00226	Ordering Provider
17	250	XTN	RE	[0..8]		00250	Order Callback Phone Number
18	60	ST	X	[0..0]		00251	Placer Field 1
19	60	ST	X	[0..0]		00252	Placer Field 2
20	60	ST	X	[0..0]		00253	Filler Field 1
21	60	ST	X	[0..0]		00254	Filler Field 2
22	26	TS	X	[0..0]		00255	Results Rpt/Status Chng - Date/Time
23	40	MOC	X	[0..0]		00256	Charge to Practice
24	10	ID	X	[0..0]	0074	00257	Diagnostic Serv Sect ID
25	1	ID	RE	[0..1]	0123	00258	Result Status
26	400	PRL	X	[0..0]		00259	Parent Result
27	200	TQ	X	[0..0]		00221	Quantity/Timing
28	250	XCN	X	[0..0]		00260	Result Copies To
29	200	EIP	X	[0..0]		00222	Parent
30	20	ID	X	[0..0]	0124	00262	Transportation Mode
31	250	CE	X	[0..0]		00263	Reason for Study
32	200		X	[0..0]		00264	Principal Result Interpreter
33	200		X	[0..0]		00265	Assistant Result Interpreter
34	200		X	[0..0]		00266	Technician

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
35	200		X	[0..0]		00267	Transcriptionist
36	26	TS	X	[0..0]		00268	Scheduled Date/Time
37	4	NM	X	[0..0]		01028	Number of Sample Containers
38	250	CE	X	[0..0]		01029	Transport Logistics of Collected Sample
39	250	CE	X	[0..0]		01030	Collector's Comment
40	250	CE	X	[0..0]		01031	Transport Arrangement Responsibility
41	30	ID	X	[0..0]	0224	01032	Transport Arranged
42	1	ID	X	[0..0]	0225	01033	Escort Required
43	250	CE	X	[0..0]		01034	Planned Patient Transport Comment
44	250	CE	X	[0..0]	0088	00393	Procedure Code
45	250	CE	X	[0..0]	0340	01316	Procedure Code Modifier
46	250	CE	X	[0..0]	0411	01474	Placer Supplemental Service Information
47	250	CE	X	[0..0]	0411	01475	Filler Supplemental Service Information
48	250	CWE	X	[0..0]	0476	01646	Medically Necessary Duplicate Procedure Reason

1.5.7 NTE Segment

The following is a listing of all the fields defined for the NTE Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.7, "NTE Segment Fields," for a more detailed explanation of the fields used by VistA.

Information that can be coded with greater semantic precision in OBX segments or OBR segments shall not be sent in a NTE segment.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00096	Set ID – NTE
2	8	ID	RE	[0..1]		00097	Source of Comment
3	65536	FT	RE	[0..1]		00098	Comment
4	250	CE	RE	[0..1]		01318	Comment Type

1.5.8 OBX Segment

The following is a listing of all the fields defined for the OBX Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.8, "OBX Segment Fields," for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00569	Set ID – OBX
2	2	ID	C	[0..1]	0125	00570	Value Type
3	250	CE	R	[1..1]		00571	Observation Identifier
4	20	ST	C	[0..1]		00572	Observation Sub-ID
5	99999	Varies	C	[0..1]		00573	Observation Value
6	250	CE	C	[0..1]		00574	Units
7	60	ST	RE	[0..1]		00575	References Range
8	5	IS	RE	[0..1]	0078	00576	Abnormal Flags
9	5	NM	X	[0..0]		00577	Probability
10	2	ID	X	[0..0]	0080	00578	Nature of Abnormal Test

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Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
11	1	ID	R	[1..1]	0085	00579	Observation Result Status
12	26	TS	X	[0..0]		00580	Effective Date of Reference Range
13	20	ST	X	[0..1]		00581	User Defined Access Checks
14	26	TS	RE	[0..1]		00582	Date/Time of the Observation
15	250	CE	RE	[0..1]		00583	Producer's ID
16	250	XCN	X	[0..1]		00584	Responsible Observer
17	250	CE	X	[0..1]		00936	Observation Method
18	22	EI	X	[0..0]		01479	Equipment Instance Identifier
19	26	TS	RE	[0..1]		01480	Date/Time of the Analysis
20							Reserved by HL7 for future use
21							Reserved by HL7 for future use
22							Reserved by HL7 for future use
23	567	XON	X	[0..1]		02283	Performing Organization Name
24	631	XAD	X	[0..1]		02284	Performing Organization Address
25	3002	XCN	X	[0..1]		02285	Performing Organization Director Name

1.5.9 SPM Segment

The following is a listing of all the fields defined for the SPM Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.9, "SPM Segment Fields," for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		01754	Set ID - SPM
2	80	EIP	C	[0..1]		01755	Specimen ID [is usually the Container ID]
3	80	EIP	RE	[0..*]		01756	Specimen Parent IDs
4	250	CWE	RE	[0..1]	0487	01318	Specimen Type
5	250	CWE	X	[0..0]	0541	01757	Specimen Type Modifier
6	250	CWE	RE	[0..9]	0371	01758	Specimen Additives
7	250	CWE	X	[0..0]	0488	01759	Specimen Collection Method
8	250	CWE	X	[0..0]		01901	Specimen Source Site
9	250	CWE	X	[0..0]	0542	01760	Specimen Source Site Modifier
10	250	CWE	X	[0..0]	0369	01762	Specimen Collection Site
11	250	CWE	X	[0..0]	0369	01762	Specimen Role
12	20	CQ	X	[0..0]		01902	Specimen Collection Amount
13	6	NM	X	[0..0]		01763	Grouped Specimen Count
14	250	ST	RE	[0..1]		01764	Specimen Description
15	250	CWE	X	[0..0]	0376	01908	Specimen Handling Code
16	250	CWE	X	[0..0]	0489	01903	Specimen Risk Code
17	26	DR	RE	[0..1]		01765	Specimen Collection Date/Time
18	26	TS	C	[0..1]		00248	Specimen Received Date/Time
19	26	TS	X	[0..0]		01904	Specimen Expiration Date/Time
20	1	ID	C	[0..1]	0136	01766	Specimen Availability
21	250	CWE	C	[0..9]	0490	01767	Specimen Reject Reason
22	250	CWE	X	[0..0]	0491	01768	Specimen Quality
23	250	CWE	X	[0..0]	0492	01769	Specimen Appropriateness
24	250	CWE	X	[0..0]	0493	01770	Specimen Condition
25	20	CQ	X	[0..0]		01771	Specimen Current Quantity
26	4	NM	RE	[0..1]		01772	Number of Specimen Containers

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
27	250	CWE	X	[0..0]		01773	Container Type
28	250	CWE	X	[0..0]	0544	01774	Container Condition
29	250	CWE	X	[0..0]	0494	01775	Specimen Child Role

1.5.10 SAC Segment

The following is a listing of all the fields defined for the SAC Segment in the HL7 Standard and the IHE Anatomic Pathology Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.10, “SAC Segment Fields,” for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	80	EI	X	[1..1]		01329	External Accession Identifier
2	80	EI	X	[1..1]		01330	Accession Identifier
3	80	EI	R	[1..1]		01331	Container Identifier
4	80	EI	C	[0..1]		01332	Primary (parent) Container Identifier
6	300	SPS	X	[0..0]		00249	Specimen Source

Condition for the use of the SAC segment: The SAC segment should be used only if the number of containers differs from the number of specimens (*e.g.*, a specimen is split in several containers or multiple specimens placed in or on the same container).

Otherwise, when there is one container for one specimen the SPM segment is sufficient and *SPM-2-Specimen ID* provides both the specimen/container identifier.

In case of multiple specimens placed in or on the same container, the message will contain as many SPM segments as specimens. All SPM segments will have the same Container ID but different Specimen IDs. In case of a specimen split between several containers, the SPM segments will include multiple SAC segments with different Container IDs.

