Infor Staffing Optimizer for Healthcare HL7 Interface Administration Guide

Release 4.1.x

Contents

About this guide

This guide provides conceptual and administrative task information to set up, use, and maintain the Infor Staffing Optimizer for Healthcare (Staffing Optimizer) HL7 Interface.

Intended audience

This guide is for administrators who are responsible for automating and managing the collection of workload data for Infor Staffing Optimizer for Healthcare.

Prerequisite knowledge

To fully understand the information presented in this guide, you should be familiar with the glossary terms in this guide, the Staffing Optimizer Administration Console, the Infor Cloverleaf Integration Suite, and the HL7 Standard.

Related documents

You can find these related documents in the Infor Xtreme Support portal:

- *Infor Staffing Optimizer for Healthcare Administration Guide*
- *Infor Staffing Optimizer for Healthcare User Guide*
- *Infor Staffing Optimizer for Healthcare Available Hours Interface Administration Guide*
- *Infor Staffing Optimizer for Healthcare Release Notes*
- *Infor Staffing Optimizer for Healthcare Hardware and Software Recommendations*

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Chapter 1: Overview

The Infor Staffing Optimizer for Healthcare HL7 Interface automates the collection of workload data and provides management data for decision-making. The HL7 interface uses HL7 TCP/IP methods to transmit information between Staffing Optimizer and other systems that support the HL7 encoding rules. The interface supports a subset of messages from the HL7 Messaging Standard Version 2.5 and is customizable to be backwards compatible for previous versions of the HL7 standard.

Staffing Optimizer uses the Infor Cloverleaf Integration Suite for HL7 processing.

Chapter 2: Integrated HL7 Interface

The Infor Staffing Optimizer for Healthcare Integrated HL7 Interface is set up and administered from the Staffing Optimizer Administration Console.

The HL7 interface consists of these Windows services:

- Infor Staffing Optimizer for Healthcare HL7 Controller Service: Allows remote clients to start and stop the HL7 service.
- Infor Staffing Optimizer for Healthcare HL7 Service: Creates TCP listeners that listen for connections from external HL7 engines and requests by local clients through the Staffing Optimizer Administration Console.

Configuring the HL7 Interface

1 Log in to the Admin Console.

2 Select **HL7 Interface > Configuration**.

3 Specify this information:

HL7 Engine
Select the engine being used.

Service Address
Specify the IP address of the machine that hosts the HL7 service.

Listener Port
Specify the port on which the HL7 service listens for incoming connections from the external HL7 engine (the system that dispatches HL7 messages). The default is 1965.

Archive Failed Messages
Specify how long failed messages are kept in the database.

Archive Activity Log
Specify how long HL7 messages are kept in the database.

Maximum Number of Automatic Failed Message Reprocess Attempts
Specify how many times a failed message is automatically reprocessed. When set to zero, failed messages are never automatically reprocessed.

4 Click **Save**.

Chapter 3: Infor Cloverleaf Integration Suite

Staffing Optimizer uses the Infor Cloverleaf Integration Suite for HL7 processing.

HL7 standard

Staffing Optimizer accepts a subset of messages from the HL7 Messaging Standard Version 2.5. Message formats prescribed in the HL7 encoding rules consist of data fields that are of variable length and separated by a field separator character. Rules describe how the various data types are encoded within a field and when an individual field may be repeated. The data fields are combined into logical groupings called segments. Segments are separated by segment separator characters. Each segment begins with a three-character literal value that identifies it within a message. Segments can be defined as required or optional and can be permitted to repeat. Individual data fields are found in the message by their positions within their associated segments.

The Infor Cloverleaf Integration Suite recognizes the characters in this table as message, segment, element, and component delimiters. A message must contain these characters to be processed properly.

Hex character	Definition	Position	Remarks
<0x0b> (vertical tab)	Indicates the beginning of a message	At the beginning of every message	
<0x1c><0x0d><0x0a> (file separator, carriage return, line feed)	Indicates the end of a message	At the end of every message	
<0x0d> (carriage return)	Delimits segments	Between two segments	
| (pipe)	Delimits elements	Between two elements	These characters may vary based on the ADT system. The values may be read from the MSH segment.
^ (caret)	Delimits components	Between two components	

Hex character	Definition	Position	Remarks
~ (tilde)	Delimits repeated fields		

A standard message contains all of these characters and might look like this example:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A01|20070427120415|P|2.5
```

