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## Overview

This unit describes HL7 order messages, order control codes, and order segments that are transmitted from the Cerner Millennium Universal Interface. This unit describes how the Universal Interface processes each order control code. This unit does not discuss pharmacy, dietary, or supply orders.

## General Description

The Cerner Millennium Universal Interface transmits real-time order messages to an external system using the HL7 ORM message. The Cerner Millennium Universal Interface transmits new orders (NW - new order and SN - send order number) initiated in Cerner Millennium applications, including the ones below:

- PathNet: Anatomic Pathology, Blood Bank, General Laboratory, and Microbiology
- RadNet: Radiology
- Other departmental applications
- Enterprise Order Management

For each of the Cerner Millennium applications listed above, the Universal Interface transmits Cerner Millennium initiated status and cancel messages using these order control events: order status updates (SC), order canceled (OC), and change order (XX). Cerner Millennium activity that triggers an order status update varies by order activity type and the Cerner Millennium solutions installed.

For continuing orders only, the Universal Interface transmits discontinue (DC), suspend (OH), and Release From Hold (RL) messages.

When the Universal Interface sends an ORM message with the send order number (SN) order control code, the Universal Interface expects an immediate ACK response and a deferred ORR response message with the number-assigned NA order-control code.

## Constraints

The Universal Interface does not accept the ORR response message for any other order control code except the NA number-assigned code.

The Universal Interface sends the ORR response via an interface connection different from the channel used to receive the original ORM message from the external system. The Universal Interface accepts an ORR response from an external system via an interface connection different from the channel used to send the Cerner Millennium initiated ORM message to the external system. For example, if an orders interface to Cerner Millennium exists, that connection is used to receive the ORR response.

When Cerner Millennium is the order management system, Cerner is defined in this specification as the HL7 placer system. When an external system is the order management system sending orders to a Cerner Millennium departmental system (for example, PathNet, RadNet, or SurgiNet), Cerner is defined in this specification as the HL7 filler system. In addition, a Cerner Millennium departmental system is considered the placer system when sending orders to a supporting external system (for example, a reference laboratory or dictation system).

## Patient Identification

Cerner Millennium systems requires at least one primary identifier to *uniquely* identify a patient - medical record number or other primary person alias, and one primary identifier to *uniquely* identify an encounter - financial number or other primary encounter alias. The Universal Interface provides one or more person and one or more encounter identifiers in the ORM message.

Configuration Option	Comment
System Level	All valid identifiers and alias pools. Not configurable. Use for all messages from Cerner Millennium. See PID and PV1 segment definition.
Encounter Organization Level	Identifiers and assigning authorities transmitted could vary with the organization associated with an encounter. Currently not configurable. Custom scripting is required to implement flexing identifiers by organization.
Receiving System - Interface Level	Configurable list of valid identifiers using alias pool code (CVO by contributor source code). See PID and PV1 segment definition.

## Selection Criteria

The Universal Interface provides configurable selection criteria to select populations and order activity eligible for transmission to external systems.

The Universal Interface provides configurable selection at the trigger or system level or at the interface level (communications server by contributor source code).

At the trigger or macro level, the options selected collectively determine the universe of messages transmitted from Cerner Millennium. The Universal Interface always transmits at the highest level. Order selection at the macro trigger level is configurable using any combination of the following variables:

- Activity type (for example, general laboratory, microbiology, radiology)
- Order action (for example, order, modify, complete)
- Contributor system (original order or order action)
- Order status (order or department)
- Order types (for example, bill only, care set parent, care set child, super group parent, super group child, continuing order parent, continuing order instance, AP Special, interval parent, interval child).

**Note**

Macro-level order selection currently requires both a backend Discern Explorer (CCL) tool (eso\_init\_outbound) and the eso\_get\_order\_selection script. The eso\_get\_order\_selection script contains a standard area to set order variables and indicators that can be used to suppress specific order activity. This script contains a custom area to implement additional site-specific macro level suppression options. By default, all order activity is transmitted unless specifically suppressed in the custom area.

Selection at the interface level (contributor system or communications server) is configurable by contributor source code using the following literal-based convention to skip messages:

A code value outbound alias set to the literal SKIPMSG for specific fields causes the ESO Com Server to skip this message and continue immediately to the next message. The message skipped is not logged or sent to the receiving system or engine. The SKIPMSG option is used when filtering at the ESO Server level is either not available or not appropriate. Currently, ESORTL processes the SKIPMSG indicator string if valued in the following HL7 fields: PV1-2-Patient Class, PV1-3.1-PatientLocation.PointOfCare, PV1-3.4-PatientLocation.Facility, PV1-18-Patient Type, and OBR-24-DiagnosticServiceSection. Although the literal SKIPMSG may be used to value other fields, logic to actually skip the message requires customization.

A code value outbound alias set to the literal DONOTSEND causes ESORTL to send an empty field or component (such as ||). In addition, ESORTL suppresses specific segments when specific fields contain the DONOTSEND literal. ESORTL suppresses NTE segments if the DONOTSEND string is sent in the NTE-2-SourceOfComment field. ESORTL also suppresses an entire ORM message OBX group (the OBX segment and related NTE segments) if the OBX-3.1-ObservationId is populated with DONOTSEND. ESORTL also suppresses an entire ORM message OBR group (the OBR segment and related OBX and NTE segments) if the DONOTSEND string is populated in the ORC-1-OrderCntrl, OBR-4.1-UniversalServiceId, or OBR-24-DiagnosticServiceSection.

## Patient Selection

The Universal Interface supports configurable selection of patient populations eligible for interface activity from Cerner Millennium. Selection is configurable at the interface level using the literal-based SKIPMSG convention as described in the preceding paragraph.

## Order Activity Selection---Hold Logic

The Cerner Millennium interface hold logic can delay transmission of result activity until the foreign system is ready to accept the transaction. Hold rules can flex by interface trigger, interface type, order activity type, event class, order/procedure code (catalog code or event code, single or grouped), encounter organization, and patient type. The available transmit or hold release levels are listed below.

- Transmit immediately (no hold).
- Hold and transmit upon receipt of identifiers per hold rule configurations.
- Transmit now *and* hold for later transmission.

The configuration hold options for HL7 order messages are listed below.

- By one or more person identifiers (alias pool code and assigning authority).
- By one or more encounter identifiers (alias pool code and assigning authority).
- By one or more order identifiers (alias pool code).

## Code Value Selection

Cerner Millennium allows multiple external systems to send coded data elements of variable length. Each coded value from contributor source is mapped as an alias to a Cerner Millennium data item. More than one code value alias can point to the same Cerner Millennium data item.

Identification of which code value outbound alias should be used for interface activity from Cerner Millennium is configurable at the interface level by contributor system and outbound alias process code (Code Set 14875). Process codes determine how ESORTL selects outbound aliases from the code value outbound (CVO) table. Valid options are listed below:

- No CVO Decode.
- CVO Decode, Use Primary Source.
- CVO Decode, Use Prim/Secondary Source.

When the use primary source option is configured, ESORTL decodes a code value using the primary or only contributor source code (Code Set 73) to find the code value outbound alias. When the use prim/secondary source option is configured, ESORTL identifies the outbound alias by first searching for a CVO with the primary contributor source code. If a CVO is not found with the primary contributor source code, ESORTL then uses the alternate or secondary contributor source code to select a CVO alias. The prim/secondary option could be used to define a common set of CVO aliases used by all interfaces (the generic or secondary) and an interface specific set of CVO aliases used by a single interface (the specific or primary). ESORTL would always select and use the interface specific CVO alias before selecting and using the common or secondary alias.

## Ordered Procedure Selection

Order activity is eligible for transmission based first on system selection options described earlier in this unit. The Universal Interface provides additional options to suppress messages at the interface level by ordered procedures (order catalog). The options for ordered procedure selection are listed below:

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- Do not send order message if outbound code value alias (Code Set 200)---DONOTSEND.
  - Do not send order message if outbound code value alias (Code Set 200)---SKIPMSG. Custom scripting is required to implement.
  - Do not send message if outbound alias (Code Set 200) does not exist. Configurable using back end Discern Explorer (CCL) tool (eso\_init\_outbound) and defining code set interface SKIP\_MSG rule for Code Set 200. Because procedures could inappropriately be skipped, Cerner does not recommend this option.
- Once the ordered procedure is selected as eligible for transmission, the Universal Interface sends an ORM message using an order control code based on the Cerner Millennium trigger event or order action.

## Order Identification

Cerner Millennium identifies every order with a unique internally assigned order\_id. Other order identifiers vary with the Cerner Millennium application, orderable activity type, and interface processing.

Result Identifier	Comment
Cerner Millennium Order Identifier	Unique internally assigned number. Order_id. For care sets or supergroups, a different unique order_id assigned to the parent orderable and to each child ordered component.
Order Alias Identifiers	Identifiers from an external system that point to a Cerner Millennium order. More than one alias per contributing system may be available.
Cerner Millennium Accession Number	Unique specimen or case identifier. Internally assigned. Not always available with the initial order. More than one order_id is allowed per accession number. Accession number is not available with all Cerner Millennium applications. Used when one of the following applications are implemented: Cerner Millennium Collections, PathNet (General Laboratory, PathNet Blood Bank Donor, PathNet Microbiology, PathNet Anatomic Pathology), and RadNet.
Cerner Millennium Radiology PACS ID	RadNet internal number assigned to the initial radiology ordered exam. If the original exam is replaced (canceled/new order), the new exam has a new Cerner Millennium order_id but has the same Radiology PACS ID.

The options for order identifiers are listed below.

Option	Comment
System Level	All valid identifiers and alias pools per Universal Interface specifications. Not configurable. Use for all order and result messages from Cerner Millennium. See OBR segment definition.
Receiving System - Interface Level	Configurable set of identifiers using alias pool code (CVO by contributor source code). See OBR Segment definition.

## Order Event Summary

The Cerner Millennium Universal Interface can send ORM message and accept ORR response messages with the following HL7 event codes and order control codes:

Message Type	Event Code	Order Control Code	Description	Originator [1]	Transmitted from Cerner Millennium	Response From Cerner Millennium [2]
ORM	O01	NW	New Order	P,F	Y	-
ORR	O02	OK	Order Accepted and OK	F	N	N
ORR	O02	UA	Unable to accept	F	N	N
ORM	O01	CA	Cancel Order Request	P	N	-
ORM	O01	OC	Order Canceled	F	Y	-
ORR	O02	CR	Canceled as Requested	F	N	N
ORR	O02	UC	Unable to Cancel	F	N	N
ORM	O01	DC	Discontinue Order Request	P	N	-

ORM	O01	OD	Order Discontinued	F	Y	-
ORR	O02	DR	Discontinue as Requested	F	N	N
ORR	O02	UD	Unable to Discontinue	F	N	N
ORM	O01	HD	Hold Order Request	P	N	-
ORM	O01	OH	Order Held	F	Y	-
ORR	O02	HR	On hold as Requested	F	N	N
ORR	O02	UH	Unable to put Order on Hold	F	N	N
ORM	O01	RL	Release Previous Hold	P	Y	-
ORR	O02	OR	Released as requested	F	N	N
ORR	O02	UR	Unable to Release	F	N	N
ORM	1	OE	Order Released	F	N	N
ORM	O01	RP	Order Replace Request	P	N	-
ORM	O01	RU	Replaced Unsolicited	F	N	-
ORM	O01	RO	Replacement Order	P,F	N	-
ORR	O02	RQ	Replaced as requested	F	N	N
ORR	O02	UM	Unable to replace	F	N	N
ORM	O01	PA	Parent Order	P,F	N	-
ORM	O01	CH	Child Order	P,F	N	-
ORM	O01	XO	Change Order Request	P	N	-
ORM	O01	XX	Order changed, Unsol	F	Y	-
ORR	O02	UX	Unable to Change	F	N	N
ORR	O02	XR	Change as Requested	F	N	N
ORM	O01	DE	Data Errors	P,F	N	-
ORM	O01	RE	Observations to Follow	P,F	Y (ORU)	-
ORM	O01	CN	Combined Results	F	Y (ORU)	-
ORM	O01	SS	Send Order Status Request	P	N	-
ORM	O01	SC	Status Change	P,F	Y	-
ORM	O01	SN	Send Order Number	F	Y	-
ORR	O02	NA	Number Assigned	P	Y	Y to SN
ORR	O02	RR	Request Received	P,F	N	N
ORR	O02	SR	Response to send order status	F	N	N
ORM	O01	RF	Refill Order Request	P,F	N/A	-
ORM	O01	FU	Order Refilled Unsolicited	F	N/A	-
ORR	O02	AF	Order refill request approval	P	N/A	N/A
ORR	O02	DF	Order refill request denied	P	N/A	N/A
ORR	O02	OF	Order refilled as request	F	N/A	N/A
ORR	O02	UF	Unable to refill	F	N/A	N/A

<sup>1</sup> The Universal Interface does not determine processing based on a definition of the originator as a placer or a filler system. The designation of an application as the placer, filler, or auxiliary (interested party) system is however an important concept to understanding the message flow, trigger events, and overall interface design and implementation.