1.5.11 IPC Segment

The following is a listing of all the fields defined for the IPC Segment in the HL7 Standard, together with their usage in the messages defined in this profile. Refer to Section 1.6.11, “IPC Segment Fields,” for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	80	EI	R	[1..1]		01330	Accession Identifier
2	22	EI	R	[1..1]		01658	Requested Procedure ID
3	70	EI	R	[1..1]		01659	Study Instance UID
4	22	EI	R	[1..1]		01660	Scheduled Procedure Step ID
5	16	CE	X	[0..0]		01661	Modality
6	250	CE	X	[0..0]		01662	Protocol Code
7	22	EI	X	[0..0]		01663	Scheduled Station Name
8	250	CE	X	[0..0]		01664	Scheduled Procedure Step Location
9	16	ST	X	[0..0]		01665	Scheduled AE Title

1.5.12 MSA Segment

The following is a listing of all the fields defined for the MSA Segment in the HL7 Standard and the IHE IT Infrastructure Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.12, “MSA Segment Fields,” for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	2	ID	R	[1..1]	0008	00018	Acknowledgment Code
2	20	ST	R	[1..1]		00010	Message Control ID
3	80	ST	X	[0..0]		00020	Text Message
4	15	NM	X	[0..1]		00021	Expected Sequence Number
5			X	[0..0]		00022	Delayed Acknowledgment Type
6	250	CE	X	[0..0]	0357	00023	Error Condition

1.5.13 ERR Segment

The following is a listing of all the fields defined for the ERR Segment in the HL7 Standard and the IHE IT Infrastructure Technical Framework, together with their usage in the messages defined in this profile. Refer to Section 1.6.13, “ERR Segment Fields,” for a more detailed explanation of the fields used by VistA.

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	493	ELD	X	[0..0]		00024	Error Code and Location
2	18	ERL	RE	[0..999]		01812	Error Location
3	705	CWE	R	[1..1]	0357	01813	HL7 Error Code
4	2	ID	R	[1..1]	0516	01814	Severity
5	705	CWE	O	[0..1]	0533	01815	Application Error Code
6	80	ST	O	[0..10]		01816	Application Error Parameter
7	2048	TX	O	[0..1]		01817	Diagnostic Information
8	250	TX	O	[0..1]		01818	User Message
9	20	IS	O	[0..9]	0517	01819	Inform Person Indicator
10	705	CWE	O	[0..1]	0518	01820	Override Type
11	705	CWE	O	[0..9]	0519	01821	Override Reason Code
12	652	XTN	O	[0..9]		01822	Help Desk Contact Point

1.6 Static Definition – Field Level

1.6.1 MSH Segment Fields

MSH-1-Field Separator

This field contains the top-level delimiter for HL7 elements within segments. The IHE Pathology Technical Framework requires that applications support the HL7-recommended value | (ASCII 124).

MSH-2-Encoding Characters

This field contains the component separator (secondary element delimiter), repetition separator, escape character, and subcomponent separator (tertiary element delimiter). The IHE Pathology Technical Framework requires that

applications support HL7-recommended values ^~\& (ASCII 94, 126, 92, and 38, respectively).

MSH-3-Sending Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, the first component of this field will be populated with a value from user-defined Table 0361, *Sending/Receiving Application*. PACS shall return this value in component MSH-5.1 of the acknowledgment message. The second and third components of MSH-3 are not valued.

MSH-4-Sending Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, the first component of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was generated. PACS shall return this value in component MSH-6.1 of the acknowledgment message. The second and third components of MSH-4 are not valued.

MSH-5-Receiving Application

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, the first component of this field shall be populated from user-defined Table 0361, *Sending/Receiving Application*, with the name of the PACS application. PACS shall return this value in component MSH-3.1 of the acknowledgment message. The second and third components of MSH-5 are not valued.

MSH-6-Receiving Facility

This field is of data type HD, which has 3 components that are defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
2	250	ST	X	[0..0]		Universal ID
3	20	ID	X	[0..0]	0301	Universal ID Type

In the VistA message, the first component of this field shall be populated from user-defined Table 0362, *Sending/Receiving Facility*, with the name of the medical center at which the message was received. PACS shall return this value in field MSH-4 of the acknowledgment message. The second and third components of MSH-6 are not valued.

MSH-7-Date/Time of Message

This field contains the date and time that the sending system built the message.

MSH-9-Message Type

This field is of data type MSG. Its components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	3	ID	R	[1..1]	0076	Message Type
2	3	ID	R	[1..1]	0003	Trigger Event
3	7	ID	R	[1..1]	0354	Message Structure

The components used by VistA are defined as follows.

MSH-9.1-Message Type

This component contains a value from HL7 Table 0076, *Message Type*. For the accession message, it will always contain the value **OML**. For the application acknowledgment message, it will always contain the value **ORL**.

MSH-9.2-Trigger Event

This component contains a value from HL7 Table 0003, *Event Type*. For the accession message, it will always contain the value **021** (oh two one). For the application acknowledgment message, it will always contain the value **022** (oh two two).

MSH-9.3-Message Structure

This component contains a value from HL7 Table 0354, *Message Structure*. For the order message, it will always contain the value **OML_021**. For the application acknowledgment message, it will always contain the value **OML_022**.

MSH-10-Message Control ID

This field will contain a unique identifier for the message.

MSH-11-Processing ID

This field is of type PT, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	1	ID	R	[1..1]	0103	Processing ID
2	1	ID	RE	[0..1]	0207	Processing Mode

The components used by VistA are defined as follows.

MSH-11.1-Processing ID

This component contains one of the following values from HL7 Table 0103, *Processing ID*.

Value	Description
P	Production
D	Debugging
T	Training

MSH-11.2-Processing Mode

This component contains one of the following values from HL7 Table 0207, *Processing Mode*.

Value	Description
A	Archive
R	Restore from archive
I	Initial load
T	Current processing, transmitted at intervals (scheduled or on demand)
not present	Not present (the default, meaning <i>current</i> processing)

MSH-12-Version ID

This field is of type VID, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	10	ID	R	[1..1]	0104	Version ID
2	250	CE	X	[0..0]		Internationalization Code
3	250	CE	X	[0..0]		Internal Version ID

This field's first component will always contain the value **2.5.1** from HL7 Table 0104, *Version ID*. Other components of this field will not be used.

MSH-17-Country Code

This field is of type ID. It will always contain the value **USA** from the ISO 3166 country code table.

MSH-19-Principal Language of Message

This field is of type CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	X	[0..0]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	R	[1..1]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	R	[1..1]	0396	Name of Alternate Coding System

This field's first component will always contain the value **EN** from the ISO 639 language code table. Other components of this field will not be used.

MSH-21-Message Profile Identifier

This field is of type EI, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	RE	[0..1]		Entity Identifier
2	20	IS	X	[0..0]		Namespace ID
3	199	ST	X	[0..0]		Universal ID
4	6	ID	X	[0..0]		Universal ID Type

Message instances that conform to a message profile that is registered with HL7 or another organizational registry shall contain the ISO OID (object identifier) value of the message profile in the first component, "Entity Identifier." Other components are not valued.

1.6.2 PID Segment Fields

PID-3-Patient Identifier List

Field PID-3 is used to transmit the patient's site number (internal entry number on the INSTITUTION File (#4)) and DFN (internal entry number on the PATIENT File (#2)), the patient's Integration Control Number (ICN) and the patient's Social Security Number (SSN). This field is of data type CX, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	15	ST	R	[1..1]		ID
2	1	ST	X	[0..0]		Check Digit
3	3	ID	X	[0..0]	0061	Check Digit Scheme
4	227	HD	R	[1..1]	0363	Assigning Authority
5	5	ID	R	[1..1]	0203	Identifier Type Code
6	227	HD	X	[0..0]		Assigning Facility

The following components are valued.

PID-3.1-ID

For the first repetition of PID-3, this is a concatenation of the patient’s site number and DFN. Its format is *mmm-nnnnnnn*, where *mmm* is the patient’s site number and *nnnnnnn* is the patient’s DFN.

For the second repetition of PID-3, this is the patient’s Integration Control Number.

For the third repetition of PID-3, this is the patient’s Social Security Number.

PID-3.4-Assigning Authority

This component contains the entity that assigned the identifier value in *PID-3.1-ID*. It is of data type HD, which has 3 subcomponents defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0300	Namespace ID
2	250	ST	RE	[0..1]		Universal ID
3	20	ID	CE	[0..1]	0301	Universal ID Type

At present, only the first subcomponent should be considered for the purpose of identifying the assigning authority. In all three repetitions of PID-3, Subcomponent 1 will contain the value **USVHA**, meaning United States Veterans Health Administration, from user-defined Table 0300, *Namespace ID*.