```
EVN||200704271204
```

```
PID||00251864|000333333||^SMITH^JOHN^M||19791013|M|||||||||BUD▶
HIST|444444444
```

```
PV1|||OT^113^01|||||||SUR|||||||||IP|||||||||||||||||||||||||||||200408111015
```

Some of the characters are not visible but can be viewed in a hexadecimal editor. This message contains four segments, MSH, EVN, PID, and PV1. Each segment contains several elements. For example, the PID segments contain 00251864 and ^SMITH^JOHN^M. Some of the elements contain several components, such as SMITH, JOHN, and M.

See General HL7 specifications on page 16.

Communication

The Infor Cloverleaf Integration Suite uses TCP/IP as its main communication channel. The Cloverleaf engine listens for connection from TCP/IP clients on port 1965. A virtually unlimited number of clients can connect to the engine through this one port. The default port number can be changed through the Cloverleaf IDE and should also be updated in the Staffing Optimizer Administration Console.

If the Cloverleaf engine loses communication with the database server, the Integrated HL7 interface attempts to process the received message ten times. A delay of 60 seconds occurs between each attempt to process the messages to give the database server a chance to recover. If the error persists after ten attempts to process the messages, then the Staffing Optimizer HL7 interface responds to the HL7 engine with an AR (Reject) message instead of an AA (Accept) message in the MSA-1 element. This indicates that the HL7 interface was unable to add the message to the Staffing Optimizer database and that the HL7 engine must resend this message when the database server is available.

Administration Console

When using the Infor Cloverleaf Integration Suite, you can configure some HL7 options through the Staffing Optimizer Administration Console.

Configuring the HL7 interface for the Cloverleaf Integration Suite

1 Select **HL7 Interface > Configuration**.

2 Specify this information:

HL7 Engine
Specify the engine being used.

Service Address
Specify the IP address of the machine that hosts the Cloverleaf engine.

Listener Port
Specify the port on which the Cloverleaf engine listens for incoming connections from the external HL7 engine (the system that dispatches HL7 messages). The default setting is 1965. Multiple external HL7 engines and the Staffing Optimizer Admin Console can connect to this port simultaneously.

Archived Failed Messages
Specify how long failed messages are kept in the database. The MIStroClef_Log_Archive DTS package uses this setting to evaluate when there are messages that should be archived to a text file and removed from the database. This setting is important to maintain the size of the database.

Archive Activity Log
Specify how long HL7 messages are kept in the database. TheMIStroClef_Log_Archive DTS package uses this setting to evaluate when messages should be archived to a text file and removed from the database. This setting is important to maintain the size of the database.

Maximum Number of Automatic Failed Message Reprocess Attempts
Specify how many times a failed message will be automatically reprocessed. When set to zero, failed messages are never automatically reprocessed. Failed messages are chosen to be reprocessed if the Patient ID and Encounter Number match that of the previous message and the maximum number of retries has not been reached.

Chapter 4: Translations

The **Translations** page must be configured before any incoming messages can be processed. Multiple fields require translations from the external HL7 name to the internal Staffing Optimizer name, including these fields:

- **PatientService**
- **PatientType**
- **DepartingUnit**
- **Unit**
- **TempReceivingUnit**
- **TempDepartingUnit**

All incoming values for these fields must be assigned to internal names used by the HL7 Interface Service and Staffing Optimizer. For example, if a message comes in with a **PatientType** value of IN, an entry in the translation table must exist that specifies what IN means to the HL7 Interface Service. All possible values for the fields must be set up in the translation table for messages to be processed correctly.

After updating the **Translations** page, go to the **Configuration** page and restart the HL7 service to refresh the page with the changes.

Multiple field translations

If a message comes in with a value of IN for the **Patient Type** field, two different translations exist: IN can either be translated to Inpatient or Inpatient Pediatrics. The value provided in the message for the secondary field (in this case, it is the **Patient Service** field) is looked up and depending on that value, the HL7 name is translated to the correct Staffing Optimizer name. A message with an HL7 name of IN and a secondary HL7 name of PED for PatientService would translate to the Patient Type Inpatient Pediatrics. A message with an HL7 name of IN and a secondary HL7 name of MED for PatientService would translate the HL7 Name IN to the **Patient Type Inpatient** field.

Catch-all translations

The Staffing Optimizer HL7 interface provides support for catch-all translations. Catch-all translations define a default Staffing Optimizer name for all incoming values that do not have individual translations. To create a catch-all translation, use a star (*) in the **HL7 Name** field.

The Staffing Optimizer unit holding has a star (*) for its HL7 name. Therefore, all incoming unit names that do not exist in the translations list are assigned to the holding unit. If an HL7 message comes in with a value of 5C for unit, it will be translated to 5 Center. If an HL7 message comes in with a value of 4C for unit, and no translation exists for the 4C Unit, it will be translated to Holding.

Translation validation

The Staffing Optimizer Administration Console can validate translations by comparing existing translations against existing values for fields that require translations, such as **Units**, **Patient Types**, and **Patient Services**. After right-clicking on the data grid on the **Translations** tab and selecting **Validate**, a text document is displayed to show which internal **Units**, **Patient Types** and **Patient Services** still require a translation.

HL7 messages can also be validated for missing translations. On the **Failed Messages** tab, right-click in the grid and select **Validate**. If any HL7 values do not have translations, a notification indicates that they must be added.

Chapter 5: Activity Log

The **Activity Log** page displays the activity of the HL7 interface service. It shows both failed and successful messages with the date received, date processed, activity, and the status of the messages.

The page shows the date received, date processed, message ID, activity, and the reason for failure. In most cases, the messages failed because of an incorrect mapping or a missing translation. In that case, the user may correct the reason for failure, then select one or more messages, restart the HL7 service via the **Configuration** tab, and click **Resend** to resend the messages to the HL7 interface service for processing.

After successfully processing a newly arrived message, the HL7 interface checks for other existing messages for that hospital patient number and encounter number. The HL7 interface then attempts to reprocess any existing messages for that specific hospital patient number and encounter number. This can be limited or turned off by setting the maximum number of automatic failed message reprocess attempts on the **Configuration** page.

After a failed message is processed successfully, it is removed from the failed messages queue and the status of that message in the activity log is updated to **Success**. The message is still visible on the **Activity Log** page, but no further attempts are made to reprocess this message. If a message is deleted from the failed messages queue, it is still accessible through the activity log but it does not get reprocessed when new messages arrive.

The color of the **Date Processed** field indicates the status of the message:

- Green: Message was processed successfully.
- Gray: The maximum number of automatic failed message reprocess attempts has been reached. The user can manually reprocess this message.
- Blue: Message is not the most recent failure and cannot be processed again.
- Black: Active failed message.

The filter criteria can be used to limit the data displayed in the **Failed Messages**. The date filters correspond to the failure **Date Processed** value. This may differ from the **Date Received** value because the message was reprocessed either manually or automatically. This may also differ from the **Date Processed** field on the **Activity Log** page.

Each instance of a message's failure is captured and logged. Using the options on the top of the page, you can filter the visible messages by a date range, keyword, or by selecting **Failed Messages Only**, which filters the list of messages to display only those messages currently having the status of fail.

The HL7 interface uniquely identifies messages using the entire message. Every message is stored in the database only once.

To see the complete message, double-click the message or right-click and select **View HL7 Message**. This is helpful to determine why a message failed.

Chapter 6: General HL7 specifications

Trigger events are served by the ADT unsolicited update and the ACK response. The information that is included in any of these trigger event transactions is the minimum necessary to communicate the event. Any of the fields that are in the segments listed for the message can be used. To alleviate this ambiguity, the A08 (update patient information) transaction can be used to update fields that are not related to any of the other trigger events. For example, if a patient administration system allows the patient's medical service and attending doctor to be changed in the transfer function, the system should send two HL7 messages. An A02 (transfer a patient) event should be sent to reflect the location change, followed by an A08 (update patient information) event to reflect the change in the medical service and the attending doctor.

These are the trigger events along with the applicable form of the message exchange:

* The **Staffing Optimizer Field Name** is internally used by the HL7 Interface Service.
* The **HL7 Name** is the location to which the **Staffing Optimizer Field Name** will be mapped.
* The **Location** is the physical location of the value for the mapped **Staffing Optimizer Field Name**. For example, MSH-11-1 indicates the first component of the 11th element within the MSH segment.
* **Value Required** indicates whether a value for that standard location must exist. If the value is **Yes**, then the Element or Component within the message must not be blank. For example, if an A01 message is sent that does not contain a field for **DischargeDate**, the **DischargeDate** will automatically be set to blank. Translation indicates whether the values for the mapped field will be translated before processing continues. If the value is **Yes**, then there must be a translation for the incoming value.

Incoming messages

All incoming messages must contain the fields in this table to be processed correctly:

Staffing Optimizer field name	HL7 field name	Default location	Required
SendingApplication	Sending Application	MSH-3	No
SendingFacility	Sending Facility	MSH-4	No
ReceivingApplication	Receiving Application	MSH-5	No
ReceivingFacility	Receiving Facility	MSH-6	No

Staffing Optimizer field name	HL7 field name	Default location	Required
MessageDate	Date/Time of Message	MSH-7	No
MessageType	Message Type	MSH-8-2	Yes
MessageControlID	Message Control ID	MSH-9	Yes
ProcessingID	Processing ID	MSH-10	No
MessageVersion	Version ID	MSH-11	No
HospitalPatientID	Patient ID (Internal ID)	PID-3-1	Yes
EncounterNumber	Patient Account Number	PID-18-1	Yes

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A01|20070427120415|P|2.5
```