<sup>2</sup> The message control id, and response flag is included in the Orders Miscellaneous List. This list is used for outbound processing to determine if an ORR response is needed and to format the appropriate ORR response. This functionality is not configurable and requires scripting in the eso\_get\_order\_selection script. Initial implementations may also require outbound communications client scripting.

## Orders to Cerner Millennium---Message Definition and Processing

The orders to Cerner Millennium- message definition and processing is described below.

### General ORM Message Definition

The Universal Interface sends order messages using the OBR order detail segment with the following ORM message format:

ORM Segment	Segment Name	Comments
MSH	Message Header	
[		
PID	Patient Identification	Always transmitted from Cerner Millennium.
PV1	Patient Visit	Always transmitted from Cerner Millennium.
[ PV2 ]	Patient Visit Additional	Not used.
[ {		
IN1	Insurance	Not used.
[ IN2 ]	Insurance Additional Info	Not used.
{ IN3 }	Insurance Certification / Authorization	Not used.
}]		
{ GT1 }	Guarantor	Not used.
{		
AL1	Allergy	Snap shot. All allergies for the person when the ORM message is formatted.
ZAL	Additional allergy info	Cerner defined Z segment.
{NTE}	Allergy comments	Cerner extension to HL7 standard.
}]		
]		
{		
ORC	Common Order	Always transmitted from Cerner Millennium.
[		
OBR	Observation Request	Always transmitted from Cerner Millennium.
[ {NTE} ]	Notes and Comments	Non-specific Order Level Comments.
{ DG1 }	Diagnosis	
{		
OBX	Observation/Result	
{NTE} ]	Notes and Comments	
}]		

[[ ZCT ]]		Cerner defined Z segment for container tracking. Used only with Cerner Millennium Collections module.
]		
[[CTI ]]	Clinical Trial Identification	Not used.
[BLG]	Billing segment	Not used.
}		

See [Unit 8o: ATD Message Processing Outbound](#) for mapping and processing of the following segments: PV2, IN1, IN2, IN3, GT1.

## ORM Additional Use Notes

- The Universal Interface sends orders with a single ORC/OBR pair per ORM message. At this time, the Universal Interface does not send an ORM message with multiple ORC/OBR pairs.



### Note

Currently, the SCS\_NET trigger in ESO sends multiple ORC/OBR pairs when the order status message is triggered outbound by the Netting server. One is sent for each order that is linked to the accession.

- Cerner provides a unique identifier for each order transmitted to an external system. This order identifier is constant and unique, is never reused, and is provided when the order message is first initiated from Cerner Millennium. The Cerner Millennium order identifier or a unique alias must be returned in all order or result activity subsequently transmitted back to Cerner Millennium from an external system.
- The Universal Interface provides a configurable option at the system level using the `eso_init_outbound` Discern Explorer (CCL) program to suppress the AL1/ZAL, DG1, ZCT, IN1/IN2/IN3, and GT1 segments. Site-specific scripting is required for suppression at an interface specific (communications comm server) level.

## General ORR Order Response Message Definition

The Universal Interface can send an asynchronous order response message using the following HL7 ORR message format:

ORR Segment	Segment Name	Comments
MSH	Message Header	
MSA	Message Acknowledgment	
[		
PID	Patient Identification	
{{		
ORC	Order Control	Required when OBR is returned.
[		
OBR	Order Detail	
]		
}]		
]		

### ORR Use Notes

- The Cerner Millennium Universal Interface can send an ORR message with the ORC-1 - Order Control - NA. The NA is in response to the original ORM message sent with ORC-1 - Order Control - SN.
- The ORR response message format requires scripting at the interface specific (communications server) level to value the MSA segment.

## Orders Generated in Cerner Millennium (O01/NW)

The Cerner Millennium Universal Interface sends new orders originating in Cerner Millennium using HL7s ORM message with an event code of O01. The Universal Interface uses the code value outbound alias to the Cerner Millennium order action (Code Set 6003) to determine if new orders should be sent using the NW order control code or the SN order control code described later in this unit. If the receiving system transmits the Cerner Millennium order number as the order identifier for subsequent order or result activity, the Order Control Code field (*ORC-1*) contains the value NW to indicate a new order event.

The Universal Interface can send one-time orders, continuous orders, or instances of a continuing order.

The Universal Interface can send new orders entered as order sets or supergroups at the component or orderable procedure level or both. The Universal Interface cannot send the parent and child components in the same message.

As previously discussed in this unit, site specific options to suppress order activity is defined in the `eso_get_order_selection` script.

The Universal Interface sends specific order prompts or details using OBX segments. The Universal Interface can send an unlimited number of order comment lines using NTE segments.

The Universal Interface can send Bill Only procedures; however, these procedures are defined in the Cerner Millennium Order Catalog as Bill Only procedures and can be included/excluded in the orders interface based on selection options described earlier in this unit.

**Note**  
The purpose and function of the Universal orders interface is to send clinical order information to external systems giving health providers immediate access to reliable, accurate, up-to-date clinical data. The orders interface is not designed to function as a charge interface. Cerner Millennium applications provide many opportunities to create/modify charges that are not and cannot be related directly to an order, cancel or order status message. For example, susceptibility orders in microbiology, cross-match compatible/non-compatible activity, blood bank product dispense or return, add-on charges, no-charge orders that have results, charge/credit only orders that never have results, repeats. Cerner does not recommend using this interface as the only way to capture charges. Lost charges and inappropriate charges can occur.

## Orders Generated in Cerner Millennium (O01/SN)

Orders originating within Cerner Millennium can be passed to a foreign system using HL7s ORM message with an event code of O01. If the primary order identifier is assigned by the foreign system, the Order Control field (ORC-1) of the ORC segment contains the value SN (Send order number) to indicate that the foreign system must provide a placer order number.

**Note**  
Options and issues discussed in the New Order (NW) paragraph apply to new orders transmitted using the Send Order Number (SN) order control.

## Special Considerations

The Order Identifier value transmitted in the Placer Order Number (*ORC-2 / OBR-2*) or Filler Order Number (*ORC-3 / OBR-3*) or other available field must be returned with the ORR order notification transaction (NA, Number Assigned Message). This allows the Universal Interface to map the external systems order number to the appropriate order on the Cerner Millennium system. The Universal Interface inserts the external systems order number as a Cerner Millennium Order Alias.

Following successful processing of the NA message, subsequent activity transmitted from Cerner Millennium contains both the Cerner Millennium and the external systems order number. Following successful processing of the NA message and if the external order number is unique, constant and never reused, the Universal Interface can use the external systems order number as the primary order identifier for order and result activity to Cerner Millennium.

## Order Number Notification (O02/NA) to Cerner Millennium

As described above, for Cerner Millennium initiated orders where the foreign system must assign the order number, the Number Assigned response message is necessary for Cerner Millennium to update its order with the foreign order number. Requirements for the ORR message returned to Cerner Millennium are as follows:

- The ORC Order Control (ORC-1) field must be valued with the NA (Number assigned) order control code.
- The foreign order number must be in the Placer Order Number field (ORC-2.1) or other available configurable field.
- The external system must return the Cerner Millennium Order Identifier in the *OBR-3.1-Filler Order Id* exactly as transmitted with the Cerner Millennium -initiated order ORM message with the SN (send number) order control code.
- The Cerner Millennium Order Identifier value and its HL7 field returned from the foreign system must equal the Cerner Millennium Order Identifier and its HL7 field transmitted by the Universal Interface to the foreign system in the SN message.

**Note**  
The HL7 fields listed in the previous paragraph are the default fields. The data values (foreign order number and Cerner Millennium order number) are always required in the NA message; however, the HL7 fields used to provide these data elements are configurable. The Cerner Millennium Universal Interface provides configurable options to accept these elements in alternative HL7 fields.

## Order Canceled in Cerner Millennium (O01/OC)

When an order is canceled in a Cerner Millennium application and an application level response is not expected, the Universal Interface sends an event notification ORM message with the Order Control field of the ORC segment valued OC (Order Canceled).

The Cerner Millennium Universal Interface provides the cancel personnel identifier in the ORC-10 - Entered By field.

The Cerner Millennium Universal Interface provides a Cancel Reason Code in the Order Control Reason Code field (ORC-16.1). The Cerner Millennium Universal Interface provides free text cancel comments in an NTE segment.

The cancel date and time are the date and time provided in ORC-9 - Transaction Date and Time.

## Order Discontinued in Cerner Millennium (O01/OD)

When an active continuous order is discontinued in Cerner Millennium and an application level response is not expected, the Universal Interface sends an event notification ORM message with the Order Control field of the ORC segment valued OD (Order Discontinued).

The Cerner Millennium Universal Interface provides discontinue personnel identifier in the ORC - 10-Entered By\_ field.

The Cerner Millennium Universal Interface provides a Discontinue Reason Code in the Order Control Reason Code field (ORC-16.1). The Universal Interface provides free text discontinue comments in an NTE segment.

The discontinue date and time are the date and time provided in ORC-9 - Transaction Date and Time.

## Order Held in Cerner Millennium (O01/OH)

When an active continuous order is held or suspended in Cerner Millennium and an application level response is not expected, the Cerner Millennium Universal Interface sends an event notification ORM message with the Order Control field of the ORC segment valued OH (Order Held).

The Cerner Millennium Universal Interface provides the suspend personnel identifier in the ORC-10 - Entered By field.

The Cerner Millennium Universal Interface provides a Suspend (Hold) Reason Code in the Order Control Reason Code field (ORC-16.1). The Cerner Millennium Universal Interface provides free text suspend comments in an NTE segment.

The suspend date and time are the date and time provided in ORC-9 - Transaction Date and Time.

## Order Released in Cerner Millennium (O01/OE)

When a suspended order is resumed in Cerner Millennium and an application level response is not expected, the Cerner Millennium Universal Interface sends an event notification ORM message with the Order Control field of the ORC segment valued OE (Order Released).