In future, the assigning authority may be designated as an Object Identifier (OID) in the second and third subcomponents of Component 4.

PID-3.5-Identifier Type

The value in this component distinguishes the kind of identifier contained in *PID-3.1-ID* and is taken from HL7 Table 0203, *Identifier Type*.

For the first repetition of PID-3, it will contain the value **PI**, meaning Patient internal identifier.

For the second repetition of PID-3, it will contain the value **NI**, meaning National unique individual identifier.

For the third repetition of PID-3, it will contain the value **SS**, meaning Social security number.

PID-5-Patient Name

This field is of data type XPN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	194	FN	R	[1..1]		Family Name
2	30	ST	R	[1..1]		Given Name

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
3	30	ST	RE	[0..1]		Second and Further Given Names or Initials Thereof
4	20	ST	RE	[0..1]		Suffix (e.g., JR or III)
5	20	ST	RE	[0..1]		Prefix (e.g., DR)
6	6	IS	X	[0..0]	0360	Degree (e.g., MD)
7	1	ID	R	[1..1]	0200	Name Type Code
8	1	ID	X	[0..0]	4000	Name Representation Code
9	483	CE	X	[0..0]	0448	Name Context
10	53	DR	X	[0..0]		Name Validity Range
11	1	ID	X	[0..0]	0444	Name Assembly Order
12	26	TS	X	[0..0]		Effective Date
13	26	TS	X	[0..0]		Expiration Date
14	199	ST	RE	[0..1]		Professional Suffix

Component 7, Name Type Code, indicates the type of name given in Components 1-6, such as legal, birth name, or alias. At present, VistA only uses name type **L** (legal).

PID-7-Date/Time of Birth

This is the date and time that the patient was born, as far as is known. It may be as imprecise as the four-digit birth year (e.g., **1962**).

PID-8-Administrative Sex

This field contains the sex of the patient. It is populated with one of the following values from user-defined Table 0001, *Administrative Sex*, if a value is known.

Value	Description
F	Female
M	Male
U	Unknown

PID-10-Race

This field contains a code for the patient's race. The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	X	[0..0]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	R	[1..1]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	R	[1..1]	0396	Name of Alternate Coding System

The following components are valued.

PID-10.1-Identifier

This component contains the RACE INFORMATION value from the VistA PATIENT File, which is derived from user-defined Table 0005, *Race*.

PID-10.3-Name of Coding System

The value of this component shall be **0005**.

PID-10.4-Alternate Identifier

This component contains the appropriate value, if one exists, from the following table.

Value	Description
0000-0	DECLINED TO ANSWER
1002-5	AMERICAN INDIAN OR ALASKA NATIVE
2028-9	ASIAN
2054-5	BLACK OR AFRICAN AMERICAN
2076-8	NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER
2106-3	WHITE
9999-4	UNKNOWN BY PATIENT

PID-10.6-Name of Coding System

This component shall be populated **CDC**.

PID-11-Patient Address

This field contains the patient’s address. It is of data type XAD, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	184	SAD	RE	[0..1]		Street Address
2	120	ST	RE	[0..1]		Other Designation
3	50	ST	RE	[0..1]		City
4	50	ST	RE	[0..1]		State or Province
5	12	ST	RE	[0..1]		ZIP or Postal Code
6	3	ID	X	[0..0]	0399	Country
7	3	ID	X	[0..0]	0190	Address Type
8	50	ST	X	[0..0]		Other Geographic Designation
9	20	IS	X	[0..0]	0289	County/Parish Code
10	20	IS	X	[0..0]	0288	Census Tract
11	1	ID	X	[0..0]	4000	Address Representation Code
12	53	DR	X	[0..0]		Address Validity Range
13	26	TS	X	[0..0]		Effective Date
14	26	TS	X	[0..0]		Effective Date

PID-13-Phone Number – Home

This field contains the patient’s home telephone number. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	X	[1..1]		Telephone Number

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Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
2	3	ID	R	[1..1]	0201	Telecommunication Use Code
3	8	ID	R	[1..1]	0202	Telecommunication Equipment Type
4	199	ST	X	[0..0]		Email Address
5	3	NM	X	[0..0]		Country Code
6	5	NM	X	[0..0]		Area/city Code
7	9	NM	X	[0..0]		Phone Number
8	5	NM	X	[0..0]		Extension
9	199	ST	X	[0..0]		Any Text
10	4	ST	X	[0..0]		Extension Prefix
11	6	ST	X	[0..0]		Speed Dial Code
12	199	ST	R	[1..1]		Unformatted Telephone Number

Only Components 2, 3, and 12 of this field are used. They are populated as follows.

PID-13.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 12. It is populated with the following value from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number

PID-13.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 12. It is populated with the following value from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone

PID-13.12-Unformatted Telephone Number

This component contains the full telephone number as recorded in VistA.

PID-14-Phone Number – Business

This field contains the patient’s work telephone number. Data type XTN is used, whose structure is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	X	[1..1]		Telephone Number
2	3	ID	R	[1..1]	0201	Telecommunication Use Code
3	8	ID	R	[1..1]	0202	Telecommunication Equipment Type
4	199	ST	X	[0..0]		Email Address
5	3	NM	X	[0..0]		Country Code
6	5	NM	X	[0..0]		Area/city Code
7	9	NM	X	[0..0]		Phone Number
8	5	NM	X	[0..0]		Extension

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
9	199	ST	X	[0..0]		Any Text
10	4	ST	X	[0..0]		Extension Prefix
11	6	ST	X	[0..0]		Speed Dial Code
12	199	ST	R	[1..1]		Unformatted Telephone Number

Only Components 2, 3, and 12 of this field are used. They are populated as follows.

PID-14.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 12. It is populated with the following value from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
WPN	Work Number

PID-14.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 12. It is populated with the following value from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone

PID-14.12-Unformatted Telephone Number

This component contains the full telephone number as recorded in VistA.

PID-22-Ethnic Group

This field contains a code indicating whether the patient is of Hispanic descent. The data type of this field is CE, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	X	[0..0]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	R	[1..1]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	R	[1..1]	0396	Name of Alternate Coding System

The following components are valued.

PID-22.1-Identifier

This component contains the ETHNICITY INFORMATION value from the VistA PATIENT File, which is derived from user-defined Table 0189, *Ethnic Group*.

PID-22.3-Name of Coding System

The value of this component shall be **0189**.

PID-22.4-Alternate Identifier

This component contains the appropriate value, if one exists, from the following table.

Value	Description
0000-0	DECLINED TO ANSWER
2135-2	HISPANIC OR LATINO
2186-5	NOT HISPANIC OR LATINO
9999-4	UNKNOWN BY PATIENT

PID-22.6-Name of Coding System

This component shall be populated **CDC**.

1.6.3 PV1 Segment Fields

PV1-2-Patient Class

This field designates whether the patient is an inpatient (**I**) or an outpatient (**O**).

PV1-3-Assigned Patient Location

For inpatients, this field designates the patient’s location in the medical center. The data type of this field is PL, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	IS	R	[1..1]	0302	Point of Care
2	20	IS	R	[1..1]	0303	Room
3	20	IS	RE	[0..1]	0304	Bed
4	227	HD	X	[0..0]		Facility
5	20	IS	X	[0..0]	0306	Location Status
6	20	IS	X	[0..0]	0305	Person Location Type
7	20	IS	X	[0..0]	0307	Building
8	320	IS	X	[0..0]	0308	Floor
9	199	ST	X	[0..0]		Location Description
10	427	EI	X	[0..0]		Comprehensive Location Identifier
11	227	HD	X	[0..0]		Assigning Authority for Location

VistA sends Component 1, Point of Care, as three subcomponents, of which the first is an internal entry number into the VistA WARD LOCATION File (#42), and the second is the name of the ward location; the third is the internal designator of the WARD LOCATION File and should be ignored.

PV1-16-VIP Indicator

This field is used to indicate that the patient is an employee, or that patient record is sensitive and should not be made available for general personnel access. If one

of these conditions applies, VistA populates this field with one of the following values from user-defined Table 0099, *VIP Indicator*.