This sample MSH segment would be mapped as:

Staffing Optimizer Field Name	Value
SendingApplication	FacADT
SendingFacility	FacName
ReceivingApplication	ICW
ReceivingFacility	FacName
MessageDate	200704271204
MessageType	A01
MessageControlID	20070427120415
ProcessingID	P
MessageVersion	2.5

Every HL7 message should be uniquely identified by the MessageControlID. This allows failed messages to be more quickly researched and resolved. Staffing Optimizer accepts duplicate values and processes the messages independently.

Chapter 7: Staffing Optimizer HL7 activities

The Staffing Optimizer HL7 Interface uses a subset of the available HL7 messages to maintain patients. For information on each of these messages, see the *Health Level Seven Standard*.

Admit / update patient information

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
EventDate	Event Date	EVN-2	Yes	
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
LastName	Family Name	PID-5-2	A01	
FirstName	Given Name	PID-5-3	A01	
MiddleInitial	Middle Name	PID-5-4		
BirthDate	Date of Birth	PID-7	A01	
Gender	Gender	PID-8		
Religion	Religion	PID-17		
EncounterNumber	Patient Account Number – ID	PID-18-1	Yes	
Unit	Assigned Patient Location – Point of Care	PV1-3-1	A01	Yes
Room	Room	PV1-3-2		
Bed	Bed	PV1-3-3		
PatientService	Hospital Service	PV1-10		Yes
PatientType	Patient Type	PV1-18	Yes	Yes

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
VisitNumber	VisitNumber	PV1-19		
AdmitDate	Admit Date/Time	PV1-44	A01	
DischargeDate	Discharge Date/Time	PV1-45		

Activity description

When the admit / update patient information activity occurs, the Staffing Optimizer HL7 interface searches for this patient in the database. If this patient does not exist, then the patient is added to the database. If the patient exists, then their information is updated.

The HL7 interface then searches for this patient's encounter in the database. If the encounter does not exist, then it is added. If the patient's encounter exists, then it is updated, if necessary. If the admit date precedes the existing admit date, then the admit date is updated. If the discharge date is later than the existing discharge date, then the discharge date is updated. If the encounter currently has a discharge date, and the message provides a blank or NULL discharge date, the discharge date is not updated. A cancel discharge (A13) message must be sent to reset the discharge date to be NULL.

The HL7 interface then examines the information provided in the message. If the unit is provided, then the HL7 interface attempts to place the patient's encounter on this unit as of the event date. If the patient's encounter already exists on the unit, then the information is updated. If the event date precedes the existing transfer-in date, then the transfer-in date is updated. If the patient's encounter exists on another unit, that information is not updated. This process does not perform a transfer though it adds the patient to the new unit. A transfer (A02) may be sent after this process to close the patient's encounter in the pre-existing unit.

If information such as the unit is not provided, part of this process may complete successfully, but the patient will not be displayed on the **Patient Workload** page. For example, a pre-admit (A05) often does not include the unit. In this case, the patient would be added to the database but will not be displayed to users because a unit or instrument is not assigned. A second message, typically an update patient (A08), would be required to add the unit information for the patient and complete the admit process.

The HL7 interface also attempts to attach the proper instrument at this time. If no unit or instrument is defined for the specified information, or no instrument is assigned for the patient's patient type, then the attempt to attach the instrument fails and the admit process fails.

If the Staffing Optimizer HL7 interface encounters a problem at any time during this process, the process is rolled back and logged to the HL7 failed messages log. A description of the reason for failure is provided so that the administrator can fix the issue and reprocess the message.