The Cerner Millennium Universal Interface provides the release personnel identifier in the ORC-10 - Entered By field.

The Cerner Millennium Universal Interface provides a Resume Reason Code in the Order Control Reason Code field (ORC-16.1). The Cerner Millennium Universal Interface provides free text release comments in an NTE segment.

The resume date and time are the date and time provided in ORC-9-Transaction Date and Time.

## Order Changed in Cerner Millennium (O01/XX)

When an order is changed in Cerner Millennium and an application level response is not expected, the Universal Interface sends an event notification ORM message with the Order Control field of the ORC segment valued XX (Order Changed).

The Cerner Millennium Universal Interface provides the modify personnel identifier in the ORC-10 - Entered By field.

The Cerner Millennium Universal Interface provides a Modify Reason Code in the Order Control Reason Code field (ORC-16.1). The Cerner Millennium Universal Interface provides free text modify comments in an NTE segment.

The modify date and time are the date and time provided in ORC-9 - Transaction Date and Time.



### Note

Not every auxiliary system can accept order modifications. Cerner Millennium provides two configurable modify privileges that can be turned on/off by user position. These privileges can be set to include/exclude by catalog type, activity type, or orderable.

- **Modify Order privilege.** User can modify active orders. Disable this privilege when the receiving auxiliary system cannot accept order modifications.
- **Modify On-Hold privilege.** User can modify future (orders with no encounter), incomplete, and medical student orders. User can also activate future orders.

## Status Changed in Cerner Millennium (O01/SC)

When Cerner is defined as the filler system, the Universal Interface can send status change messages using HL7s ORM message with an event code of O01. When Cerner is defined as the placer system, the Universal Interface can also trigger status change messages. However, these actions usually do not apply to interfaced departments and will be suppressed by orderable activity type.

The *ORC-1-Order Control Code* contains the value SC to indicate a status change notification. The Order Status field (ORC-5 - Order Status) contains the status of the order known at the time the message is formatted for transmission. Cerner Millennium orders have both an order status (Code Set 6004) and a department order status (Code Set 14281). When the Cerner Millennium order action is a status change, the Universal Interface values ORC-5 with the department order status.

The Universal Interface can send the following items:

Cerner Millennium Order Status	ORC-5-Order Status	Comment
Ordered	O - Ordered  <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 5px; width: fit-content;">  <b>Note</b>                      The transmitted value of the order status is configurable as a CVO alias.                 </div>	Events that trigger SC messages vary by activity type (department or discipline). Indicates departmental activity has occurred but results are not available. Not all disciplines trigger a departmental order status change. PathNet: In Lab. RadNet: Exam Started, Exam Completed, and Exam Replaced.
In Process	IP - In process, Unspecified	Indicates results are available. Not all disciplines or orders have in process triggers.
Completed	CM - Order is completed	Indicates all pending results are completed or signed.

## HL7 Segment Layouts

This section defines the HL7 data segments supported by this Cerner Millennium Universal Interface. The segment definition tables are populated as shown below. Shaded rows in the segment tables denote fields currently not supported by Cerner Millennium.

Heading	Contents	Values
Seq	HL7 Field Sequence	Begins with 01 for each segment.
HL7 Format	HL7 maximum bytes	Defined by HL7. Values are comma delimited, such as 20,ST,R. Defined by HL7. The data type in parentheses indicates the type used by Cerner Millennium. Required values: R - Required, C - conditional, O or empty - Optional, Repeat: r# where r indicates repeat and # is the number of instances. The r without a number indicates that a field can repeat an indefinite number of times.
HL7 Elem	HL7 Field identifier	Defined by HL7, Unique Identifier.
Name	HL7 field name	Defined by HL7.
Cerner Table	Cerner Millennium table	Abbreviated table name. A plus sign (+) denotes that the attribute is stored on multiple tables. v denotes that the attribute is stored on various tables depending on the event and other values.
Cerner Attribute	Cerner Millennium column or attribute	Attribute name. Blank denotes that the transmitted element is not stored.
Code Set	Cerner Millennium Code Set	Code set number. E before the code set number indicates an extendible Code Set, which is a Code Set that has non-aliased values, added-on-the-fly (AOF).
R/O	Field required by Cerner Millennium	R - Required to process the message. C - Conditionally required. O - Optional. N - Not supported. B - Backward compatibility. Use new field defined. r# - Indicates a repeat and # is the number of instances. r without a number indicates that a field can repeat an indefinite number of times.
HL7 Ver	HL7 version number	The HL7 version in which the field was first supported.

Comments	Cerner Millennium Field Usage Comments	General comments.
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**Note**  
 This section defines HL7 order entry data segments supported in the Orders (ORM) interface from Cerner Millennium applications to an external system. For convenience the common PID and PV1 segment definitions are included in this unit. See [Unit 8o: ATD Message Processing Outbound](#) for mapping and processing of the following segments: PV2, IN1, IN2, IN3, GT1.

**Note**  
 Code meanings listed as valid values represent Cerner Defined (cdf) meanings. The actual transmitted code from the external system does not have to match the code meaning but maps to a code meaning via the CODE\_VALUE\_OUTBOUND table. Unless specifically identified with a size limit, Cerner Millennium can accept values considerably larger than the HL7 maximum size. For example, the maximum size of a code value alias built by a user is 255 characters.

## Control Segments (HL7 Chapter 2)

The Control Segments (HL7 Chapter 2) are described below.

### MSH (Message Header) Segment

The MSH (Message Header) segment defines the characteristics of the message. The sending and receiving applications are identified. The encoding characters used as delimiters for the message are also indicated. The MSH message type is used to indicate the type of message being transmitted. In the MSH of the ACK response, the values of the Sending Application, Sending Facility, Receiving Application, and Receiving Facility are the reverse of the values in the original message.

### MSH (Message Header) Segment

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### MSH Segment Layout

MSH Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	1,ST,R	00001	Field Separator				R	2.3	Field separator. Must be printable character that is never included in transmitted data. The recommended value is a pipe ( ) - ASCII(124). The interface uses the recommended value.
02	4,ST,R	00002	Encoding Char				R	2.3	Used to separate data field components, repeating data elements, and text control characters. Must be printable characters that is never included in transmitted data. Recommended values: Pos 1: Component Separator (^) - ASCII(94) Pos 2: Repetition Separator (~) - ASCII(126) Pos 3: Escape (\\), ASCII(92) Pos 4: Sub-Component (&)- ASCII(38) The interface uses the recommended values.
03	227,HD,O	00003	Send Application	OFP	Null_string		R	2.3	Site-defined description of sending application. Must be unique. Configurable in ESO_INIT_OUTBOUND. HL7 User Table 0361.
04	227,HD,O	00004	Send Facility	OFP	Null_string		R	2.3	Site-defined description of sending facility. Configurable in ESO_INIT_OUTBOUND. HL7 User Table 0362.
05	227,HD,O	00005	Receive Application	OFP	Null_string		C	2.3	Site-defined description of receiving application. Configurable in ESO_INIT_OUTBOUND. HL7 User Table 0361.
06	227,HD,O	00006	Receiving Facility	OFP	Null_string		C	2.3	Site-defined description of receiving facility. Configurable in ESO_INIT_OUTBOUND. HL7 User Table 0362.
07	26,TS,O	00007	D/T of Message				R	2.3	System date and time the message was formatted in sending system. This was made required in HL7 version 2.4.

08	40,ST,O	00008	Security				N	2.3	Not supported by Cerner Millennium.
09	15,MSG,R	00009	Message Type				R	2.3	Specific HL7 message type and event triggering the message.
09.1			Type				R	2.3	HL7 table 0076.
09.2			Event				R	2.3	HL7 table 003.
09.3			Structure				O	2.3.1	HL7 table 0354.
10	20,PT,R	00010	Message Control ID				R	2.3	Unique, initiator generated. Responder returns sender value in ACK message in MSA-2. With acknowledgment messages, MSH-10 value may be identical to original sender value or may be a new unique value assigned by acknowledging system.
<div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> The Control ID consists of at least the QUEUE_ID and TRIGGER_ID of the transaction. The QUEUE_ID immediately follows the Q. The TRIGGER_ID immediately follows the T.</p> </div>									
11	3,PT,R	00011	Processing ID HL7 2.3 Processing id^mode				R	2.3	In HL7 version 2.3.1, This value is derived from CCL. The suggested values are A - Archive , R - Restore from archive, I - Initial load, not present for Not present and T - Current processing or transmitted at intervals.
12	60,VID,R	00012	Version ID				R	2.3	HL7 version. Set to 2.3, 2.4, or 2.5.1 as appropriate.
13	15,NM,O	00013	Sequence Number				N	2.3	Not supported by Cerner Millennium. HL7 sequence number protocol.
14	180,ST,O	00014	Continuation Pointer				N	2.3	Not supported by Cerner Millennium. Value indicating a single logical message transmitted using more than one physical message.
15	2,ID,O	00015	Accept Ack Type				O	2.3	The default is AL.
16	2,ID,O	00016	Application Ack type				O	2.3	The default is NE.
17	3,ID,O	00017	Country Code				N	2.3	Not supported by Cerner Millennium. Country of origin for international format and default options. HL7 recommends codes from ISO 3166. HL7 User table 0399.
18	16,ID,O,r3	00692	Character Set				N	2.4	Not supported by Cerner Millennium. HL7 Table 0211.
19	250,CE,O	00693	Language of Message				N	2.4	Not supported by Cerner Millennium. Codes from ISO 639.
20	20,ID,O	01317	Alternate character set handling scheme				N	2.4	Not supported by Cerner Millennium. HL7 User table 0356.
21	427,EI,O,r	01598	Message Profile Identifier				N	2.4	Not supported by Cerner Millennium.

## MSH Segment Processing Notes

### Example - Original Message:

```
MSH|^~\&|HNA Millennium|CHLD|CMRN|STL|19960214134522||ORU^R01|Q13345T6659|P|2.2<CR>
```

### Example - Acknowledgment:

```
MSH|^~\&|CMRN|STL|HNA Millennium|CHLD|19960214134530|ACK|A13345.78|P|2.2<CR>
```

## MSA (Message Acknowledgment) Segment

The MSA (Message Acknowledgment) segment is returned as part of MSH, MSA pair in the ACK message type. The MSA segment also is returned in response messages to an original mode or enhanced mode query.

### MSA Segment Layout

MSA Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	2,ID,R	00018	Acknowledge Code				R	2.3	Valid values: AA = ACK = message stored. AE = ACK = message stored with error noted. AR = NAK = message rejected. HL7 User Table 0008.
02	20,ST,R	00019	Message Control ID				R	2.3	Echo MSH segment control ID (MSH-10) of message being acknowledged.
03	80,ST,B	00020	Text Message				O	2.3	
04	15,NM,O	00021	Expected Seq #				N	2.3	Not supported by Cerner Millennium.
05	W	00022	Delayed Ack Type				N	2.3	Not supported by Cerner Millennium.
06	250,CE,B	00023	Error Condition				N	2.3	Not supported by Cerner Millennium. HL7 User Table 0357. Error codes: 204 --Unknown key identifier, 205 - Duplicate key identifier, and 207 - application internal error.