Value	Description
E	Patient is a VA employee
S	Patient record is sensitive
ES	Patient is a VA employee and patient record is sensitive

PV1-19-Visit

The value of this field depends on whether the patient is an inpatient or an outpatient at the time of message generation.

- For inpatients, this field contains **I** concatenated with the inpatient visit number from the VistA PIMS package.
- For outpatients, this field contains **O** concatenated with an integer representing today's date.

1.6.4 ORC Segment Fields

ORC-1-Order Control

This field is of data type ID. It will contain one of the following values from HL7 Table 0119, *Order Control Codes*.

Value	Description
CA	Cancel order/service request
CR	Canceled as requested
NW	New order/service
OK	Order/service accepted & OK
SC	Status changed
UA	Unable to accept order/service
UC	Unable to cancel
UX	Unable to change
XO	Change order/service request
XR	Changed as requested

ORC-2-Placer Order Number

This is the accession number of the examination (accession number of the specimen) in the VistA system. It is common to all slides in the examination being accessioned.

ORC-3-Filler Order Number

This is the order number of the examination in the vendor system. It is populated for all messages except for those in which a filler order number is unknown, *e.g.*, the initial order from VistA.

DRAFT

ORC-5-Order Status

This field is of data type ID. It will contain one of the following values from HL7 Table 0038, *Order Status*.

Value	Description
CA	Order was canceled
CM	Order is completed
ER	Error, order not found
IP	In process, unspecified
SC	In process, scheduled

The following combinations of *ORC-1-order control code*, *ORC-5-order status code*, and *ORC-16.2-order control code reason-text* will be sent in the OML^021 message to request and confirm each of the events specified below, as applicable to the automation capabilities asserted by the digital pathology system (DPS) with which VistA is communicating.

Event	Initiator	ORC-1-order control code	ORC-5-order status	ORC-16.2-order control code reason-text	Receiver	Expected response values			
						MSH-9-message type	Success		Failure*
							ORC-1-order control code	ORC-5-order status code	ORC-1-order control code
New accession filed by VA	VA	NW	n/a	NEWORDR	DPS	ORL^022	OK	IP	UA
Order cancellation requested by VA	VA	CA	SC IP	CXLORDR	DPS	ORL^022	CR	CA	UC
Slides received by DPS**	DPS	SC	IP	SPECRCV	VA	ACK^021	n/a	n/a	n/a
Request for loading of slides onto DPS	VA	XO	SC IP	LOADREQ	DPS	ORL^022	OK	IP	UX
Slides loaded / scanned onto DPS (without prior VA request)	DPS	SC	IP	LOADED	VA	ACK^021	n/a	n/a	n/a
Whole-slide images acquired by DPS	DPS	SC	IP	IMAGEACQ	VA	ACK^021	n/a	n/a	n/a
Request for unloading of slides from robotics system	VA	XO	IP	UNLOADREQ	DPS	ORL^022	XR	IP	UX
Slides unloaded from robotics system (without prior VA request)	DPS	SC	IP	UNLOADED	VA	ACK^021	n/a	n/a	n/a
Interpretation complete	DPS	SC	CM	INTCMLPT	VA	ACK^021	n/a	n/a	n/a
Request for deletion of whole-slide images from DPS	VA	XO	CM	DELETREQ	DPS	ORL^022	XR	CM	UX

Profiles for VistA HL7 Messages (AP Workflow)

Event	Init	OR	OR	OR	OR	Re	Expected response values			
Whole-slide images deleted from DPS (without prior VA request)	DPS	SC	CM	DELETED	VA	ACK^O21	n/a	n/a	n/a	n/a

* In the event of failure, the responding system shall also provide a description of the reason for failure in component 2, Text, of field *ORC-16-order control code reason*.

** Specimen receipt shall further be indicated by a value of **I** in *OBR-25-result status*.

ORC-9-Date/Time of Transaction

This is the date and time that the accession was entered into VistA.

ORC-10-Entered By

This is the name of the person who entered the accession into VistA. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	15	ST	R	[1..1]		ID Number
2	194	FN	R	[1..1]		Family Name
3	30	ST	R	[1..1]		Given Name
4	30	ST	RE	[0..1]		Second and Further Given Names or Initials Thereof
5	20	ST	X	[0..0]		Suffix (e.g., JR or III)
6	20	ST	X	[0..0]		Prefix (e.g., DR)
7	5	IS	X	[0..0]	0360	Degree (e.g., MD)
8	4	IS	X	[0..0]	0297	Source Table
9	227	HD	X	[0..0]	0363	Assigning Authority
10	1	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	3	ID	X	[0..0]	0061	Check Digit Scheme
13	5	ID	X	[0..0]	0203	Identifier Type Code
14	227	HD	X	[0..0]		Assigning Facility
15	1	ID	X	[0..0]	0465	Name Representation Code
16	483	CE	X	[0..0]	0448	Name Context
17	53	DR	X	[0..0]		Name Validity Range
18	1	ID	X	[0..0]	0444	Name Assembly Order
19	26	TS	X	[0..0]		Effective Date
20	26	TS	X	[0..0]		Expiration Date
21	199	ST	X	[0..0]		Professional Suffix
22	705	CWE	X	[0..0]		Assigning Jurisdiction
23	705	CWE	X	[0..0]		Assigning Agency or Department

Note that only the first four components are used. Other components may be ignored.

ORC-11-Verified By

This is the name of the person, if any, who verified the entry of the accession into VistA. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	15	ST	R	[1..1]		ID Number
2	194	FN	R	[1..1]		Family Name
3	30	ST	R	[1..1]		Given Name
4	30	ST	RE	[0..1]		Second and Further Given Names or Initials Thereof
5	20	ST	X	[0..0]		Suffix (e.g., JR or III)
6	20	ST	X	[0..0]		Prefix (e.g., DR)
7	5	IS	X	[0..0]	0360	Degree (e.g., MD)
8	4	IS	X	[0..0]	0297	Source Table
9	227	HD	X	[0..0]	0363	Assigning Authority
10	1	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	3	ID	X	[0..0]	0061	Check Digit Scheme
13	5	ID	X	[0..0]	0203	Identifier Type Code
14	227	HD	X	[0..0]		Assigning Facility
15	1	ID	X	[0..0]	0465	Name Representation Code
16	483	CE	X	[0..0]	0448	Name Context
17	53	DR	X	[0..0]		Name Validity Range
18	1	ID	X	[0..0]	0444	Name Assembly Order
19	26	TS	X	[0..0]		Effective Date
20	26	TS	X	[0..0]		Expiration Date
21	199	ST	X	[0..0]		Professional Suffix
22	705	CWE	X	[0..0]		Assigning Jurisdiction
23	705	CWE	X	[0..0]		Assigning Agency or Department

Note that only the first four components are used. Other components may be ignored.

ORC-12-Ordering Provider

This field contains the ID number and name of the provider that requested the order. The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	15	ST	R	[1..1]		ID Number
2	194	FN	R	[1..1]		Family Name
3	30	ST	R	[1..1]		Given Name
4	30	ST	RE	[0..1]		Second and Further Given Names or Initials Thereof
5	20	ST	X	[0..0]		Suffix (e.g., JR or III)
6	20	ST	X	[0..0]		Prefix (e.g., DR)
7	5	IS	X	[0..0]	0360	Degree (e.g., MD)
8	4	IS	X	[0..0]	0297	Source Table
9	227	HD	X	[0..0]	0363	Assigning Authority
10	1	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	3	ID	X	[0..0]	0061	Check Digit Scheme
13	5	ID	X	[0..0]	0203	Identifier Type Code
14	227	HD	X	[0..0]		Assigning Facility
15	1	ID	X	[0..0]	0465	Name Representation Code
16	483	CE	X	[0..0]	0448	Name Context
17	53	DR	X	[0..0]		Name Validity Range
18	1	ID	X	[0..0]	0444	Name Assembly Order
19	26	TS	X	[0..0]		Effective Date

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
20	26	TS	X	[0..0]		Expiration Date
21	199	ST	X	[0..0]		Professional Suffix
22	705	CWE	X	[0..0]		Assigning Jurisdiction
23	705	CWE	X	[0..0]		Assigning Agency or Department

Note that only the first four components are used. Other components may be ignored.