Sample messages

A01

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A01|20070427120416|P|2.5
EVN||200704271204
PID||00251864|000333333||^SMITH^JOHN^M||19791013|M|||||||||BUD▶
HIST|4444444444
PV1|||OT^113^01|||||||SUR||||||||IP||||||||||||||||||||||||||||200408111015
```

A04

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A04|20070427120417|P|2.5
EVN||200704271204
PID||00251864|000333333||^SMITH^JOHN^M||19791013|M|||||||||BUD▶
HIST|4444444444
PV1|||OT^113^01|||||||SUR||||||||IP||||||||||||||||||||||||||||200408131130
```

A05

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A05|20070427120418|P|2.5
EVN||200704271204
PID||00251864|000333333||^SMITH^JOHN^M||19791013|M|||||||||BUD▶
HIST|4444444444
PV1|||OT^113^01|||||||SUR||||||||IP||||||||||||||||||||||||||||200408131130
```

A08

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A08|20070427120419|P|2.5
EVN||200704271204
PID|||000333333||^SMITH^JOHNNY^M||19791013|M|||||||||CATHOLIC
```

Update Patient Information with extended properties:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A08|20070427120420|P|2.5
EVN||200704271204
PID|||000333333||^SMITH^JOHNNY^M||19791013|M|||||||||CATHOLIC
AL1||Bleeding nose
PD1||||||Water
```

Create Patient if Encounter does not exist yet:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A08|20070427120421|P|2.5
EVN||200704271204
PID||00251864|000333333||^SMITH^JOHNNY^M||19791013|M|||||||||BUD▶
HIST|4444444444
PV1|||3C^113^01|||||||SUR|||||||||IP||||||||||||||||||||||||||||||20041002113000
```

A28

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A28|20070427120422|P|2.5
EVN||200704271204
PID||00251864|000333333||^SMITH^JOHNNY^M||19791013|M|||||||||BUD▶
HIST|4444444444
PV1|||3C^113^01|||||||SUR|||||||||IP||||||||||||||||||||||||||||||20041002113000
```

Repeated unit fields

The A01 message type is capable of processing admissions into more than one unit if the repeated field character (~) is present in the unit component. This is only valid for outpatient type admissions for which no room and bed information is provided. If the room and bed are specified, then the same room and bed are applied to all admissions.

Sample messages

A01

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A01|20070427120416|P|2.5
EVN||200704271204
PID||00251864|000333333||^SMITH^JOHN^M||19791013|M|||||||||BUD▶
HIST|4444444444
PV1|||OT~PT~ER|||||||SUR|||||||||IP||||||||||||||||||||||||||||||200408111015
```

Change patient type

Message Types

• A06: Change an Outpatient to an Inpatient

• A07: Change an Inpatient to an Outpatient

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number – ID	PID-18-1	Yes	
FirstName	Given Name	PID-5-3		
MiddleInitial	Middle Name	PID-5-4		
LastName	Family Name	PID-5-2		
BirthDate	Date of Birth	PID-7		
Gender	Gender	PID-8		
Religion	Religion	PID-17		
AdmitDate	Admit Date/Time	PV1-44		
DischargeDate	Discharge Date/Time	PV1-45		
EventDate	Event Date	EVN-2	Yes	
Unit	Assigned Patient Location – Point of Care	PV1-3-1		Yes
Room	Room	PV1-3-2		
Bed	Bed	PV1-3-3		
PatientType	Patient Type	PV1-18	Yes	Yes
PatientService	Hospital Service	PV1-10		Yes
PriorEncounterNumber	Patient Account Number – ID	MRG-3		
DepartingUnit	Prior Patient Location	PV1-6-1		Yes

Activity description

When the Change Patient Type activity occurs, the Staffing Optimizer HL7 Interface examines the provided information to determine the next action. If the **PriorEncounterNumber** is provided, and the value is different from the value provided in the **EncounterNumber** field, then the prior encounter is

discharged and a new encounter is created. If the **PriorEncounterNumber** is not provided, or it matches the **EncounterNumber**, and if the **DepartingUnit** is provided, then the HL7 Interface transfers the patient to the unit. Otherwise, the HL7 Interface changes the patient's **PatientType**. During this process, a new instrument may be attached if a different instrument is assigned to the new **PatientType**. If an active unit or instrument is not available on the **EventDate**, or an instrument is not assigned for the patient's **PatientType**, then the attempt to attach the instrument fails.

If the Staffing Optimizer HL7 Interface encounters a problem at any time during this process, the process is rolled back and logged to the HL7 failed messages log. A description of the reason for failure is provided so that the administrator can fix the issue and reprocess the message.

Sample messages

A06

Change patient type for existing encounter:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A06|20070427120423|P|2.5
EVN||200704271204
PID|||000333333||||||||||||||4444444444
PV1||||||||||||||||||||IP
```

Discharge patient from encounter 4444444444. Create new encounter 4444444445, and admit patient to unit 3C:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A06|20070427120424|P|2.5
EVN||200704271204
PID|||000333333||||||||||||||4444444445
PV1|||3C^113^01|||5C^113^01|||||||||||||IP||||||||||||||||||||||||||||20041001110000
MRG|||4444444444
```

A07

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A07|20070427120425|P|2.5
EVN||200704271204
PID|||000333333||||||||||||||4444444444
PV1||||||||||||||||||||OP
```

Cancel patient admit

Message types

A11: Cancel Admit / Visit Information

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number - ID	PID-18-1	Yes	
EventDate	Date/Time of Event	EVN-2	Yes	

Activity description

When the Cancel Patient Admit activity occurs, the Staffing Optimizer HL7 Interface verifies that the event date is later than the admit date and if so, it flags the specified patient's encounter as Deleted. The record is removed from the page and reports but collected data is not deleted. If a later Admit/Update message is processed for the same patient's encounter, then this record is restored, including any collected workload and other data relevant to this patient's encounter.

Sample messages

A11

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A11|20070427120426|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||4444444444
```

Discharge patient

Message types

A03: Discharge / End Visit

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number – ID	PID-18-1	Yes	
EventDate	Discharge Date/Time	PV1-45	Yes	

Activity description

When the Discharge Patient activity occurs, the Staffing Optimizer HL7 Interface verifies that the discharge date is later than the admit date and if so, it populates the **Discharge Date** field for the patient's encounter.