### MSA Segment Processing Notes

#### Original Message

```
MSH|^~\&|HNA Millennium|CHLD|CMRN|STL|19960214134522||ORU^R01|Q13345T6659|P|2.2<CR>
```

#### Acknowledgment (Immediate Original Processing Rules)

```
MSH|^~\&|CMRN|STL|HNA Millennium|CHLD|19960214134530|ACK|A13345.78|P|2.2<CR>MSA|AA|Q133459T6659<CR>
```

## NTE (Notes and Comments) Segment

The NTE segment is used for sending textual notes and comments for information transmitted in other segments. The comment applies to the segment preceding the NTE segment. The Cerner Millennium tables referenced from the NTE segment are CENT - CE\_EVENT\_NOTE, LBLOB - LONG\_BLOB, LONG - LONG\_TEXT, and OCOM-ORDER\_COMMENT.

### NTE Message Layout

NTE Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	4,SI,O	00096	Set ID - NTE				O	2.3	Sequential. Start at 1 and increment by 1 for each set (order, result).
02	8,ID,O	00097	Source of Comment	OCOM CENT CENT CENT	Comment_type_cd Note_type_cd Entry_method_cd Entry_meth	14 14 13	O	2.3	In HL7 2.3 processing Cerner Millennium uses Code Set 14 to send the Comment type. The interface sends a code value whose CDF meaning is MISSINGATTCH to indicate the transmitted document has an attachment in Cerner Millennium that cannot be sent. In HL7 version 2.3.1 and forward this field uses Code Set 13 as the Source of Comment. HL7 User Table 0105.

03	64k,FT,O,r	00098	Comment	LONG LBLOB CENT	Note_Text Long_blob Event_title_text		R	2.3	Each \.br\ represents a hard carriage return. 32k  When an attachment is missing or exceeds the designated size limit, the interface includes error text and the value of EVENT_TITLE_TEXT from CE_EVENT_NOTE table, plus the text, <i>can be viewed in source interface</i> .
04	250,CE,O	01318	Comment Type				O	2.3.1	In HL7 2.3.1, the interface populates this field with a code value with a CDF Meaning of MISSINGATTACH. HL7 User Table 0364.
04.1	ST		Identifier	OCOM CENT	Comment_type_cd Note_type_cd	14 14	O	2.3.1	In HL7 version 2.3., the recommended values are PI - Patient Instructions, AI - Ancillary Instructions, GI - General Instructions, 1R - Primary Reason, 2R - Secondary Reason, GR - General Reason, RE - Remark and DR - Duplicate/Interaction Reason. <b>Orders:</b> When processing at the order level, the interface sends the COMMENT_TYPE_CD attribute from the ORDER_COMMENT table. <b>Results:</b> When processing at the result level, the interface sends the NOTE_TYPE_CD attribute from the CE_EVENT_NOTE table.
04.2	ST		Text	CV	Display		O	2.3.1	
04.3	ST		Coding System				O	2.3.1	In HL7 version 2.3.1, the interface sends the contributor source that is associated to the alias for this system.

## NTE Message Processing Notes

The NTE segment is used to send textual comments. The interface supports both order and result comments. Order comments follow the OBR segment; result comments follow an OBX segment. The type of comment is further defined by the value provided in the NTE-2---Source of Comment field.

The interface also provides a configurable option, *Use ESI Default Alias to populate NTE-2 for Encounter Comments*, to allow the sending of encounter-level comments under the PID segment of the ORM message.

The interface sends comments as a single NTE segment as the default processing. The text in the NTE-3---Comment field contains HL7 formatted text carriage return escape sequence \.br\. Each escape sequence represents a hard carriage return. Cerner Millennium does not have a limit to the number of characters per line. The interface provides options to send result NTEs using the HL7 repeat delimiter (~) or multiple NTEs to represent the hard carriage return or the configured line length. Also, an option is provided to configure the line length of each comment line for NTE included in an ASCII discrete result.

## ADT Segments (HL7 Chapter 3)

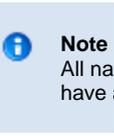
The ADT Segments (HL7 Chapter 3) area described below.

## PID (Patient Identification) Segment

The PID segment identifies the person and usually the encounter associated with the message. Patient demographic information is also provided. Cerner Millennium requires at least one primary Patient or Person Identifier. Cerner Millennium associates one person alias of MRN type with each encounter. By default, the interface sends all identifiers and provide identifier type and source as described in the PID segment. The Cerner Millennium tables referenced from the PID segment are AD - ADDRESS, EN - ENCOUNTER, EA - ENCNTR\_ALIAS, P - PERSON, PA - PERSON\_ALIAS, PP - PERSON\_PATIENT, PH - PHONE, and PN - PERSON\_NAME.

## PID Segment Layout

PID Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	4,SI,O	00104	Set ID- PID				C	2.3	Start at 1, increme
02	20,CX,B	00105	External Patient ID				O	2.3	ESO values with a associated with th for person level ev
02.1	ST,O		Patient ID	EA	Alias		O	2.3	In HL7 version 2.3 stored without lea characters. ESO r format. In HL7 version 2.3 is now supported

02.2	ST,O		Check Digit	EA	Check_digit		O	2.3	
02.3	ID,O		Check Digit Scheme	EA	Check_digit_method_cd	266	O	2.3	HL7 Table 0061.
02.4	HD,O		Assigning Authority	EA	Alias_pool_cd	263	O	2.3	Outbound alias fo
02.5	ID,O		Identifier Type	EA	Person_alias_type_cd	4	O	2.3	Outbound alias.
02.6	HD		Assigning Facility	EA	Contributor_system_cd	89	O	2.3	Outbound alias fo code.
03	250,CX,R,r	00106	Internal Patient ID				R	2.3	In HL7 version 2.3 aliases of MRN or version 2.3. This i In HL7 version 2.3 alias is in the first unique types will f
03.1	ST,O		Patient ID	PA	Alias		R	2.3	Identifier can be n Alias usually store formatting charact determines transn
03.2	ST,O		Check Digit	PA	Check_digit		O	2.3	
03.3	ID,O		Check Digit Scheme	PA	Check_digit_method_cd	266	O	2.3	HL7 Table 0061.
03.4	HD,O		Assigning Authority	PA	Alias_pool_cd	263	O	2.3	Outbound alias fo
03.5	ID,O		Identifier Type	PA	Person_alias_type_cd	4	O	2.3	Outbound alias.
03.6	HD		Assigning Facility	PA	Contributor_system_cd	89	O	2.3	Outbound alias fo code.
04	20,CX,B,r	00107	Alternate Patient ID	PA	Alias		O	2.3	In HL7 version 2.3 whose type is not possible types inc Health Insurance State/Province He MILITARYID, PAS - HNA Classic pat Cerner Millennium In HL7 version 2.3 is now be support
05	250,XPN,R,r	00108	Patient Name Family^Given^Middle^Suffix^Prefix^Degree^Type Code	PN	5.1, Name_first 5.2, Name_middle 5.3, Name_last 5.4, Name_suffix 5.5, Name_prefix 5.6, Name_degree 5.7, Name_type_cd	213	R	2.3	The interface send PERSON_NAME CURRENT in the alternate names, i format. Last^First^middle   <b>Note</b> All na have  Cerner Millennium meanings include CURRENT, LEGA PREVIOUS, PRE current name cha becomes the new old current name i name. HL7 2.3 Table 02 HL7 name type cc maiden, C - adopt
06	250,XPN,O,r	00109	Mother's Maiden Name	P	Mother_maiden_name		O	2.3	Treated as a pers alias. See PID-5 f
07	26,TS,O	00110	Date Of Birth	P	Birth_dt_tm		O	2.3	

08	01,IS,O	00111	Sex	P	Sex_cd	57	O	2.3	Valid values M, F, Table 0001.
09	250,XPN,B,r	00112	Patient Alias	PN	Alias		O	2.3	In HL7 version 2.3 CURRENT, the in other name types. HL7 User table 02 In HL7 version 2.4 is supported in PII
10	250,CE,O,r	00113	Race				O	2.3	HL7 User table 00
10.1	ST		Identifier	P	Race_cd	282	O	2.3.1	
10.2	ST		Text	CV	Display		O	2.3.1	
10.3	ID		Coding System				O	2.3.1	In HL7 version 2.3 contributor source alias for this syste
11	250,XAD,O,r	00114	Patient Address	AD			O	2.3	Multiple instances number of instanc Millennium may v interface itself has instances.
11.1	SAD,O		Address Line 1	AD	Street_addr		O	2.3	
11.2	ST,O		Address Line 2	AD	Street_addr2		O	2.3	
11.3	ST,O		City	AD	City		O	2.3	
11.4	ST,O		State	AD	State_cd	62	O	2.3	
11.5	ST,O		Zip Code	AD	Zipcode		O	2.3	
11.6	ID,O		Country	AD	Country_cd	15	O	2.3	HL7 User table 02
11.7	ID,O		Type	AD	Address_type_cd	212	O	2.3	C - Current or Ter - Mail, B - busines of Origin. Valid Cerner Mille BIRTH and EMAIL 0190.
11.8	ST,O		Other Geographic Designation	AD	Street_addr 3		O	2.3	
11.9	IS,O		County / Parish	AD	County_cd	74	O	2.3	
12	04,IS,B	00115	County Code				N	2.3	Not supported by instead use PID-1
13	250,XTN,O,r	00116	Home Phone Number				O	2.3	Cerner Millennium
13.1	ST,O		Home Phone Number	PH	Phone_num		O	2.3	The interface send attribute from the is a ADDRESS_T
13.2	ID,O		Telecommunication Use Cd	PH	Phone_type_cd	43	O	2.3	HL7 User table 02
13.3	ID,O		Telecommunication Equipment Type	PH	Modem_capability_cd		O	2.3	HL7 User table 02
13.4	ST,O		Email Address	PH	Phone_num		O	2.3	In HL7 version 2.3 PHONE_NUM att table when there i ADDRESS_TYPE
13.5	NM,O		Country Code				N	2.3	Not supported by
13.6	NM,O		Area/City Code				N	2.3	Not supported by
13.7	NM,O		Phone Number				N	2.3	Not supported by
13.8	NM,O		Extension	PH	Extension		O	2.3	
13.9	ST,O		Any Text	PH	Description		O	2.3	

14	250,XTN,O,r	00117	Business Phone Nbr	PH			O	2.3	Cerner Millennium PID-13 for layout.
15	250,CE,O	00118	Language - Patient				O	2.3	
15.1	ST,O		Identifier	P	Language_cd	36	O	2.3	HL7 User table 02
15.2	ST		Text	CV	Display		O	2.3	
15.3	ID		Coding System				O	2.3	In HL7 version 2.3 contributor source alias for this system
16	250,CE,O	00119	Marital Status				O	2.3	
16.1	ST,O		Identifier	P	Marital_type_cd	38	O	2.3	HL7 User table 00
16.2	ST		Text	CV	Display		O	2.3.1	
16.3	ID		Coding System				O	2.3.1	In HL7 version 2.3 contributor source alias for this system
17	250,CE,O	00120	Religion				O	2.3	Examples are Ba and so on.
17.1	ST,O		Identifier	P	Religion_cd	49	O	2.3	HL7 User table 00
17.2	ST		Text	CV	Display		O	2.3.1	
17.3	ID		Coding System				O	2.3.1	In HL7 version 2.3 contributor source alias for this system
18	250,CX,O	00121	Patient Account Nbr				C	2.3	Financial/Billing N
18.1	ST,O		Patient Account #	EA	Alias		C	2.3	
18.2	NM,O		Check Digit	EA	Check_digit		O	2.3	
18.3	ID,O		Check Digit Scheme	EA	Check_digit_method_cd	266	O	2.3	HL7 table 0061.
18.4	HD,O		Assigning Authority	EA	Alias_pool_cd	263	O	2.3	Valid translation v different assigning are associated with system.
18.5	ID,O		Identifier Type	EA	Encntr_alias_type_cd	319	O	2.3	The type meaning
18.6	HD		Assigning Facility	EA	Contributor_system_cd	89	O	2.3	Outbound alias fo code.
19	16,ST,B	00122	SSN - Patient	PA	Alias		O	2.3	In HL7 version 2.3 code is SSN. In HL7 version 2.3 is supported in PII
20	25,DLN,B	00123	Driver's License Nbr	PA	Alias		O	2.3	In HL7 version 2.3 code is DRLIC. In HL7 version 2.3 is supported in PII
21	250,CX,O,r	00124	Mother's Identifier				N	2.3	Not supported by
22	250,CE,O,r	00125	Ethnic Group				O	2.3	Further defines th User table 0189.
22.1	ST,O		Identifier	P	Ethnic_group_cd	27	O	2.3	
22.2	ST		Text	CV	Display		O	2.3.1	
22.3	ID		Coding System				O	2.3.1	In HL7 version 2.3 contributor source alias for this system
23	250,ST,O	00126	Birth Place				N	2.3	Not supported by