ORC-14-Call Back Phone Number

This is the telephone number of the provider identified in *ORC-11-Ordering Provider*. It is used to get clarification of a request or other information regarding the order. Up to eight telephone numbers may be entered into this field.

The data type of this field is XTN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	X	[1..1]		Telephone Number
2	3	ID	R	[1..1]	0201	Telecommunication Use Code
3	8	ID	R	[1..1]	0202	Telecommunication Equipment Type
4	199	ST	X	[0..0]		Email Address
5	3	NM	X	[0..0]		Country Code
6	5	NM	X	[0..0]		Area/city Code
7	9	NM	X	[0..0]		Phone Number
8	5	NM	X	[0..0]		Extension
9	199	ST	X	[0..0]		Any Text
10	4	ST	X	[0..0]		Extension Prefix
11	6	ST	X	[0..0]		Speed Dial Code
12	199	ST	R	[1..1]		Unformatted Telephone Number

Only Components 2, 3, and 12 of this field are used. They are populated as follows.

ORC-14.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 12. It is populated with one of the following values from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number
WPN	Work Number
BPN	Beeper Number

ORC-14.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 12. It is populated with one of the following values from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone
FX	Fax
BP	Beeper

ORC-14.12-Unformatted Telephone Number

This component contains the full telephone number as recorded in VistA.

ORC-16-Order Control Code Reason

This field contains the explanation, if any, of the reason for the order event described by the order control code. Its data type is CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	X	[0..0]		Identifier
2	199	ST	R	[1..1]		Text
3	20	ID	X	[0..0]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System

Only Component 2, Text, is populated. Other components are not used.

ORC-17-Entering Organization

This is the service/section of the medical center that contains the person identified in *ORC-10-Entered By*. Information in this field is obtained from the VistA SERVICE/SECTION File. The data type of this field is CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	X	[0..0]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	R	[1..1]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	R	[1..1]	0396	Name of Alternate Coding System

Only the first three components of this field are populated. They are defined as follows.

ORC-17.1-Identifier

This is the abbreviation for the service/section of the medical center.

ORC-17.2-Text

This is the full name of the service/section of the medical center.

ORC-17.3-Name of Coding System

This component shall contain the value **VISTA49**.

ORC-21-Ordering Facility Name

This field contains the facility (care unit) placing this order. Its data type is XON, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	50	ST	R	[1..1]		Organization Name
2	20	IS	X	[0..0]	0204	Organization Name Type Code
3	4	NM	X	[0..0]		ID Number
4	1	NM	X	[0..0]		Check Digit
5	3	ID	X	[0..0]		Check Digit Scheme
6	227	HD	X	[0..0]	0363	Assigning Authority
7	5	ID	R	[0..0]	0203	Identifier Type Code
8	227	HD	X	[0..0]		Assigning Facility
9	1	ID	X	[0..0]	0465	Name Representation Code
10	20	ST	R	[0..0]		Organization Identifier

Only Components 1, 7, and 10 of this field are used. They are defined as follows.

ORC-21.1-Organization Name

This is the name of the care unit. Its value is the same as that of ORC-17.2.

ORC-21.7-Identifier Type Code

This component shall be valued **FI**, Facility ID.

ORC-21.10-Organization Identifier

This is the abbreviation for the care unit. Its value is the same as that of ORC-17.1.

1.6.5 TQ1 Segment Fields

TQ1-1-Set ID

This is an integer corresponding to the ordinal position of this TQ1 segment in the message. The first occurrence is labeled **1**, the second **2**, and so on.

TQ1-9-Priority

This is the priority of the order. Its data type is CNE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	R	[1..1]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System
7	10	ST	X	[0..0]		Coding System Version ID

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
8	10	ST	X	[0..0]		Alternate Coding System Version ID
9	199	ST	X	[0..0]		Original Text

Only the first three components of this field are used. They are valued as follows.

TQ1-9.1-Identifier

This is an entry from the **Value** column in user-defined Table 0485, *Extended Priority Codes*, which contains the following values.

Value	Description	Comment
S	Stat	With highest priority
A	ASAP	Fill after S orders
R	Routine	Default

TQ1-9.2-Description

This is the entry from the Description column in user-defined Table 485, *Extended Priority Codes*, that corresponds to the value in component *TQ1-9.1-Identifier*.

TQ1-9.3-Name of Coding System

This component shall be valued **HL70485**.

1.6.6 OBR Segment Fields

OBR-1-Set ID

This is an integer corresponding to the ordinal position of this OBR segment in the message. The first occurrence is labeled **1**, the second **2**, and so on.

OBR-2-Placer Order Number

This is the accession number of the examination (accession number of the specimen) in the VistA system. It is common to all slides in the examination being accessioned.

OBR-3-Filler Order Number

This is the order number of the examination in the vendor system. It is populated for all messages except for those in which a filler order number is unknown, *e.g.*, the initial order from VistA.

OBR-4-Universal Service Identifier

This field is of data type CE (coded entity), which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	R	[1..1]		Text

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Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	R	[1..1]		Alternate Identifier
5	199	ST	R	[1..1]		Alternate Text
6	20	ID	R	[1..1]	0396	Name of Alternate Coding System

The components of this field are defined as follows.

OBR-4.1-Identifier

This component contains the CPT code from the VistA CPT File (#81).

OBR-4.2-Text

This component contains the short name associated with the CPT code in *OBR-4.1-Identifier*.

OBR-4.3-Name of Coding System

This component always contains the value **C4**.

OBR-4.4-Alternate Identifier

This component contains the internal entry number of this procedure in the VistA WG

File (#TK).

OBR-4.5-Alternate Text

This component contains the name of the procedure as defined in the TK File.

OBR-4.6-Name of Alternate Coding System

This component always contains the value **99APP**.

OBR-10-Collector Identifier

This field contains, if known, the identity of the staff member who collected the specimen to be analyzed. Its data type is XCN, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	15	ST	R	[1..1]		ID Number
2	194	FN	R	[1..1]		Family Name
3	30	ST	R	[1..1]		Given Name
4	30	ST	R	[1..1]		Second and Further Given Names or Initials Thereof
5	20	ST	X	[0..0]		Suffix (e.g., JR or III)
6	20	ST	X	[0..0]		Prefix (e.g., DR)
7	5	IS	X	[0..0]	0360	Degree (e.g., MD)
8	4	IS	X	[0..0]	0297	Source Table
9	227	HD	X	[0..0]	0363	Assigning Authority
10	1	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	3	ID	X	[0..0]	0061	Check Digit Scheme
13	5	ID	X	[0..0]	0203	Identifier Type Code

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
14	227	HD	X	[0..0]		Assigning Facility
15	1	ID	X	[0..0]	0465	Name Representation Code
16	483	CE	X	[0..0]	0448	Name Context
17	53	DR	X	[0..0]		Name Validity Range
18	1	ID	X	[0..0]	0444	Name Assembly Order
19	26	TS	X	[0..0]		Effective Date
20	26	TS	X	[0..0]		Expiration Date
21	199	ST	X	[0..0]		Professional Suffix
22	705	CWE	X	[0..0]		Assigning Jurisdiction
23	705	CWE	X	[0..0]		Assigning Agency or Department

Note that only the first four components are used. Other components may be ignored.

OBR-11-Specimen Action Code

This field identifies the action to be taken with respect to the specimens that are associated with this accession. The purpose of this field is to further qualify (when appropriate) the general action indicated by the order control code contained in the accompanying ORC segment.

The data type of this field is ID. This field will contain one of the following values from HL7 Table 0065, *Specimen Action Code*.

Value	Description
A	Add ordered tests to the existing specimen
G	Generated order; reflex order
L	Lab to obtain specimen from patient
O	Specimen obtained by service other than Lab
P	Pending specimen; Order sent prior to delivery
R	Revised order
S	Schedule the tests specified below

OBR-16-Ordering Provider

This field contains the ID number and name of the provider that requested the order. Its value is the same as the value of *ORC-12-Ordering Provider*.