Sample messages

A03

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A03|20070427120415|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||4444444444
PV1||||||||||||||||||||||||||||||||||||||||||||||200408121315
```

Cancel discharge

Message types

A13: Cancel Discharge / End Visit

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number - ID	PID-18-1	Yes	
EventDate	Date/Time of Event	EVN-2	Yes	
Room	Room	PV1-3-2		
Bed	Bed	PV1-3-3		

Activity description

When the Cancel Disharge activity occurs, the Staffing Optimizer HL7 Interface verifies that the event date is later than the existing discharge date for the patient's encounter and if so, it removes the discharge date. If the room and bed information is provided, then the HL7 interface updates the patient's location with this information.

Sample messages

A13

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A13|20070427120427|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||||4444444444
PV1|||  PT^222^02
```

Transfer patient

Message types

A02: Transfer a Patient

Fields

Staffing Optimizer field name	HL7 Field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number – ID	PID-18-1	Yes	
EventDate	Date/Time of Event	EVN-2	Yes	
Unit	Point of Care	PV1-3-1	Yes	Yes
Room	Room	PV1-3-2		
Bed	Bed	PV1-3-3		
DepartingUnit	Point of Care	PV1-6-1	Yes	Yes
PatientType	Patient Type	PV1-18	Yes	Yes
PatientService	Hospital Service	PV1-10		Yes

Activity description

When the Transfer Patient activity occurs, the Staffing Optimizer HL7 Interface first verifies that the patient's encounter exists in the departing unit. If the patient's encounter does not exist, then processing stops and an exception is noted in the `Failed Messages` log. The process also ceases if the patient type is not provided because this information is necessary to attach the correct instrument to the patient.

If the patient's encounter exists, then processing continues and the patient is moved to the specified unit. If the **Unit** field is the same as the **DepartingUnit** field, then the patient's encounter is updated. If **Room**, **Bed**, or **PatientService** fields are different from the existing information, then this information is updated. If **PatientType** field is different from the existing information, then this is updated, and if a different instrument is assigned to the new **PatientType**, then the instrument is assigned at this time.

If **Unit** is different from the **DepartingUnit**, then the patient's encounter is discharged from the **DepartingUnit** and the patient's encounter is admitted to the **Unit** as of the **EventDate**. The information provided in the message is used in the new **Unit** and the **Instrument** for the new **PatientType** is attached to the patient's encounter. If an instrument is not assigned to the **PatientType**, then processing is rolled back and an exception is noted in the `Failed Messages` log.

Sample messages

A02

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A02|20070427120415|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||||4444444444
PV1|||PT^222^02|||OT
```

Temporary transfer

Message types

- A09: Patient Departing - Tracking
- A10: Patient Arriving – Tracking

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number - ID	PID-18-1	Yes	
EventDate	Date/Time of Event	EVN-2	Yes	
Unit	Assigned Patient Location - Point of Care	PV1-3-1	Yes	Yes
Room	Room	PV1-3-2		
Bed	Bed	PV1-3-3		
DepartingUnit	Prior Patient Location - Point of Care	PV1-6-1	Yes	Yes
TempReceivingUnit	Temporary Location – Point of Care	PV1-11-1	Yes	Yes
TempDepartingUnit	Prior Temporary Location - Point of Care	PV1-43-1	Yes	Yes
PatientType	Patient Type	PV1-18	Yes	Yes

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
PatientService	Hospital Service	PV1-10		Yes

Activity description

When the Temporary Transfer activity occurs, the Staffing Optimizer HL7 interface first verifies that the patient's encounter exists in the departing unit. If the patient's encounter does not exist, then processing stops and an exception is noted in the `Failed Messages` log. The process also ceases if the patient type is not provided because this information is necessary to attach the correct instrument to the patient.

If the patient's encounter exists, then processing continues and the patient is moved to the unit. If **Unit** is the same as the **DepartingUnit**, then the patient's encounter is updated. If the **Room**, **Bed**, **PatientService**, and **PatientType** are different from the existing information, then this is updated. If a different **Instrument** is assigned to the new **PatientType**, then the instrument is assigned at this time.

If the **Unit** is different from the **DepartingUnit**, then the patient's encounter is closed in the **DepartingUnit** and the patient's encounter is admitted to the **Unit** as of the **EventDate** (or an existing record is updated). The information provided in the message is used in the new **Unit** and the **Instrument** for the new **PatientType** is attached to the patient's encounter. If an instrument is not assigned to the **PatientType**, then processing is rolled back and an exception is noted in the `Failed Messages` log.

If the **DepartingUnit** is provided, the **Unit** is not provided, and the **TempReceivingUnit** is provided, then a new record is created (or an existing record is updated) for the patient's encounter in the **TempReceivingUnit**, leaving the patient's encounter in the **DepartingUnit** open.

If the **DepartingUnit** and **Unit** are not provided, but the **TempDepartingUnit** and **TempReceivingUnit** are provided, then the patient's encounter is admitted to the **TempReceivingUnit** and discharged from the **TempDepartingUnit**.

If the **DepartingUnit** is not provided, the **Unit** is provided, and the **TempDepartingUnit** is provided, then the patient's encounter is admitted to the unit (or an existing record is updated) and the record in the **TempDepartingUnit** is discharged.

Sample messages

A09

From Permanent to Temporary Location:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A09|20070427120428|P|2.5
EVN||200704271204
```

```
PID|||000333333|||||||||||||||||4444444444
PV1||||||OT|||||PT
```

From Temporary to Temporary Location:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A09|20070427120429|P|2.5
EVN|200704271204
PID|||000333333|||||||||||||||4444444444
PV1|||||||||||5C||||||||||||||||||||||||||||||||||||PT
```

From Temporary to Permanent Location:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A09|20070427120430|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||4444444444
PV1||||PT|||||||||||||||||||||||||||||||||||||||||5C
```