24	1,ID,O	00127	Multiple Birth Ind				N	2.3	Not supported by User table 0136.
25	2,NM,O	00128	Birth Order	PP	Birth_order		N	2.3	Number indicating
26	250,ID,O,r	00129	Citizenship				O	2.3	Currently, Cerner instance. HL7 Use
26.1	ST,O		Identifier	P	Citizenship_cd	14650	O	2.3	
26.2	ST		Text	CV	Display		O	2.3.1	
26.3	ID		Coding System				O	2.3.1	In HL7 version 2.3 contributor source alias for this syste
27	250,CE,O	00130	Veterans Military Stat				O	2.3	HL7 User table 01
27.1	ST,O		Identifier	P	Vet_military_status_cd	14651	O	2.3	
27.2	ST		Text	CV	Display		O	2.3	
27.3	ID		Coding System				O	2.3	In HL7 version 2.3 contributor source alias for this syste
28	250,CE,B	00739	Nationality				O	2.3	HL7 User table 02
28.1	ST,O		Identifier	P	Nationality_cd	14652	O	2.3	
28.2	ST		Text	CV	Display		O	2.3	
28.3	ID		Coding System				O	2.3	In HL7 version 2.3 contributor source alias for this syste
29	26,TS,O	00740	Patient Death dt_tm	P	Deceased_dt_tm		O	2.3	
30	1,ID,O	00741	Patient Death Ind	P	Deceased_cd	268	O	2.3	HL7 User table 01
31	1,ID,O	01535	Identity Unknown Ind				N	2.4	Not supported by User table 0136.
32	20,IS,O,r	01536	Identity Reliability Code				N	2.4	Not supported by User Table 0445.
33	26,TS,O	01537	Last Update Date Time				N	2.4	Not supported by
34	241,HD,O	01538	Last Update Facility				N	2.4	Not supported by
35	250,CE,C	01539	Species Code				O	2.4	HL7 User Table 0
35.1	ST		Identifier	P	Species_cd	226	O	2.4	
35.2	ST		Text	CV	Display		O	2.4	
35.3	ID		Coding System				O	2.4	In HL7 version 2.3 contributor source alias for this syste
36	250,CE,C	01540	Breed Code				N	2.4	Not supported by User Table 0447.
37	80,ST,O	01541	Strain				N	2.4	Not supported by
38	250,CE,O,r2	01542	Production Class Code				N	2.4	Not supported by User Table 0429.
39	250,CWE,O,r	01840	Tribal Citizenship				N	2.5	Not supported by User Table 0171.

## PV1 (Patient Visit) Segment

The PV1 segment provides visit- or encounter-specific information. This is an optional segment. The Cerner Millennium tables referenced from the PV1 segment are BED - BED, EA - ENCNTR\_ALIAS, ED - ENCNTR\_DOMAIN, ELH - ENCNTR\_LOC\_HIST, EN - ENCOUNTER, EPRLR - ENCNTR\_PRSNL\_RELTN, PRL - PERSNL, and PRLA - PERSNL\_ALIAS.

## PV1 Segment Layout

PV1 Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	04,SI,O	00131	Set ID- PV1				C	2.3	Start at 1, Increment by 1.
02	01,ID,R	00132	Patient Class	EN	Encntr_type_class_cd	N69	R	2.3	HL7 User Table 0004.
03	80,PL,O	00133	Patient Location				C	2.3	Current patient location. Cerner Millennium location is hierarchical. Facility^building^point of service location^room^bed.
03.1	ID		Point of Service Location	EN	Loc_nurse_unit_cd Location_cd	E220	C	2.3	All location codes have entry on Code Set 220 with different location type. For example: nurse unit, ambulatory location.
03.2	ID		Patient Room	EN	Loc_room_cd	E220	C	2.3	Cerner Millennium Location with type ROOM.
03.3	ID		Patient Bed	EN	Loc_bed_cd	E220	C	2.3	Cerner Millennium Location with type BED.
03.4	ID		Facility ID	EN	Loc_facility_cd	E220	C	2.3	Cerner Millennium Location with type FACILITY.
03.5	ID		Bed Status				N	2.3	Not supported by Cerner Millennium. C - Closed, H - Housekeeping, O - Occupied, U - Unoccupied, K - Contaminated, and I - Isolated.
03.6	ID		Location Type	EN	Location_type_cd	N222	O	2.3	Defines point-of-service location type AMBLOC, NURSEUNIT, CLINIC, DOCOFFICE, and CLIENT.
03.7	ID		Building	EN	Loc_building_cd		O	2.3	Cerner Millennium location with type BUILDING. If not valued, ESI server uses the default building code identical to transmitted facility code
03.8,	ST		Floor				N	2.3	Not supported by Cerner Millennium.
04	02,ID,O	00134	Admission Type	EN	Admit_type_cd	E3	O	2.3	HL7 User Table 0007.
05	250,CX,O	00135	Pre-Admit Number	EN	Preadmit_nbr		O	2.3	Encounter alias of type HNAENCNBR. Applies only to interfaces involving a Cerner Millennium platform.
06	80,PL,O	00136	Prior Patient Location	ELH			C	2.3	Only provided for ADT A03 transfer messages.
07	250,XCN,O,r	00137	Attending Doctor	EPRLR	Encntr_prsnl_reltn_cd	E333	O	2.3	Code meaning ATTEND for doctor relationship for this patient visit. Currently, Cerner Millennium allows only one active relationship of this type. HL7 User Table 0010. <b>From</b> Cerner Millennium: By default, the interface sends a list of all available alias types for this provider (such as UPIN, DOCNBR, USERID). The interface provides a common routine available from a com client script to filter the alias list. If the code value outbound alias value for the alias pool code (Code Set 263) is set of DONOTSEND, the personnel alias is deleted from the list.
07.1	ID		Physician ID	PRLA	Alias		C	2.3	
07.2-07.7			Name components	PN	HL7 PN data type. See PID-5		C	2.3	In HL7 version 2.5, the degree is now sent in PV1-7.21---Professional Suffix.
07.8	ID		Source table		Facility or Other source	N320	C	2.3	
07.9	HD		Assigning Authority	EPRLR	Alias_pool_cd	N263	C	2.3	Set alias value to DONOTSEND to prevent the interface from sending this personnel alias.
07.10-12							N	2.3	Not supported by Cerner Millennium.
07.13	ID		Identifier Type	EPRLR	Prsnl_alias_type_cd	N320	O	2.3	Valid Cerner Millennium type code meanings include DOCNBR, DOCCNBR, DOCDEA, DOCUPIN, and PRSNLID.
07.14-20							N		Not supported by Cerner Millennium.

7.21	ST		Professional Suffix	PN	Degree		O	2.5	In HL7 version 2.5, the interface sends the degree in this field.
08	250,XCN,O,r	00138	Referring Doctor	EPRLR	Encntr_prsnl_reltn_cd	E333	O	2.3	The code meaning REFERDOC for doctor relationship for this patient visit. Currently, Cerner Millennium allows only one active relationship of this type. See PV1-7, HL7 User Table 0010. In HL7 version 2.5, the degree is sent in PV1.21---Professional Suffix.
09	250,XCN,B,r	00139	Consulting Doctor	EPRLR	Encntr_prsnl_reltn_cd	E333	O	2.3	Code meaning CONSULTDOC for this visit See PV1-7 HL7 User Table 00100. In HL7 version 2.5, the degree is sent in PV1-9.21---Professional Suffix.
10	3,IS,O	00140	Hospital Service	EN	Med_service_cd	E34	C	2.3	Required field by HL7 with trigger events A01, A02, A14, and A15. HL7 User Table 0069.
11	80,PL,O	00141	Temporary Location	EN	Loc_temp_cd	E220	O	2.3	Do not send unless patient will be appropriately and timely removed from the temporary location. Location type TEMP.
12	2,IS,O	00142	Pre-Admit Test Ind	EN	Preadmit_testing_cd	E366	O	2.3	Pre-admit testing required before admission. HL7 User Table 0087.
13	2,IS,O	00143	Re-Admission Ind	EN	Readmit_cd	47	O	2.3	Patient is readmit or recurring visit. HL7 User Table 0092.
14	6,IS,O	00144	Admission Source	EN	Admit_src_cd	E2	O	2.3	HL7 User Table 0023.
15	2,IS,O,r	00145	Ambulatory Status	EN	Ambulatory_cond_cd	E5	O	2.3	Cerner Millennium uses only one instance. HL7 User Table 0009.
16	2,IS,O	00146	VIP Indicator	EN	Vip_cd	E67	O	2.3	Indicates this person or encounter may need to be treated with special consideration during this visit. HL7 User Table 0099.
17	60,XCN,O,r	00147	Admitting Doctor	EPRLR	Encntr_prsnl_reltn_cd	E333	O	2.3	Code meaning ADMITDOC for doctor relationship for this visit. Cerner Millennium allows only one active relationship of this type. HL7 User Table 0010. In HL7 version 2.5, the degree is sent in PV1-17.21---Professional Suffix.
18	2,IS,O	00148	Patient Type	EN	Encntr_type_cd	E71	R	2.3	Categorize patient populations to groups more specific than patient class. Cerner Millennium uses to define patient encounter processing options. HL7 User Table 0018.
19	250,CX,O	00149	Visit Number	EA	Alias		O	2.3	Encounter alias of type VISITID.
20	50,FC,O,r	00150	Financial Class Class effective date	EN	Financial_class_cd	E354	O	2.3	Primary class assigned to patient for purpose of identifying sources of reimbursements. Cerner Millennium uses only one instance. Effective date not valued. HL7 User Table 0064.
21	2,IS,O	00151	Charge Price Indicator				N	2.3	Not supported by Cerner Millennium. HL7 User Table 0032.
22	2,IS,O	00152	Courtesy Code	EN	Courtesy_cd	E16	O	2.3	Special considerations for this patient such as express discharge. HL7 User Table 0045.
23	2,IS,O	00153	Credit Rating				N	2.3	Not supported by Cerner Millennium. HL7 User Table 0046.
24	2,IS,O,r	00154	Contract Code				N	2.3	Not supported by Cerner Millennium. HL7 User Table 0044.
25	8,DT,O,r	00155	Contract Effective dt				N	2.3	Not supported by Cerner Millennium.
26	12,NM,O,r	00156	Contract Amount				N	2.3	Not supported by Cerner Millennium.
27	3,NM,O,r	00157	Contract Period				N	2.3	Not supported by Cerner Millennium.