The data type of this field is XCN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	15	ST	R	[1..1]		ID Number
2	194	FN	R	[1..1]		Family Name
3	30	ST	R	[1..1]		Given Name
4	30	ST	R	[1..1]		Second and Further Given Names or Initials Thereof
5	20	ST	X	[0..0]		Suffix (e.g., JR or III)
6	20	ST	X	[0..0]		Prefix (e.g., DR)
7	5	IS	X	[0..0]	0360	Degree (e.g., MD)
8	4	IS	X	[0..0]	0297	Source Table

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Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
9	227	HD	X	[0..0]	0363	Assigning Authority
10	1	ID	X	[0..0]	0200	Name Type Code
11	1	ST	X	[0..0]		Identifier Check Digit
12	3	ID	X	[0..0]	0061	Check Digit Scheme
13	5	ID	X	[0..0]	0203	Identifier Type Code
14	227	HD	X	[0..0]		Assigning Facility
15	1	ID	X	[0..0]	0465	Name Representation Code
16	483	CE	X	[0..0]	0448	Name Context
17	53	DR	X	[0..0]		Name Validity Range
18	1	ID	X	[0..0]	0444	Name Assembly Order
19	26	TS	X	[0..0]		Effective Date
20	26	TS	X	[0..0]		Expiration Date
21	199	ST	X	[0..0]		Professional Suffix
22	705	CWE	X	[0..0]		Assigning Jurisdiction
23	705	CWE	X	[0..0]		Assigning Agency or Department

Note that only the first four components are used. Other components may be ignored.

OBR-17-Order Callback Phone Number

This is the telephone number of the provider identified in *OBR-16-Ordering Provider*. It is used to get clarification of a request or other information regarding the order. Up to eight telephone numbers may be entered into this field.

The data type of this field is XTN, whose components are as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	X	[1..1]		Telephone Number
2	3	ID	R	[1..1]	0201	Telecommunication Use Code
3	8	ID	R	[1..1]	0202	Telecommunication Equipment Type
4	199	ST	X	[0..0]		Email Address
5	3	NM	X	[0..0]		Country Code
6	5	NM	X	[0..0]		Area/city Code
7	9	NM	X	[0..0]		Phone Number
8	5	NM	X	[0..0]		Extension
9	199	ST	X	[0..0]		Any Text
10	4	ST	X	[0..0]		Extension Prefix
11	6	ST	X	[0..0]		Speed Dial Code
12	199	ST	R	[1..1]		Unformatted Telephone Number

Only Components 2, 3, and 12 of this field are used. They are populated as follows.

OBR-17.2-Telecommunication Use Code

This component specifies what kind of number is contained in component 12. It is populated with one of the following values from HL7 Table 0201, *Telecommunication Use Code*.

Value	Description
PRN	Primary Residence Number
WPN	Work Number
BPN	Beeper Number

OBR-17.3-Telecommunication Equipment Type

This component specifies the kind of device that is reached on the number contained in component 12. It is populated with one of the following values from HL7 Table 202, *Telecommunication Equipment Type*.

Value	Description
PH	Telephone
FX	Fax
BP	Beeper

OBR-17.12-Unformatted Telephone Number

This component contains the full telephone number as recorded in VistA.

OBR-25-Result Status

This field, whose data type is ID, is populated with one of the following values from Table 0123, *Result Status*, to indicate whether slides have been received by the DPS. It is not otherwise used.

Value	Description
O	Slides not received
I	Slides received

1.6.7 NTE Segment Fields

NTE-1-Set ID – NTE

This is an integer corresponding to the ordinal position of this NTE segment in the message. The first occurrence is labeled **1**, the second **2**, and so on.

NTE-2-Source of Comment

This is a code that indicates where the comment originated.

The data type of this field is ID. This field is populated with one of the following values from HL7 Table 0105, *Source of Comment*.

Value	Description
L	Ancillary (filler) department is source of comment
P	Orderer (placer) is source of comment
O	Other system is source of comment

NTE-3-Comment

This field contains the text of the comment. Its data type is FT.

In order to delete an existing comment, the field shall contain empty quotation marks: "".

Comment text of identical type and source shall be included in the same occurrence of an NTE segment, and shall not be split over multiple segments.

NTE-4-Comment Type

This field is of data type CE (coded entity), which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	X	[0..0]		Text
3	20	ID	X	[0..0]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System

If this field is used, only the first component is populated with the value **I** (internal remark that shall not be sent outside of the Pathology Department). Other components are not populated.

1.6.8 OBX Segment Fields

OBX-1-Set ID

This is an integer corresponding to the ordinal position of this OBX segment in the message. The first occurrence is labeled **1**, the second **2**, and so on.

OBX-2-Value Type

This field contains the data type of the information, if any, that is carried in *OBX-5-Observation Value*. Its data type is ID. It is populated with a value from HL7 Table 0125, *Value Type*.

OBX-3-Observation Identifier

This field classifies the kind of information carried in *OBX-5-Observation Value*. Its data type is CE, whose definition is as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
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Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier
5	250	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System

Only the first three components of this field are used. They are populated as follows.

OBX-3.1-Identifier

This component contains the LOINC® (Logical Observation Identifiers, Names and Code) Code of the observation.

OBX-3.2-Text

This component contains the description of the LOINC Code in Component OBX-3.1.

OBX-3.3-Name of Coding System

This component contains the value **LN**.

OBX-4-Observation Sub-ID

This field, whose data type is ST, is populated when multiple OBX segments with the same observation ID are organized under one OBR. Each OBX segment in the message must have a unique combination of values for *OBX-3-Observation Identifier* and *OBX-4-Observation Sub-ID*.

OBX-5-Observation Value

This field contains the actual value whose data type is given in *OBX-2-Value Type* and whose classification is given in *OBX-3-Observation Identifier*. Its formatting follows the rules for the HL7 data type given in OBX-2. See Chapter 2A, “Data Types,” of Version 2.5.1 of the *Health Level Seven Standard* for more information.

OBX-6-Units

For quantitative measurements, this field contains the units of measure of the observation. For observations other than quantitative measurements, this field is not populated.

The data type of this field is CE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	250	ST	R	[1..1]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
5	250	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System

When this field is populated, Component 3 is always valued **ISO+**, indicating the use of units of measure from ISO Standard 2955-1983.

OBX-7-References Range

This field contains the lower/upper bound(s) of the therapeutic or non-toxic amounts of a substance. See Chapter 7, “Observations,” of Version 2.5.1 of the *Health Level Seven Standard* for more information.

OBX-8-Abnormal Flags

This field, whose data type is IS, indicates the normality status of the result. It contains one of the following values from user-defined Table 0078, *Abnormal Flags*.

Value	Description
L	Below low normal
H	Above high normal
LL	Below lower panic limits
HH	Above upper panic limits
N	Normal (applies to non-numeric results)
A	Abnormal (applies to non-numeric results)
AA	Very abnormal (applies to non-numeric results, analogous to panic limits for numeric results)
[empty]	No range defined, or normal ranges don't apply

OBX-11-Observation Result Status

This field is of data type ID. In the accession message, it is populated with the value **O** (order detail description only, no result) from HL7 Table 0085, *Observation Result Status Codes Interpretation*.

OBX-14-Date/Time of the Observation

This field, whose data type is TS, should be valued when OBX-5 is valued. In very exceptional cases, this information may be unknown.

OBX-15-Producer's Reference

This field, whose data type is CE, is populated if the observation was not produced by the sending organization. Component 1, Identifier, contains a unique identifier of the responsible producing service, and Component 2, Text, contains the name of the responsible producing service.

OBX-19-Date/Time of the Analysis

This field, whose data type is TS, should be valued when OBX-5-Value is valued. It represents the effective date-time the observation was obtained.

1.6.8.1 Specimen-Related OBX Segments

When VistA sends a new accession or accession update message to DPS, it may contain one or more OBX segments that are used to convey specimen-related attribute information in the form of key-value pairs. The name of the attribute will be transmitted in field *OBX-3.2-observation identifier-text*, the value of the attribute will be transmitted in field *OBX-5-observation value*, and the data type of the attribute will be transmitted in field *OBX-2-value type*.

The following table contains the names, data types and descriptions of the attributes that may be sent.