From Permanent to Permanent Location:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A09|20070427120431|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||^|||4444444444
PV1|||OT|||PT
```

A10

From Permanent to Temporary Location:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A10|20070427120432|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||||4444444444
PV1||||||OT|||||PT
```

From Temporary to Temporary Location:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A10|20070427120433|P|2.5
EVN|200704271204
PID|||000333333|||||||||||||||4444444444
PV1|||||||||||5C||||||||||||||||||||||||||||||||||PT
```

From Temporary to Permanent Location:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A10|20070427120434|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||4444444444
PV1||||PT||||||||||||||||||||||||||||||||||||||||5C
```

From Permanent to Permanent Location:

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A10|20070427120435|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||4444444444
PV1|||OT|||PT
```

Swap beds

Message types

A17: Swap Patients

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number – ID	PID-18-1	Yes	
EventDate	Date/Time of Event	EVN-2	Yes	
Unit	Point of Care	PV1-3-1	Yes	Yes
Room	Room	PV1-3-2		
Bed	Bed	PV1-3-3		
DepartingUnit	Point of Care	PV1-6-1	Yes	Yes
PatientType	Patient Type	PV1-18	Yes	Yes
PatientService	Hospital Service	PV1-10		Yes

Activity description

When the Swap Beds activity occurs, the Staffing Optimizer HL7 interface performs a transfer for each PID + PV1 combination. Each record is treated and processed independently. If one transfer fails, the other transfers are not affected and will continue to process.

See Transfer patient on page 27.

Sample messages

A17

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A17|20070427120436|P|2.5
EVN||200704271204
PID|||2874892||^Jared^Smith^Q||19730927|M|||||||||||33207704
PV1||I|H7P1^204^2|L||H8TH^103^1||||GYN|1|||D||SE||IP|10207704||||||||||||||||||||Y|OCC||||200603130851
PID|||14567897||^Deere^Jane^R||19750302|F|||||||||||10207704
PV1|2|I|H8TH^101^1|L||H7P1^204^2||||GYN|1|||D||SE||IP|10207704^^^Y|A||||||||||||||||||||Y|OCC||||200603130931
```

Cancel transfer

Message types

A12: Cancel Transfer

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number - ID	PID-18-1	Yes	
Unit	Assigned Patient Location – Point of Care	PV1-3-1	Yes	Yes
EventDate	Date/Time of Event	EVN-2	Yes	

Activity description

When the Cancel Transfer activity occurs, the Staffing Optimizer HL7 Interface verifies that the **EventDate** is later than the existing **Transfer-Out Date** for the patient's encounter. If so, it flags the patient's encounter in the **Unit** as Deleted. The patient's encounter is removed from the page and reports but collected data is not removed. If a later Admit/Update or Transfer Message is processed for the same patient's encounter in this unit, then the existing item restored, including any collected workload and other data relevant to this patient's encounter. This activity also resets the patient's

encounter's location from the originating **Unit** (from which the patient was transferred) to have a **NULL** end date.

Sample messages

A12

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A12|20070427120437|P|2.5
EVN||200704271204
PID|||000333333^^^|||||||||||||^|||4444444444
PV1|||OT^113^01
```

Merge patients and encounters

Message types

- A18: Merge Patient Information
- A34: Merge Patient Information – Patient ID Only
- A36: Merge Patient Information – Patient ID & Account Number
- A40: Merge Patient – Patient Identifier List

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID)	PID-3-1	Yes	
EncounterNumber	Patient Account Number	PID-18-1		
MergeHospitalPatientID	Prior Patient ID (Internal ID)	MRG-2		
PriorEncounterNumber	Patient Account Number	MRG-3		

Activity description

When the Merge Patients and Encounters activity occurs, the Staffing Optimizer HL7 interface first attempts to change the **MergeHospitalPatientID** to the **HospitalPatientID**. If this patient already exists, then any existing encounters for the **MergeHospitalPatientID** are removed from this patient and attached to the patient for the **HospitalPatientID**. Encounters that have the same **EncounterNumber** are combined. The encounters for the **HospitalPatientID** take precedence, and if workload is collected for both records, then the secondary information is removed. If each of the encounters have a unique **EncounterNumber**, then collected workload is moved to the new **HospitalPatientID**.

The HL7 interface then attempts to change the **PriorEncounterNumber** to the **EncounterNumber**. If the **EncounterNumber** already exists, then the encounters are combined as previously described.

This process functions independently for the combining of patients and encounters. If inadequate information is provided to perform one of the tasks, the process continues and the other task is attempted. This process is displayed as successful if either task processes successfully. A message is logged in the failed messages log when both tasks fail to complete.

Sample messages

A18

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A18|20070427120438|P|2.5

EVN||200704271204

PID|||000333333

MRG||101012
```

A34

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A34|20070427120439|P|2.5

EVN||200704271204

PID|||000333333

MRG||101012
```

A3h6

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A36|20070427120440|P|2.5
```

```
EVN||200704271204
```

```
PID|||000333333
```

```
PV1|||3C^113^01|||5C^113^01||||||||||||IP|||||||||||||||||||||||||20041001110000
```

```
MRG||101012|4444444444
```

A40

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A40|20070427120441|P|2.5
```

```
EVN||200704271204
```

```
PID|||000333333
```

```
MRG||101012
```

Merge encounters

Message types

- A35: Merge Patient Information – Account Number Only
- A41: Merge Account – Patient Account Number

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number - ID	PID-18-1	Yes	

Staffing Optimizer field name	HL7 field name	Default loca-tion	Required	Translation re-quired
PriorEncounterNumber	Patient Account Num-ber – ID	MRG-3	Yes	

Activity description

When the Merge Encounters activity occurs, the Staffing Optimizer HL7 interface changes the **PriorEncounterNumber** to the **EncounterNumber**. If the **EncounterNumber** already exists, then the encounters are combined. The primary encounter takes precedence, and if workload is collected for both records, then the secondary information is removed. If the **EncounterNumber** does not exist, then the collected workload is moved to the new **EncounterNumber**.

Sample messages

A35

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A35|20070427120442|P|2.5
EVN||200704271204
PID|||000333333
MRG|||4444444444
```