28	2,IS,O	00158	Interest Code				N	2.3	Not supported by Cerner Millennium. HL7 User Table 0073.
29	4,IS,O	00159	Tran to Bad Debt Cd				N	2.3	Not supported by Cerner Millennium. HL7 User Table 0110.
30	8,DT,O	00160	Tran to Bad Debt Dt				N	2.3	Not supported by Cerner Millennium.
31	10,IS,O	00161	Bad Debt Agency Cd				N	2.3	Not supported by Cerner Millennium. HL7 User Table 0021.
32	12,NM,O	00162	Bad Debt Trans Amt				N	2.3	Not supported by Cerner Millennium.
33	12,NM,O	00163	Bad Debt Recover Amt				N	2.3	Not supported by Cerner Millennium.
34	1,IS,O	00164	Delete Account Ind				N	2.3	Not supported by Cerner Millennium. HL7 User table 0111.
35	8,DT,O	00165	Delete Account Date				N	2.3	Not supported by Cerner Millennium.
36	3,IS,O	00166	Discharge Disposition	EN	Disch_disposition_cd	E19	O	2.3	HL7 User table 0112.
37	47,DLD,O	00167	Discharge To Location	EN	Disch_to_loctn_cd	E20	O	2.3	HL7 User table 0113.
38	250,CE,O	00168	Diet Type	EN	Diet_type_cd	E18	O	2.3	Indicates patient is on a special diet, HL7 User table 0114.
39	2,IS,O	00169	Servicing Facility	EN	Loc_facility_cd		O	2.3	Cerner Millennium uses PV1-3. HL7 User Table 0115.
40	1,IS,B	00170	Bed Status				N	2.3	Not supported by Cerner Millennium. HL7 User Table 0116.
41	2,IS,O	00171	Account Status	EN	Encntr_status_cd	N261	O	2.3	Code meanings include TEMP, PRELIM, ACTIVE, CANCELLED, COMPLETE, BILLED, PURGE, PREADMIT. HL7 User Table 0117.
42	80,PL,O	00172	Pending Location				N	2.3	Not supported by Cerner Millennium.
43	80,PL,O	00173	Prior Temp Location				N	2.3	Not supported by Cerner Millennium.
44	26,TS,O	00174	Admit Date/Time	EN	Reg_dt_tm		C	2.3	Time registration or admission was performed. Cerner Millennium requires for A01 and A04 and any other event used to create new encounter row.
45	26,TS,O,r	00175	Discharge Date/Time	EN	Disch_dt_tm		O	2.3	Actual time patient was discharged from facility. Patient types that do not always receive a discharge or other event to close an encounter must be defined in Cerner Millennium to automatically discharge.
46	12,NM,O	00176	Current Pat Balance				N	2.3	Not supported by Cerner Millennium.
47	12,NM,O	00177	Total Charges				N	2.3	Not supported by Cerner Millennium.
48	12,NM,O	00178	Total Adjustment				N	2.3	Not supported by Cerner Millennium.
49	12,NM,O	00179	Total Payments				N	2.3	Not supported by Cerner Millennium.
50	250,CX,O	00180	Alternate Visit ID				O	2.3	Encounter alias with alias type OTHER.
50.1	ST		Identifier	EA	Alias		O	2.3	Uniquely identify patient visit at time of admit.
50.2	NM		Check Digit				O	2.3	The interface stores this separately if sent separately.

50.3	ID		Check Digit Scheme				O	2.3	HL7 Table 0061.
50.4	HD		Assigning Authority	EA	Alias_pool_cd	263	O	2.3	
50.5	ID		Identifier Type cd	EA	Encntr_alias_type_cd	319	O	2.3	HL7 User Table 0203.
50.6	HD		Assigning Facility	EA			O	2.3	
51	1,IS,O	01226	Visit Indicator				N	2.3	Not supported by Cerner Millennium. Specifies level on which data is sent. HL7 values are A - Account and V - Visit. HL7 User Table 0326.
52	250,XCN,B,r	01274	Other Healthcare Providers				N	2.3	Not supported by Cerner Millennium. Used for other health care providers, such as nurse practitioner, midwife, physician assistant. HL7 User Table 0010.

## AL1 (Patient Allergy) Segment

The AL1 (Patient Allergy) segment contains patient allergy information of various types. Each AL1 describes a single patient allergy. The Cerner Millennium tables referenced from the AL1 segment include: ALL-ALLERGY, REACT-REACTION, NOM-NOMENCLATURE, NOUT-NOMENCLATURE\_OUTBOUND.

### AL1 Segment Layout

AL1 Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	4,SI,R	00203	Set ID - Allergy				R		Start at 1. Increment sequentially.
02	2,IS	00204	Allergy Type/Category	ALL	Substance_type_cd	12020	O		HL7 User Table 0127, such as FA - Food Allergy.
03	60,CE,R	00205	Allergy Code				R		Used to identify coded or free text allergy. For documentation, both code and description are transmitted as stored on the ALLERGY table.
03.1	IS		Identifier	NOM	source_identifier	NOM	C		Not valued for freetext allergies that are not written to the Nomenclature table.
03.2	S		Description	NOM ALL	Source_string substance_ftdesc	NOM	C		For coded allergies, source_string from Nomenclature table. For freetext allergies that are not written to the Nomenclature table, substance_ftdesc from the Allergy table.
03.3	IS		Coding scheme	NOM	Source_vocabulary_cd	400	C		Not valued for freetext allergies that are not written to the Nomenclature table.
03.4	IS		Alternate identifier				N		Not used.
03.5	ST		Alternate description				N		Not used.
03.6	IS		Alternate coding scheme				N		Not used.
04	2,IS	00206	Allergy Severity	ALL	Serverity_cd	12022	O		HL7 User Table 0128, such as SV - Severe.
05	15,ST	00207	Allergy Reaction	NOM REACT	Source_identifier reaction_ftdesc		O		For coded reactions value is source_identifier from the Nomenclature table. For freetext reactions value is reaction_ftdesc from the Reaction table.
06	8,DT	00208	Identification Date	ALL	Onset_dt_tm		O		

### AL1 Segment Processing Notes

Allergy codes are maintained on the NOMENCLATURE table with a principle type code (code set 401) of ALLERGY. Allergy codes must be unique within a source vocabulary. A source vocabulary may be pre-loaded from an Cerner Millennium standard reference database (for example, Multum) or locally defined and manually entered during the implementation process. Once code entry is complete, a manual mapping of codes from different source vocabularies to the Cerner standard allergy coding systems is possible by manual creation of nomenclature concepts. Explanation of nomenclature concepts is beyond the scope of this document.

Allergies are processed and stored in the ALLERGY table at the person level. Encounter and contributor are also be stored to provide support for interface updates, authentication and combine processing.

When order processing is configured to send allergy information, the Universal Interface sends a snapshot of all patient allergy information with every order action. Either coded allergies or free text allergies can be sent. When a free text allergy has been codified, only the codified allergy is sent unless the activity date of the free text is more current than the codified allergy row.

To provide a mapping between the various source vocabulary ( Multum, Medicom) a NOMENCLATURE\_OUTBOUND table can be maintained. Cerner/ Multum provides a csv file to create the mapping between Multum and Medicom drug codes that can be uploaded into this outbound table. There is a 1:1 mapping for drug-to-drug and class-to-class. The user maintains any other Reference Drug Database and the corresponding NOMENCLATURE\_OUTBOUND table entries. If a mapping is not found on the NOMENCLATURE\_OUTBOUND table, then the allergy is sent as a free text.

## Financial Segments (HL7 Chapter 6)

The Financial Segments (HL7 Chapter 6) are described below.

### DG1 (Diagnosis) Segment

The DG1 (Diagnosis) segment contains patient diagnosis information associated with this order. The Cerner Millennium tables referenced from the DG1 segment include: OD - ORDER\_DETAIL, NER - NOMEN\_ENTITY\_RELTN (future), DIAG - DIAGNOSIS.

#### DG1 Segment Layout

DG1 Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	4,SI,R	00375	Set ID - Diagnosis				R		Sequence number that identifies segment within message.
02	2,ID,R	00376	Diagnosis coding method	NOM	Source_vocabulary_cd	400	R		HL7 User Table 0053 (for example, ICD9).
03	60,CE	00377	Diagnosis Code Code^desc^source^ altcode^altdesc^altsource	NOM NOM NOM OD NER	Source_identifier^Source_string^ Source_vocabulary_cd Derived from:Field_value or Nomenclature_id	NOM 400	R		OD field meaning is ICD9. When diagnosis is free text, <i>DG1-3.1 and DG1.3.3</i> are empty. <i>_DG1-3.2_</i> is valued with diagnosis.diag_ftdesc
04	40,ST,B	00378	Diagnosis Description	OD NOM DIAG	Field_display_value (ICD9)Source_identifier+ Source_string Diag_ftdesc	NOM	O		For backward compatibility when NER logic is implemented, <i>DG1-4</i> is derived by concatenating source_identifier and source_string.
05	26,TS	00379	Diagnosis Date and Time				N		Not used.
06	2,IS,R	00380	Diagnosis Type	OD NER	Oe_field_id (ICD9) Reltn_type_cd	16449 23549	R		HL7 User Table 0052, such as admit, discharge, final.
07	60,CE	00381	Major Diagnostic Category				N		Not used.
08	4,IS	00382	Diagnostic Related Group				N		Not used.
09	2,ID	00383	DRG Approval Indicator				N		Not used.
10	2,IS	00384	DRG Grouper Review Code				N		Not used.
11	60,CE	00385	Outlier type				N		Not used.
12	3,NM	00386	Outlier days				N		Not used.
13	12,NM	00387	Outlier cost				N		Not used.
14	4,ST	00388	Grouper Version and Type				N		Not used.

15	2,NM	00389	Diagnosis priority				N		Not used.
16	60,xcn,,r	00390	Diagnosing Clinician				N		Not used.
17	3,IS,O	00766	Diagnosis Classification				N		Not used.
18	1,ID,O	00767	Confidential Indicator				N		Not used.
19	26,TS,O	00768	Attestation Date/Time				N		Not used.

## DG1 Segment Processing Notes

Cerner Millennium order processing originally captured diagnosis codes associated with an order using the ICD9 order detail. The NOMEN\_ENTITY\_RELTN table provides a common, more robust way to capture relationships between clinical activity and standard nomenclature codes. Common order processing uses both the ICD9 order detail and the NOMEN\_ENTITY\_RELTN table. The order server posts diagnosis codes requested using the ICD9 order detail to both the ORDER\_DETAIL table and the NOMEN\_ENTITY\_RELTN table. The order server posts diagnosis codes requested in a nomenclature relationship area only to the NOMEN\_ENTITY\_RELTN table.

The Universal Interface transmits order level diagnosis information from the NOMEN\_ENTITY\_RELTN table when the parent entity is ORDERS, the child entity is DIAGNOSIS or NOMENCLATURE, and the reltn\_type\_cd is ORDERDIAG or ORDERICD9. Some Cerner Millennium applications allow users to enter either free text diagnosis or coded diagnosis.

## Order Entry Segments (HL7 Chapter 4)

The order entry segments (HL7 Chapter 4) are described below.

### ORC (Common Order) Segment

The ORC (Common Order) segment is used to transmit fields that are common to all orders and services requested. The ORC segment is required in the Order (ORM) message. ORC is mandatory in the Order Response (ORR) message if an order detail segment (for example, OBR) is present. An ORC segment must always precede any order detail segment.