Attribute Name	Data Type	Attribute Description
SUBSPECIALTY	ST	Possible values: CYTOPATHOLOGY ELECTRON MICROSCOPY SURGICAL PATHOLOGY
BLOCK TYPE/STAGE	ST	Possible values for cytopathology: CELL BLOCK CYTOSPIN MEMBRANE FILTER PREPARED SLIDES SMEAR PREP Possible values for electron microscopy: EPON BLOCK Possible values for surgical pathology: FROZEN TISSUE PARAFFIN BLOCK PLASTIC BLOCK
BLOCK ID	ST	The VistA Anatomic Pathology identifier for the block type/stage.
PROCEDURE ID	ST	The VistA Anatomic Pathology identifier for the procedure instance within the block type.
PROCEDURE	CWE	The VistA Anatomic Pathology procedure code and description for this procedure instance. Components 1 (code), 2 (text), and 3 (name of coding system – always VISTA60) will be populated.
SLIDES/SECTIONS PREPARED	NM	The number of slides/sections for this procedure instance that were prepared.
CONTROL SLIDES	NM	The number of control slides for this procedure instance that were prepared.
DATE/TIME SLIDES/SECTIONS PREPARED	DTM	The date and time that the slides/sections for this procedure instance were prepared/stained.
DATE/TIME SLIDES/SECTIONS EXAMINED	DTM	The date and time that the slides/sections for this procedure instance were examined.
SLIDES/SECTIONS COUNTED	NM	The number of slides/sections for this procedure instance that were counted.
NEW SLIDES/SECTIONS	NM	The number of slides/sections for this procedure instance that were added since the original time of preparation.

Attribute Name	Data Type	Attribute Description
SLIDES/SECTIONS EXAMINED	NM	The number of slides/sections for this procedure instance that were examined/screened.
NON-CONTROL SLIDES/SECTIONS COUNTED	NM	The number of non-control slides/sections for this procedure instance that were counted.
PRINTS MADE	NM	The number of prints for this procedure instance that were made.
DATE/TIME PRINTS MADE	DTM	The date and time that the prints for this procedure instance were made.
PRINTS COUNTED	NM	The number of prints for this procedure instance that were counted.
EXAMINED SECTIONS COUNTED	NM	The number of examined sections for this procedure instance that were counted.

1.6.8.2 Whole-Slide Image-Related OBX Segments

When a DPS completes acquisition of a whole-slide image, it shall send an order update message that includes an OBX segment containing a value of **RP** in field *OBX-2-value type*, **IMAGE URI** in component *OBX-3-observation identifier-text*, and the uniform resource identifier of the whole-slide image in field *OBX-5-observation value*.

1.6.9 SPM Segment Fields

SPM-1-Set ID

This is an integer corresponding to the ordinal position of this SPM segment in the message. The first occurrence is labeled **1**, the second **2**, and so on.

SPM-2-Specimen ID

This field contains a unique identifier for the specimen, enterprise-wide. See Appendix A, “Specimen Models,” of Volume 1 of the *IHE Anatomic Pathology Technical Framework* for a detailed discussion of the concepts of *specimen* and *container*.

The data type of this field is EIP, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	427	EI	R	[1..1]		Placer Assigned Identifier
2	427	EI	RE	[0..1]		Filler Assigned Identifier

The components of this field are populated as follows.

SPM-2.1-Placer Assigned Identifier

This is the identifier assigned within the VistA system. Its data type is EI, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	R	[1..1]		Entity Identifier
2	20	IS	R	[1..1]	0363	Namespace ID
3	199	ST	X	[0..0]		Universal ID

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
4	6	ID	X	[0..0]		Universal ID Type

Subcomponent 1, “Entity Identifier,” contains the VistA accession number for the specimen. Subcomponent 2, “Namespace ID,” contains the value **VISTA** from user-defined Table 0363, *Assigning Authority*.

SPM-2.2-Filler Assigned Identifier

This is the identifier assigned by the commercial anatomic pathology image management application. Its data type is EI, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	R	[1..1]		Entity Identifier
2	20	IS	R	[1..1]	0363	Namespace ID
3	199	ST	X	[0..0]		Universal ID
4	6	ID	X	[0..0]		Universal ID Type

Subcomponent 1, “Entity Identifier,” contains the filler’s identification number for the specimen. Subcomponent 2, “Namespace ID,” contains the name of the commercial anatomic pathology image management application from user-defined Table 0363, *Assigning Authority*.

SPM-3-Specimen Parent ID

This field contains a unique identifier for the specimen parent, enterprise-wide. See Appendix A, “Specimen Models,” of Volume 1 of the *IHE Anatomic Pathology Technical Framework* for a detailed discussion of the concepts of *specimen* and *container*.

Specimens are sampled and processed during a laboratory’s (diagnostic) workflow. Child specimens are created from existing specimens by sampling. The Specimen Parent ID field contains the identifiers of the specimen or specimens from which the child specimen is sampled.

If the Specimen is a Part, the Specimen Parent is the Patient. If the Specimen is a Tissue item in a block, the Specimen Parent is Patient\Part. If the Specimen is a Tissue item on a slide, the Specimen Parent is Patient\Part\Block Tissue Item.

The data type of this field is EIP, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	427	EI	R	[1..1]		Placer Assigned Identifier
2	427	EI	RE	[0..1]		Filler Assigned Identifier

The components of this field are populated as follows.

SPM-3.1-Placer Assigned Identifier

This is the specimen parent identifier assigned within the VistA system. Its data type is EI, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	R	[1..1]		Entity Identifier

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
2	20	IS	R	[1..1]	0363	Namespace ID
3	199	ST	X	[0..0]		Universal ID
4	6	ID	X	[0..0]		Universal ID Type

Subcomponent 1, “Entity Identifier,” contains the VistA accession number for the specimen parent. Subcomponent 2, “Namespace ID,” contains the value **VISTA** from user-defined Table 0363, *Assigning Authority*.

SPM-3.2-Filler Assigned Identifier

This is the identifier assigned by the commercial anatomic pathology image management application. Its data type is EI, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	R	[1..1]		Entity Identifier
2	20	IS	R	[1..1]	0363	Namespace ID
3	199	ST	X	[0..0]		Universal ID
4	6	ID	X	[0..0]		Universal ID Type

Subcomponent 1, “Entity Identifier,” contains the filler’s identification number for the specimen parent. Subcomponent 2, “Namespace ID,” contains the name of the commercial anatomic pathology image management application from user-defined Table 0363, *Assigning Authority*.

SPM-4-Specimen Type

This field describes the precise nature of the physical object (or collection of objects) that is the subject of one or more steps in the laboratory (diagnostic) workflow. The Specimen Type is a coded precise description of the specimen type (DICOM context ID ccc5), *i.e.*, ‘breast tumorectomy’. This coded description is consistent with the specimen “general” type (DICOM context ID ccc3) (part, tissue item, tissue section, tissue core, etc.) and the general specimen collection procedure (DICOM context ID cc10) (aspiration, biopsy, excision, etc.).

The data type of this field is CWE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	R	[1..1]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System
7	10	ST	X	[0..0]		Coding System Version ID
8	10	ST	X	[0..0]		Alternate Coding System Version ID
9	199	ST	X	[0..0]		Original Text

Only the first three components of this field are valued. Component 1, “Identifier,” contains a value from HL7 Table 0487, “Specimen Type.” HL7

doesn't suggest values for this table. The following table provides the DICOM values for Context ID ccc5 (Specimen Description Codes).

Value	Description
x05050a	Lung Lobe Resection
x05050b	Prostate Resection
x05050c	Skin Biopsy
x05050d	Colon Biopsy

Component 2, "Text," contains the description corresponding to the value in Component 1, "Identifier." Component 3 is valued **HL70487**.

SPM-6-Specimen Additives

This field identifies any additives introduced to the specimen before or at the time of collection.

The data type of this field is CWE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	R	[1..1]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System
7	10	ST	X	[0..0]		Coding System Version ID
8	10	ST	X	[0..0]		Alternate Coding System Version ID
9	199	ST	X	[0..0]		Original Text

Only the first three components of this field are valued. For each occurrence of this field, Component 1, "Identifier," contains a value from HL7 Table 0371, "Additive"; Component 2, "Text," contains the description corresponding to the value in Component 1, "Identifier"; and Component 3 is valued **HL70371**.

SPM-14-Specimen Description

This is a text field that allows additional information *specifically about the specimen* to be sent in the message.