A41

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A41|20070427120443|P|2.5
EVN||200704271204
PID|||000333333
MRG|||4444444444
```

Move account information

Message types

A44: Move Account Information – Patient Account Number

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number - ID	PID-18-1	Yes	
MergeHospitalPatientID	Prior Patient ID (Internal ID)	MRG-2	Yes	

Activity description

When the Move Account Information activity occurs, the Staffing Optimizer HL7 interface moves the specified **Encounter Number** from the **Merge Hospital Patient ID** to the **Hospital Patient ID**.

Sample messages

A44

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A44|20070427120444|P|2.5
EVN||200704271204
PID|||000333333||||||||||||||||4444444444
MRG||4444444443
```

Sign in

Message types

A22: Patient Returns from a Leave of Absence

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number - ID	PID-18-1	Yes	
EventDate	Date/Time of Event	EVN-2	Yes	
Unit	Assigned Patient Location – Point of Care	PV1-3-1	Yes	Yes

Activity description

When the Sign In activity occurs, the Staffing Optimizer HL7 interface flags the patient's encounter in the **Unit** as signed in as of the **EventDate**.

Sample messages

A22

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A22|20070427120444|P|2.5
EVN||200704271204
PID|||000333333||||||||||||||||4444444444
PV1|||OT^113^01
```

Sign out

Message types

A21: Patient Goes on a Leave of Absence

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number - ID	PID-18-1	Yes	
EventDate	Date/Time of Event	EVN-2	Yes	
Unit	Assigned Patient Location – Point of Care	PV1-3-1	Yes	Yes

Activity description

When the Sign Out activity occurs, the Staffing Optimizer HL7 interface flags the patient's encounter in the unit as signed out as of the **EventDate**. The patient is displayed on the **Patient Workload** page with the icon ➲ indicating that this patient is on a leave of absence.

Sample messages

A21

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ADT^A21|20070427120445|P|2.5
EVN||200704271204
PID|||000333333||||||||||||||||4444444444
PV1|||OT^113^01
```

Score workload using documentation interface

This is a separately licensed product that is sold independently by Infor.

Message types

- R01: Unsolicited Observation
- A01: Patient admit
- A02: Transfer a Patient
- A03: Discharge / End Visit

- A04: Patient Registration
- A12: Cancel Transfer
- A13: Cancel Discharge / End Visit

Configuring the translation of intervention

1 Select **HL7 Interface > Translations**.

2 Select **Show Workload Import Fields**.

3 Click **Add New**.

4 Specify this information:

Primary Field
Select the HL7 field being read.

Workloads Name
Specify the name of the intervention in the intervention library.

Primary HL7 Name
Specify the documentation item number, such as flowsheet item number, order number, etc.

Secondary HL7 Name
Specify additional interventions, such as intervention value.

5 Click **Save**.

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number – ID	PID-18-1	Yes	
Unit	Assigned Patient Location – Point of Care	PV1-3-1	Yes	Yes
Instrument	Notes and comments	OBR-26-1	Yes	Yes
Documentation Date & Time	Notes and comments	OBR-7-1	Yes	
Intervention Type	Notes and comments	OBX-2-1	Yes	Yes
Primary Intervention	Notes and comments	OBX-3-1	Yes	

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
Secondary Intervention / Intervention Value	Notes and comments	OBX-5-1	Yes	
Intervention Value Type	Notes and comments	OBX-6-1	Yes	

Activity description

The Staffing Optimizer HL7 interface allows workload to be scored from documentation. Documentation messages can be triggered by:

- Documentation flowsheets
- Nursing orders
- Physician orders
- Medication orders
- Certain lab orders, such as unit collect specimen collections

When the Score Workload activity occurs, the Staffing Optimizer HL7 interface scores workload for a patient's encounter on a specific instrument's intervention.

There can be multiple OBX sections. Each OBX section will contain one documentation item that can score an intervention.

The intervention is scored on the date and time that is in the "Documentation Date & time" within the OBR-7 section.

You can view a failed message by clicking on the magnifying glass icon beside the message. You can see how the primary intervention is translated by looking at the Field Value (flowsheet item number or order number) and the Translation columns. After you correct the error, click **Resend**.

Sample messages

R01

```
MSH|^~\&|||ICW||20180216083038|14370|ORU^R01|845|T|2.4
EVN||20180216083038
PID|||83000671||||||||||||||||1000019378
PV1|||RBMC SURG^7222^7222-01^RBMC^R^^^^RBMC SURGICAL^^
OBR|||||||20180216000000
OBX||ST|3040150217&56^Insertion attempts-Peripheral IV 02/16/18 Left
Hand^||1||
```

Score workload using a standard message

Message types

ORU R01: Unsolicited Observation

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
EncounterNumber	Patient Account Number – ID	PID-18-1	Yes	
Unit	Assigned Patient Location – Point of Care	PV1-3-1	Yes	Yes
Instrument	Notes and comments	OBR-26-1	Yes	Yes
Documentation Date & Time	Notes and comments	OBR-7-1	Yes	
Intervention Type	Notes and comments	OBX-2-1	Yes	Yes
Primary Intervention	Notes and comments	OBX-3-1	Yes	
Secondary Intervention / Intervention Value	Notes and comments	OBX-5-1	Yes	
Intervention Value Type	Notes and comments	OBX-6-1	Yes	

Activity description

When the Score Workload using a Standard Message activity occurs, the Staffing Optimizer HL7 interface scores workload for a patient's encounter on a specific instrument's intervention. This is a separately licensed product that is sold independently by Infor.

When this interface is licensed and Staffing Optimizer receives the specified message, it is verified whether the specified instrument was attached to this patient at the specified date and time. If the instrument is not attached, the system determines if this instrument can be attached, and if so the instrument is automatically attached to the patient. The system then uses special translations for this interface to determine which interventions are being evaluated. Depending on the type of intervention, the item is checked and may have a value applied to it. The repeated field character (~) is allowable in the **Secondary Intervention / Intervention Value** field. When present, each repeated field is paired with the primary intervention.