Many of the data elements in the ORC segment are duplicated in the OBR. By default, the Universal Interface sends most duplicated fields only in the OBR. However, if duplicated fields are valued in both the ORC and the OBR, the values are identical.

The Cerner Millennium tables referenced from the ORC segment: O - ORDERS, OA - ORDER\_ACCESION, OAC - ORDER\_ACTION, OAL - ORDER\_ALIAS, OCM - ORDER\_COMMENT, OD - ORDER\_DETAIL, PRL - PRSNL, PRLA - PRSNL\_ALIAS.

### ORC Segment Layout

ORC Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	02,ID,R	00215	Order Control	OAC	Action_type_cd	6003	R		HL7 Table 119. Determines the function of the order message.
02	75,EI,C	00216	Placer Order Number				C		By default, the UI sends the Cerner Millennium unique order_id.
02.1			Unique Placer ID	O	Order_id		C		Assigned by the placer system. Uniquely identifies an order among all orders from this ordering application. Uniqueness must persist over time.
02.2			Placer Application ID		Literal is HNAM_ORDERID		C		Unique within a group of intercommunicating system. May not always match the MSH sending or receiving application. By default, UI values HNAM_ORDERID
03	75,EI,C	00217	Filler Order Number				Cr		The UI exposes a list of all order aliases associated with this order. The ComServer script filters, formats and maps to the correct OBR field.
03.1			Unique Filler ID	OAL	Alias		C		Assigned by the filler system. Uniquely identifies an order among all orders in a particular filling application. Uniqueness must persist over time.
03.2			Filler Application ID	OAL	Alias_pool_cd	263	C		Unique within a group of intercommunicating systems.
04	75,CM	00218	Placer Group Number				N		Not used.

04.1			Placer Group Id				N	Not used.
04.2			Placer Application Id				N	Not used.
05	02,ID	00219	Order Status	O	Order_status_cd Dept_status_cd (SC only)	6004 14281	O	HL7 Table 0038. Cerner Millennium status after this order action was completed.
06	01,ID	00220	Response Flag				N	Not Used
07	200,TQ,r	00221	Quantity/Timing				N	Not Used. Universal Interface uses comparable OBR field. See <i>OBR-27-quantity/timing</i> field
08	200,CM	00222	Parent				N	Not Used. UI will use comparable OBR field. See <i>OBR-29-parent</i> .
09	26,TS	00223	DT of Transaction	OAC	Order_dt_tm		O	Date and time this order action occurred.
10	80,XCN	00224	Entered By	OAC	Action_personnel_id		O	Personnel who entered this order action.
11	80,XCN	00225	Verified By				O	Not used.
12	80,XCN	00226	Ordering Provider	OAC	Order_provider_id		O	Provider who requested this order action.
13	80,PL	00227	Enterer's Location	OAC	Order_loc_cd	220	O	
14	40,XTN,O,r2	00228	Call Back Phone Nbr				N	Not used.
15	26,TS	00229	Order Effective DT	OAC	Effective_dt_tm		O	
16	200,CE	00230	Order Cntrl Cd Reason				O	
16.1			Reason Code	OD	CANCELREASON DCREASON RESUMEREASON SUSPENDREASON	1309 Y Y Y	O	Reason Code is a code value outbound alias to the code set associated with the order action. Code Set varies with the order control code and action (order accept format).
16.2			Description				O	
17	60,CE	00231	Entering Organization				N	Not used.
18	60,CE	00232	Entering Device	OAC	Communication_type_cd	6006	N	Not used. The physical device used to enter the order. <b>Future Direction (in process):</b> Cerner Millennium maps to the type of device or communication used to enter this order action. Valid values include: FAX, PHONE, PERPROTOCOL, REQUISITION, VERBAL.
19	80,XCN	00233	Action By	OAC	Action_personnel_id		O	

## OBR (Order Detail) Segment

The OBR (Order Detail) segment is used to transmit information specific to an order for a diagnostic study or observation, physical exam, or assessment. The OBR segment defines the attributes of a particular request for diagnostic services (such as laboratory, radiology, EKG) or clinical observations (such as physical exam). For laboratory tests, the information in the OBR segment usually applies to a single specimen. However, there is not a one-to-one relationship between specimen and tests ordered. Each test battery requires its own OBR segment even when they can be performed on a single specimen; consequently, the specimen information must be duplicated in each OBR segment.

## OBR Field Definitions

- The daggered ( + ) items are not created by the placer. They are created by the filler and valued as needed when the OBR segment is returned as part of a report (ORU message). Therefore on a new order sent to the filler, they are not valued. There is an exception when the filler initiates the order. In that case, the filler order number is valued and the placer order number may be blank.
- The starred ( \* ) items are only relevant when an observation is associated with a specimen. They are completed by the placer when the placer obtains the specimen. They are completed by the filler when the filler obtains the specimen.

The Cerner Millennium tables referenced from the OBR segment: O - ORDERS, OA - ORDER\_ACCESSION, OAC - ORDER\_ACTION, OAL - ORDER\_ALIAS, OD - ORDER\_DETAIL, VS - V500\_SPECIMEN, C - CONTAINER, CL - COLLECTION\_LIST, CLC - COLLECTION\_LIST\_CONTAINER, OL - ORDER\_LABORATORY, OR - ORDER\_RADIOLOGY, PathNet- PathNet script (path\_get\_eso\_fields), RadNet- RadNet script (rad\_get\_interface\_info).

## OBR Segment Layout

OBR Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	04,S,I,C	00237	Set ID - OBR				C		Always 1
02	75,E,I,C	00216	Placer Order Number	O			C		By default, the UI sends the Cerner Millennium unique order_id.
02.1			Unique Placer Order ID	O	Order_id		C		Assigned by the placer system. Uniquely identifies an order among all orders from this ordering application. Uniqueness must persist over time.
02.2			Placer Application ID		Literal <i>HNAM_ORDERID</i>		C		Unique within a group of intercommunicating system. May not always match the MSH sending or receiving application. By default, UI will value HNAM_ORDERID.
03	75,E,I,C	00217	Filler Order Number +				Cr		The Universal Interface exposes a list of all order aliases associated with this order. The comserver script will filter, format and map to the correct OBR field.
03.1			Unique Filler Order ID	OAL	Alias		C		Assigned by the filler system. Uniquely identifies an order among all orders in a particular filling application. Uniqueness must persist over time.
03.2			Filler Application ID	OAL	Alias_pool_cd	263	C		Unique within a group of intercommunicating systems.
04	200,CE,R	00238	Universal Service ID				R		
04.1			Test Code	O	Catalog_cd	200	R		Unique Order catalog alias for this contributor_source_cd.
04.2			Test Description	O	Order_mnemonic		O		
04.3			Coding System		Contributor_source_cd		O		
04.4			Alternate Test Code				N		Not used.
04.5			Alternate Test Description				N		Not used.
04.6			Alternate Coding System				N		Not used.
05	02,ID,B	00239	Priority				N		Not used. Instead use OBR-27.6-27.6.
06	26,TS,B	00240	Requested Date/Time				N		Not used. Instead use OBR-27.4.
07	26,TS,C	00241	Observation Date/Time The clinically significant date/time.	O PathNet OR	Current_start_dt_tm Collected_dt_tm Start_dt_tm		C		For specimen orders, this field represents the collected date and time. For services not associated with a specimen, this field represents the physiologically relevant date and time. May not be available for New Orders (NW).
08	26,TS,C	00242	Observation End Dt	OR	Complete_dt_tm		O		For point-in-time services, begin and end date are identical.
09	20,CQ,C	00243	Collection Volume *	PathNet	Volume^volume_units		O		
10	60,CN	00244	Collector Identifier *	OD PathNet	COLLBY				

11	01,ID	00245	Spec Action Code *	ODOD PathNet	NURSECOLLECT COLLECTEDYN		O		HL7 Table 0065. HL7 valid values: A-Add order to existing specimen, G-Generated or reflex order, L-Lab to obtain specimen, O-Specimen obtained by service other than lab, P-Pending specimen. Order sent prior to delivery, R-Revised Order, S-Schedule tests specified below. The Cerner Millennium Universal Interface derives a specimen action code. Currently values include: L, P, O, A
12	60,CE	00246	Danger Code	OD PathNet	ISOLATIONCODE Specimen_danger_cd	58	O		
13	300,ST	00247	Relevant Clinical Info	OD PathNet	SPECINX LBLCMNT Specimen_comment		O		The Universal Interface sends appropriate order detail value associated with the order. Order detail may vary by Cerner Millennium catalog type, activity type, or other format flex option.
14	26,TS	00248	Spec Received DT *	OD PathNet	SPECRECVDATETIME Received_dt_tm		O		
15	300,CM	00249	Specimen Source *				C		This field is the site where the specimen should be obtained or the service should be performed. All PathNet specimen orders have a source defined.
15.1	CE		Source Code	OD PathNet	SPECIMEN TYPESpecimen_type_cd	2052	C		CodeandDescription
15.2	ST		Additives				N		Not used by the Universal Interface. Found on SPECIMEN_CONTAINER.additive with code_set 2050. Cerner Millennium allows multiple containers per specimen. Each could have different additives.
15.3	ST		Source Descriptn Freetext	OD	SOURCECMN TSPECIMEND ESC		O		Usually only one order detail is defined. However, if both are present, values are concatenated separated by a semicolon (;).
15.4	CE		Body Site	OD PathNet RadNet	BODYSITE Body_site_cd Organ	1028	O		RadNet Rad_organ_Id(cd) ^description.  <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"><b>Note</b> Organ is currently not a code value and cannot be aliased. When RadNet adds logic to convert the id to a code value, the UI alias logic can be used. In the meantime, the description may have to include the required PACS organ code and custom scripting is required.</div>
15.5	CE		Site Modifier				N		Not used.
15.6	CE		Collect Method Modifier	OD	Collection_method_cd	2058			Collection Method.

16	60,XCN	00226	Ordering Provider	OAC	Order_provider_id		O		Valid personnel alias of type ORGDOC or personnel alias defined for the target application.
17	40,TN	00250	Ord Call Back Phone #						Not used.
18	60,ST	00251	Placer Field #1				O		Defined in Cerner Millennium as a repeating composite field: value^type^subtype^appid.
19	60,ST	00252	Placer Field #2				O		
20	60,ST	00253	Filler Field #1 +	RadNet	Accession Accession_id Rad_pacs_id		O		Defined in Cerner Millennium as a repeating composite field: value^type^subtype^appid. Cerner Millennium types are valued with the following literal: Accession-HNA_ACCN, Accession_id-HNA_ACCNID, or Rad_pacs_id-HNA_PACSID.
21	60,ST	00254	Filler Field #2 +	RadNet	Service_resource_cd		O		
22	26,TS,C	00255	Result Report/Status Change Date/Time +	OAC	Action_dt_tm		C		
23	40,CM	00256	Charge to Practice +						Not used
24	10,ID	00257	Diagnostic Service Section ID	OOCAT	Activity_type_cd RadNet : Activity_subtype_cd	N106 N5801	C		HL7 Table 0074. Universal Interface sends alias to activity type cd (code set 106) or activity subtype cd (Code Set 5801). Catalog_type_cd (code set 6000) is not used for messages from Cerner Millennium. RadNet: Modality.
25	01,ID,C	00258	Result Status +				N		Not used with ORM messages.
26	200,CM	00259	Parent Result +				O		Valued when OBR is a child component of a care set, order set, or a supergroup.
26.1	CE		Parent Order ID				C		Parent catalog_cd^parent order_mnemonic.
26.2	ST		Parent Sub ID				N		Not used with ORM messages.
26.3	CE		Parent Results				N		Not used with ORM messages.
27	200,TQ,r	00221	Quantity Timing				C		Always valued with NW and SN order control codes.
27.1	CQ		Quantity ComponentQuantityand Units	OD	QUANTITY		C		Quantity and Units. Default is 1. Quantity of service that should be provided at each service interval.
27.2	CM		Interval Component	OD	FREQUENCY	4003	O		Frequency and Explicit Time Interval. Default is ONCE. Empty or null is also equivalent to ONCE.
27.3			Duration	OD	DURATION DURATIONUNIT	54	O		Default is INDEF. Only used when Frequency is other than ONCE. ESO UI script converts to HL7 format for the following units: Seconds, Minutes, Hours, Days, Weeks, Months, Doses.
27.4	TS		Start Date/Time	ODO	STARTDTTM Current_start_dt_tm 2^nd^ instance Current_start_dt_tm (parent)		RC		For one time future or timed orders, the earliest requested date and time for this service. When this OBR is a component of a care set, order set, interval order, or super group, the UI values the 2^nd^ instance with the parents start date and time.