SPM-17-Specimen Collection Date/Time

This field contains the date and time when the specimen was acquired from the source. Its data type is DR, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	26	TS	R	[1..1]		Range Start Date/Time
2	26	TS	RE	[0..1]		Range End Date/Time

Only Component 1, “Range Start Date/Time,” is populated unless multiple collections were performed over a time range, in which case Component 1 contains the beginning of the time range and Component 2, “Range End Date/Time,” contains the end of the time range.

SPM-18-Specimen Received Date/Time

This field, whose data type is TS, contains the date and time when the first specimen image was received from VistA by the commercial image manager. It is populated in all OML messages sent to VistA by the commercial image manager.

SPM-20-Specimen Availability

This field indicates whether a specimen image is available for use by the commercial image manager. Its data type is ID. It will contain one of the following values from HL7 Table 0136, *Yes/No Indicator*.

Value	Description
Y	Yes
N	No

This field will be valued **Y** if a specimen image (real-time robotic view or persistent whole-slide image) is available for viewing. It will be valued **N** otherwise.

SPM-21-Specimen Reject Reason

This field describes one or more reasons the specimen is rejected for the ordered batteries. It is populated in all messages sent by the commercial image manager whenever a specimen has been rejected.

The data type of this field is CWE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	R	[1..1]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System
7	10	ST	X	[0..0]		Coding System Version ID
8	10	ST	X	[0..0]		Alternate Coding System Version ID
9	199	ST	X	[0..0]		Original Text

Only the first three components of this field are valued. For each occurrence of this field, Component 1, “Identifier,” contains a value from HL7 Table 0371, “Additive”; Component 2, “Text,” contains the description corresponding to the value in Component 1, “Identifier”; and Component 3 is valued **HL70371**.

The following is a list of valid values from HL7 Table 0490, *Specimen Reject Reason*.

Value	Description
EX	Expired
QS	Quantity not sufficient
R	Missing patient ID number
RB	Broken container
RD	Missing collection date
RE	Missing patient name
RI	Identification problem
RL	Improper labeling
RM	Labeling
RR	Improper storage
RS	Name misspelling

SPM-26-Number of Specimen Containers

This field, whose data type is NM, contains the integer number of slides associated with the order.

1.6.10 SAC Segment Fields

SAC-3-Container Identifier

This field contains the unique identifier for the specimen container assigned by the Order Placer.

The data type of this field is EI, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	R	[1..1]		Entity Identifier
2	20	IS	R	[1..1]	0363	Namespace ID
3	199	ST	X	[0..0]		Universal ID
4	6	ID	X	[0..0]		Universal ID Type

Component 1, “Entity Identifier,” contains the VistA identifier for the specimen container. Component 2, “Namespace ID,” contains the value **VISTA** from user-defined Table 0363, *Assigning Authority*.

SAC-4-Primary (parent) Container Identifier

This field contains the unique identifier for the primary specimen container assigned by the Order Placer.

The data type of this field is EI, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	199	ST	R	[1..1]		Entity Identifier
2	20	IS	R	[1..1]	0363	Namespace ID
3	199	ST	X	[0..0]		Universal ID
4	6	ID	X	[0..0]		Universal ID Type

Subcomponent 1, “Entity Identifier,” contains the VistA identifier for the primary specimen container. Subcomponent 2, “Namespace ID,” contains the value **VISTA** from user-defined Table 0363, *Assigning Authority*.

1.6.11 IPC Segment Fields

IPC-1-Accession Identifier

This is the accession number of the examination (accession number of the specimen) in the VistA system. It is common to all slides in the examination being accessioned.

IPC-2-Requested Procedure ID

This is the identifier of an imaging procedure to be performed upon the specimen(s) in this order. An instance of a Requested Procedure includes all of the items of information that are specified by an instance of a Procedure Plan that is selected for the Requested Procedure by the imaging service provider.

An Imaging Service Request may include requests for more than one Requested Procedure. Each combination of Accession Identifier, Requested Procedure and Scheduled Procedure Step ID (see IPC-4 below) shall be transmitted in a distinct instance of the IPC Segment.

IPC-3-Study Instance UID

This is the globally unique imaging study identifier assigned by VistA. It is common to all instances of the IPC Segment in an order.

IPC-4-Scheduled Procedure Step ID

This is the identifier of a unit of service to be performed upon the specimen(s) in this order in the context of *IPC-2-Requested Procedure ID*. The performance of this Procedure Step shall involve exactly one piece of Imaging Modality equipment.

A Requested Procedure (see IPC-2 above) may include multiple Scheduled Procedure Step IDs. Each combination of Accession Identifier, Requested Procedure and Scheduled Procedure Step ID shall be transmitted in a distinct instance of the IPC Segment.

1.6.12 MSA Segment Fields

MSA-1-Acknowledgment Code

This field, whose data type is ID, indicates whether the message was processed successfully. Original mode acknowledgment shall be used.

The sender of an acknowledgment message shall populate this field with one of the following values from HL7 Table 0008, Acknowledgment Code.

Value	Description
AA	Application Accept
AE	Application Error
AR	Application Reject

MSA-2-Message Control ID

This field, whose data type is ST, contains the value of *MSH-10-Message Control ID* from the message being acknowledged.

1.6.13 ERR Segment Fields

ERR-2-Error Location

This field contains an encoded description of the location of the error within a segment, field, component or sub-component. If the error is unrelated to a specific location, this field is not populated.

The data type of this field is ERL, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	3	ST	R	[1..1]		Segment ID
2	2	NM	R	[1..1]		Segment Sequence
3	2	NM	RE	[0..1]		Field Position
4	2	NM	RE	[0..1]		Field Repetition
5	2	NM	RE	[0..1]		Component Number
6	2	NM	RE	[0..1]		Sub-Component Number

The components of this field are populated as follows.

ERR-2.1-Segment ID

This is the 3-letter name for the segment.

ERR-2.2-Segment Sequence

This is an integer corresponding to the ordinal position of the segment identified in *SPM-3.1-Segment ID* in the message that is being acknowledged. The first occurrence is labeled **1**, the second **2**, and so on.

If the segment identified in *SPM-3.1-Segment ID* contains a Set ID value in its first field (as does, e.g., the OBX segment), that value shall be populated into this component.

ERR-2.3-Field Position

This is the number of the field within the segment. If the error does not apply to a specific field or field subelement, this component is not populated.

ERR-2.4-Field Repetition

This is the repetition number within the field. The first repetition is labeled **1**, the second **2**, and so on. If *SPM-3.3-Field Position* is specified, but *SPM-3.4-Field Repetition* is not specified, *SPM-3.4-Field Repetition* should be assumed to be 1.

If the error does not apply to a specific field or field subelement, this component is not populated.

ERR-2.5-Component Number

This is the number of the component within the field. If the error does not apply to a specific component or subcomponent, this component is not populated.

ERR-2.6-Sub-Component Number

This is the number of the sub-component within the component. If the error does not apply to a specific subcomponent, this component is not populated.

ERR-3-HL7 Error Code

This field contains the HL7 code and description of the error. Its data type is CWE, which is defined as follows.

Seq	Len	DT	Usage	Cardinality	TBL#	Element Name
1	20	ST	R	[1..1]		Identifier
2	199	ST	R	[1..1]		Text
3	20	ID	R	[1..1]	0396	Name of Coding System
4	20	ST	X	[0..0]		Alternate Identifier
5	199	ST	X	[0..0]		Alternate Text
6	20	ID	X	[0..0]	0396	Name of Alternate Coding System
7	10	ST	X	[0..0]		Coding System Version ID
8	10	ST	X	[0..0]		Alternate Coding System Version ID
9	199	ST	X	[0..0]		Original Text

The following table lists the values and descriptions from HL7 Table 0357, *Message Error Condition Codes*, that may be populated into *ERR-3.1-Identifier* and *ERR-3.2-Text* respectively.

Value	Description
100	Segment sequence error
101	Required field missing
102	Data type error

Value	Description
103	Table value not found
200	Unsupported message type
201	Unsupported event code
202	Unsupported processing ID
203	Unsupported version ID
204	Unknown key identifier
205	Duplicate key identifier
206	Application record locked
207	Application internal error

Component *ERR-3.3-Name of Coding System* shall always contain the value **HL70357**.

ERR-4-Severity

This field, whose data type is ID, identifies the severity of an application error. It is populated with one of the following values from HL7 Table 0516, *Error Severity*.

Value	Description
W	Warning
I	Information
E	Error