Note that the interventions included in this message are the only ones scored after this message is processed. Any previous interventions scored by this interface are automatically removed. Any items that were previously scored by an Staffing Optimizer user are preserved after this message is processed.

Sample messages

R01

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||ORU^R01|20070427120446|P|2.5
EVN||200704271204
PID|||000333333|||||||||||||||||4444444444
PV1|||OT^113^01
OBR|||||||200704271204|||||||||||||||||||||GRASP Interface Test Form
OBX||CE|Assessment MS Peds ||1-3 active problems
OBX||NUM|Family/Patient Conference ||15|min
OBX||CE|Restraints for Safety||Yes
```

Score workload from McKesson Horizon Expert documentation

Message types

DFT P03: Custom Financial Message

Fields

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
HospitalPatientID	Patient ID (Internal ID) – ID	PID-3-1	Yes	
LastName	Family Name	PID-5-2	No	
FirstName	Given Name	PID-5-3	No	
MiddleInitial	Middle Name	PID-5-4	No	
BirthDate	Date of Birth	PID-7	No	
Gender	Gender	PID-8	No	

Staffing Optimizer field name	HL7 field name	Default location	Required	Translation required
Religion	Religion	PID-17	No	
EncounterNumber	Patient Account Number – ID	PID-18-1	Yes	
Unit	Assigned Patient Location – Point of Care	PV1-3-1	Yes	Yes
Room	Room	PV1-3-2	No	
Bed	Bed	PV1-3-3	No	
PatientService	Hospital Service	PV1-10	No	Yes
PatientType	Patient Type	PV1-18	No	Yes
VisitNumber	Visit Number	PV1-19	No	
AdmitDate	Admit Date/Time	PV1-44	No	
DischargeDate	Discharge Date/Time	PV1-45	No	
ScoreDate	Transaction Date	FT1-4	Yes	
ScoreValue	Transaction Quantity	FT1-10	Yes	
TransactionType	Transaction Type	FT1-6	Yes	
InstrumentIntervention	Transaction Code	FT1-7	Yes	Yes, value is set in McKesson HED.

Activity description

When the Score Workload from McKesson Horizon Expert Documentation activity occurs, the Staffing Optimizer HL7 interface scores workload for a patient's encounter on a specific instrument's intervention. This is a separately licensed product that is sold independently by GRASP in conjunction with McKesson. All translations and setup for this activity are controlled by McKesson.

The HL7 interface uses the P03 message to interact with the McKesson documentation system. The instrument and intervention are identified in the FT1 segment (FT1-7 – transaction code). The HL7 interface looks for a hyphen (–) delimited value that contains the instrument and intervention. A correctly formatted sample value for FT1-7 – transaction code would be 7-29, where 7 is the instrument and 29 is the intervention. The **Instrument** value is optional. If no value is present, or if the specified instrument is not part of the unit, then this process attempts to find the correct instrument based on (a) a single instrument in the unit, (b) using the instrument for the specified patient type, and (c) looking up the intervention on instruments in the specified unit. To populate the P03 with the correct values for instruments and interventions, a list of current instruments, interventions and their Staffing Optimizer identification numbers has to be requested from the individual instances running the HL7 interface.

The FT1 segment (FT1-7-6 – transaction type) is used to indicate the type of the transaction. A value of C is used to credit (subtract) the quantity provided by FT1-7-10 – transaction quantity whereas a value of D debits (adds) the quantity.

The optional fields can be used to admit the patient if they are not already admitted to Staffing Optimizer. This can happen if the message sequencing gets out-of-order or because an alternate ADT system may be in use.

Sample messages

P03

```
MSH|^~\&|FacADT|FacName|ICW|Fac▶
Name|200704271204||DFT^P03|20070427120446|P|2.5
EVN||200704271204
PID||00251864|000333333||^SMITH^JOHN^M||19791013|M||||||||BUD▶
HIST|4444444444
PV1|||OT^113^01|||||||SUR|||||||||IP|||||||||||||||||||||||||||||200408111015
FT1||||200408181145||D|5-32|||11
```

Chapter 8: References

HL7 Messaging Standard Version 2.5

Glossary

budget set
Date range that applies to a specific unit or budget fiscal period.

discipline
A broad job title category that incorporates a definable set of skills. Used to organize jobs.

division
A grouping of units.

fatigue and delay factor
Based on the layout of the unit, location of supplies, and so on, this is the calculated percentage of time that it takes, for example, to walk a long hall to get supplies or fatigue at the end of the day.

group
A collection of patients based on a common characteristic. Similar to patient types in that they can be defined by the kinds of care that patients require.

indirect analysis
A list of supplementary activities that staff perform for the patient's care such as cleaning, checking supplies, and attending meetings. Used in the calculation of unit workloads.

indirect worksheet
List of interventions that are done in support of the patient instead of directly to the patient.

instrument
A defined set of health care tasks, interventions, and protocols that characterize the care that is given to a patient.

intervention
An activity that a patient being treated during a shift in a unit might require.

job
A skill or set of skills a caregiver can perform. Includes the title of a position and the number of hours it requires annually. Used in conjunction with disciplines and shifts.

location
The physical location of a hospital or floor. A location is used to organize divisions.

non-patient instrument
An instrument that is used to track indirect analysis activities.

patient type
The type of patient based on the type of expected required care. For example, a patient type could be created for patients who require emergency care. You can add and configure the patient types that are assigned to a unit. A patient can be assigned only one patient type at a time, but a patient may be assigned different patient types over the course of care.

program
Collection of units, instruments, and disciplines that define a category of care that a facility provides.

shift
A time period during which staff are on duty.

unit
A department in a hospital, such as a neurology unit or an intensive care unit.

unit definition
Characteristics that determine unit behavior.