27.5	TS		End Date/Time	OD	STOPDTTM		O		The latest date and time service should be performed. For continuous orders, the stop date is the earliest date/time specified by either this field or derived from the duration. For one-time orders, end date and time equals the start date and time; consequently, this field may be empty.
27.6	ID		Priority	OD	COLLPRI (1 <sup>st</sup> ) ORPRIORITY (1 <sup>st</sup> ) REPPRI (2 <sup>nd</sup> instance)	2054 1304 1905	O		First TQ instance provides the order or collection priority. Second TQ instance contains the reporting priority. Suggested HL7 values: S-Stat, A-ASAP, R-Routine, P-Preop, C-Callback, T-Timing Critical, PRN-As Needed.
27.7	ST		Condition Component	OD	SPECINX	Freetext	O		For example, PRN Pain or to keep blood pressure below 110. Presence of text in this field implies human review is needed to determine how or when this drug should be given.
27.8	TX		Text Component				N		Not Used.
27.9	ID		Conjunction Component						Literal C to indicate second TQ instance provides a report priority different than the order priority. Cerner does not support S-Synchronous or A-Asynchronous conjunction codes.
27.10	CM		Sequence Component				N		Not Used.
28	150,CN	00260	Result Copies To	OD	CONSULTDOC		N		Not used.
29	150,CM	00261	Parent Number				O		Valued when OBR is child component of a care set, order set, interval order, or supergroup By default, UI always uses Cerner Millennium order_id as the parent placer order#.
29.1	CM		Parent Placer Order #	O	Order_id		C		Parent Order_id^HNAME_ORDERID.
29.2	CM		Parent Filler Order #	OA	Alias		C		Parent Alias^alias_pool_cd.
30	20,ID	00262	Transportation Mode	OD	TRANSPORTMODE	10300	O		
31	300,CE	00263	Reason For Study				O		Not used.
31.1			Reason ID				N		Not used.
31.2			Reason Text	OD	REASONFOREXAM	Freetext	O		
31.3			Coding Scheme				N		Not used.
31.4			Alternate Reason ID				N		Not used.
31.5			Alternate Reason Text				N		Not used.
31.6			Alternate Coding Scheme				N		Not used.
32	60,CM	00264	Main Reslt Interpret +				N		Not used. Transmitted with ORU Result/Report Messages only.
33	60,CM,,r	00265	Assist Result Interpreter +				N		Not used. Transmitted with ORU Result/Report Messages only.
34	60,CM,,r	00266	Technician +				N		Not used. Transmitted with ORU Result/Report Messages and with ORM status messages for non-specimen services (for example, Chest X-Ray). Not used with specimen orders.
35	60,CM,,r	00267	Transcriptionist +				N		Not used. Transmitted with ORU Result/Report Messages.

36	26,TS	00268	Sched Date/Time +	OD	SCHEDDATETIME		O		Date and time filler scheduled an observation. Date and time transmitted vary by activity type.
37	4,NM,O	01028	Nbr of Containers				N		Not used.
38	60,CE,O,r	01029	Transport Logistics of Specimen				N		Not used.
39	200,CE,,r	*01030	Collector comments				N		Not Used.
40		01031	Transport Arrangmnt Responsibility				N		Not Used.
41	30,ID,O	01032	Transport Arranged				N		Not Used.
42	1,ID,O	01033	Escort Required				N		Not used.
43	200,CE,,r	01034	Plannd Patient Transport Comment				N		Not Used.

## OBR Segment Processing Notes

With ORM messages supported by the Cerner Millennium Universal Interface are transmitted, the OBR segment serves as the primary carrier of information specific to a clinical order. The OBR defines attributes of the service or procedure to be performed including order identification, the specific exam or service requested, when the service is requested, when the results are expected, who is responsible for collecting a specimen and/or data for a specimen already collected. When subsequent order activity (status, cancel, results) occurs in either the placer or filler system, the OBR is again the primary carrier of status and clinical observations specific to the ordered procedure. The Universal Interface supports sending add-on orders outbound to a foreign system. The add-on orders are sent via a reflex order from a Discern EKM rule or from an existing accession and container. This is identified in the OBR segment, field 11. The parent order identifier is sent in the OBR segment, field 29 and ORC segment, field 8.

Although HL7 provides the option to omit the OBR segment for simple order action events (cancel, discontinue, suspend), Cerner includes the OBR segment in all ORM messages for services associated with the OBR detail segment.

## Observation Reporting Segments (HL7 Chapter 7)

The Observation Reporting Segments (HL7 Chapter 7) are described below.

### OBX (Observation/Result) Segment

The OBX (Observation/Result) segment is used to transmit a single observation. In an ORM message, the OBX segment is used to communicate values for specific order comments or order prompts. OBX segments contain observations available at the time of order entry or other order event trigger activity. OBX segments contain observations available at the time of order entry or other order event trigger activity.

The Cerner Millennium tables referenced from the OBX segment: O - ORDERS, OD - ORDER\_DETAIL, SREQ -SERVER REQUEST, PROP - PROMPT\_RESULT ( PathNet).

### OBX Segment Layout

OBX Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	04,SI	00569	Set ID - OBX				R		Sequential under OBR.
02	02,ID,R	00570	Value Type				R		ST, TS, IS, TX, NM. Determined by ESO processing based on type of value for a given order detail.
03	80,CE,R	00571	Observation Identifier				R		
03.1	ID		Procedure ID	ODPROP	OE_field_meaning or Task_assay_cd	16449 14003	R		Alias to an order detail field meaning or PathNet prompt test. A prompt test is also a PathNet discrete task assay (Code Set 14003).
03.2	ST		Procedure description	CV	Display		O		
03.3	ID		Coding scheme	CVO	Contributor_source_cd		O		
03.4	ID		Alternate Procedure ID				N		Not used.

03.5	ST		Alternate Description				N		Not used.
03.6	ID		Alt Coding Scheme				N		Not used.
04	20,ST	00572	Observation Sub-ID				O		Not used with order prompts or order details.
05	64k,R	00573	Observation Value	OD SREQ PROP	Varies		O		This field contains the value of the order detail.
06	60,CE	00574	Units	OD SREQ PROP	Varies		C		Some order details are defined in pairs, where one defines the value and the other defines the units (for example, WEIGHT and WEIGHTUNIT).
07	60,ST	00575	Reference Range				O		Not used with ORM order details.
08	10,ID,,r5	00576	Abnormal Flags				N		Not used with ORM order details.
09	05,NM	00577	Probability				N		Not used.
10	05,ID	00578	Nature of Abn Test				N		Not used.
11	02,ID,R	00579	Observ Result Status				N		Not used with ORM order details.
12	26,TS	00580	Date Last Observe Normal Values				N		Not used.
13	20,ST	00581	User access checks				N		Not used.
14	26,TS	00582	DT of the Observation				N		Not used with ORM order details.
15	60,CE	00583	Producer's ID				N		Not used.
15.2			Producer ID Text				N		Not used.
15.3			Coding System				N		Not used.
15.4			Alt Producer ID Code				N		Not used.
15.5			Alt Producer ID Text				N		Not used.
15.6			Alternate Coding System				N		Not used.
16	60,CN	00584	Responsible Observer				N		Not used with ORM order details.

## OBX Segment Processing Notes

How the Universal Interface determines which order details are eligible for transmission in an OBX segment is to be determined.

## BLG (Billing) Segment (Not Supported)

The BLG (Billing) segment is used to provide billing information on the ordered service to the filling application. The Cerner Millennium tables referenced from the BLG segment: OD--ORDER\_DETAIL.

## BLG Segment Layout

BLG Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
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01	15,CM,O	00234	When to Charge				N		HL7 Table 0100. D--On discharge, O-On receipt of order, R-At time service is completed, S-At time service is started, T-At designated time. Not used by Cerner Millennium.
02	50,ID,O	00235	Charge Type				N		HL7 Table 0122. Identifies someone other than patient to be billed for services. HL7 values: CH-Charge, CO-Contract, CR-Credit, DP-Department, GR-Grant, NC-No Charge, PC-Professional, RS-Research.
03	100,CK,O	00217	Account ID	OD	RSRCHACCT		N		

## Cerner Millennium-Defined Z Segments

The Cerner Millennium-defined Z segments are described below.

### ZAL (Additional Allergy Information) Segment

The optional ZAL (Additional Allergy Information) segment contains additional allergy information not available in the standard HL7 segments. The optional ZAL segment occurs immediately after the AL1 segment. The ZAL segment *cannot* repeat. The Cerner Millennium tables referenced from the ZAL segment include: ALL - ALLERGY, REACT - REACTION, NOM - NOMENCLATURE.

### ZCT (Container Tracking) Segment

The optional ZCT (Container Tracking) segment contains container information for a PathNet order (ordered procedure within an accession number). This segment is used with PathNet interfaces when the receiving laboratory system uses container tracking. The ZCT segments follow the last OBX segment for an ORC/OBR pair. The ZCT segment can repeat. The Cerner Millennium tables referenced from the ZCT segment include: C - CONTAINER, CA - CONTAINER\_ACCESSION.

### ZCT Segment Layout

ZCT Seq	HL7 Format	HL7 Elem	Name	Cerner Table	Cerner Attribute	Code Set	R/O	HL7 Ver	Comments
01	4,SI	ZCT01	Set Id				R		Sequential under this OBR. Start at 1 and increment by 1.
02	,EI	ZCT02	Container Identifier	C	Container_id^ HNAM_CONTAINERID		R		A system generated number that uniquely identifies a container.
03	,NM	ZCT03	Accession Container Number	CA	Accession_container_nbr		R		A number uniquely identifying a particular container on an accession number.
04	,CE	ZCT04	Container Type Code	C	Spec_cntnr_cd	2051	R		The type of container the specimen is in.
05	,CE	ZCT05	Specimen Type Code	C	Specimen_type_cd	2052	R		The type of specimen in the container.
06	,CE	ZCT06	Collection Class Code	C	Coll_class_cd	231	R		Defines a collection class used to group collection requirements.
07	,CE	ZCT07	Special Handling Code	C	Spec_hndl_cd	230	O		Any special handling for the container.
08	,NM	ZCT08	Collection Volume	C	Volume		R		
09	,CE	ZCT09	Collection Volume Units Code	C	Units_cd	54	R		
10	,TS	ZCT10	Drawn Date and Time	C	Drawn_dt_tm		O		