



CareCloud
Connect Integrations
Technical Interface Specifications

Table of Contents

Introduction.....	3
Communication Components.....	3
Messages Supported & Types.....	3
Patient Administration (ADT)	4
HL7 ADT Trigger Events	4
HL7 ADT Segment Overview	4
HL7 ADT Notes & Sample Message.....	5
HL7 ADT Segment Detail	6
HL7 ADT Segments	6
Master Files (MFN)	11
HL7 MFN Trigger Events.....	11
HL7 MFN Segment Overview.....	11
HL7 MFN Notification & Sample Message	12
HL7 MFN Segments	13
Scheduling (SIU)	15
HL7 SIU Trigger Events.....	15
HL7 SIU Segment Overview	15
HL7 SIU Reasons & Notes	16
HL7 SIU Segments	17
Patient Accounting (DFT).....	20
HL7 DFT Trigger Event	20
HL7 DFT Segment Overview.....	20
HL7 DFT Message Set & Sample Message	21
HL7 DFT Segments	22
Appendices	
Appendix A: HL7 Message ID Library	25

Introduction

This document pertains to all CareCloud Connect adhering to HL7 messaging, version 2.3 through 2.5.1. It defines the Connectivity, File Format, Inbound and Outbound message types. The interfaces addressed in this document are specific to CareCloud for the exchange of electronic data between health care information systems.

Connectivity & Communication Components

The following methods of connectivity are supported for both inbound and outbound messaging and all require a secure end-to-end communication, and *available* only and only if the communication is established *directly* between CareCloud and the Vendor.

- **File Transfer**
 - ✓ IPsec point-to-point VPN tunnel is commonly used.
- **Secure-FTP (SFTP):** Preferred method of connectivity for a cloud-based PMS.
 - ✓ Secure FTP server required.
 - ✓ Server located at the practice:
 - Practice to provide connection information and credentials to CareCloud.
 - The practice is responsible for the setup and maintenance of said connection.
 - ✓ Server located at CareCloud:
 - CareCloud to provide the corresponding connection information and credentials.
 - CareCloud *is not* prone for the required Secure-FTP Client for this solution to work.

Messages Supported & Types

The interface engines are designed to handle:

- **Inbound**
 - HL7 ADT Demographics A04, A08
 - HL7 DFT Charges P03
- **Outbound**
 - HL7 ADT Demographics A04, A08
 - HL7 SIU Appointments S12, S14, S15

Patient Administration

Purpose

The Patient Administration transaction set provides for the transmission of new or updated demographic and visit information about patients. Since virtually any system attached to the network requires information about patients, the Patient Administration transaction set is one of the most commonly used.

Generally, information is entered into a Patient Administration system and passed to the nursing, ancillary and financial systems either in the form of an unsolicited update or a response to a record-oriented query.

This chapter defines the transactions that occur at the seventh level, that is, the abstract messages. The examples included in this chapter were constructed using the HL7 Encoding Rules.

Trigger Events

Message Type	Trigger Event	Traffic		Description
		Inbound	Outbound	
ADT	A28	Yes	No	Register minimal Patient Information
	A04	Yes	Yes	Patient Registration including insurance details
	A08	Yes	Yes	Update Patient Information
	A31	No	No	Minimal patient update

HL7 ADT Segment Overview

Segment	Instance / Set ID	Description
MSH	1	Message Header
EVN	1	Event Type
PID	1	Patient Demographic
NK1	1	Next of Kin
PV1	1	Patient Visit Detail
GT1	1	Responsible Party Demographic
IN1	1	Primary Insurance Information
IN2	2	Secondary Insurance Information
IN1	1	Additional Insurance Information
IN2	2	Secondary Additional Insurance Information

HL7 ADT Message Notes

- The Provider ID that is provided on PV1.7.1 by default is the assigned CareCloud ID that is assigned to the provider in the CareCloud System. This ID is unique to the Provider within the CareCloud System. This ID can be replaced for the Providers NPI number.
- The Referring Physician ID that is provided on PV1.8.1 by default is the NPI that is assigned to the provider.
- PID.2.1 contains the CareCloud Patient Chart Number. This is field is an optional field that can be manually entered by the practice, entered by an auto chart numbering process or not entered at all. It is used as consistent reference to the patient.
- PID.3.1 contains the Patient ID that is a unique patient identifier for a patient within the CareCloud system. This Identifier should be used to as the shared patient id amongst interfacing system.

HL7 ADT Sample Message

```

MSH|^~\&|CC^CareCloud|17^Practice Name|VN^UroChart|17^Practice
Name|20110518040526||ADT^A08|53651|P|2.3.1
EVN|A08|20110518040526
PID|1|389312334|0010-2-6360453028||DOE^JOHN^R||19781026|M||1000-9^White|1234 HIDDEN
ST^107^MIAMI^FL^33193^UNITED
STATES||3055514532^^^jdoe@carecloud.com|7864537890||2^Married||567340987|B0-
3434343^FL|||||||||
NK1|1|DOE^JANE^ W|01^Spouse|321 NOT REAL DR^10^MIAMI^FL^33193^UNITED
STATES|3052654200|7864563452|||||^F|19560915|||||||||
PV1|1||^78^MAIN OFFICE||27^BECKER^EDWARD|1602469^ SANJAY
^RAZDAN^|||||^|
GT1|1||DOE^JANE^|321 NOT REAL DR^10^MIAMI^FL^33193^UNITED STATES|3052654200
|7864563452|19560915|F||01^Spouse|553034343|||||||||
IN1|1||1973|MEDICARE PART B OF FLORIDA|532 RIVERSIDE AVE 17 FL PO BOX
2360^^JACKSONVILLE^FL^32202||3055551212|GRP2132131|GRP12321313||20110517|20110630||Medicar
e|LEVI^WINSTON^G|33^Father|19201110|7635 N REAL
ST^1910^MIAMI^FL^33193|||||||M12039219A|||||M|||||
IN2||561234|||||||M12039219A|33^Father|
IN1|2||1884|FLORIDA MEDICAID|PO BOX 7072^^TALLAHASSEE^FL^32314-7799||3055551212|GRP08454|
GRPNAME2||20110517|20110531||MEDICAID |CHAPMIN^JOAN^P|32^Mother|19840704|7465 FAKE
BLVD^932^MIAMI^FL^33177|||||||M984549|||||F|||||
IN2||564233214|||||||M984549|32^Mother|

```

ADT Segment Detail

HL7 ADT messages carry patient demographic information for HL7 communications but also provide important information about **trigger events** (such as patient admit, discharge, transfer, registration, etc.). Some of the most important segments in the ADT message are the PID (Patient Identification) segment, the PV1 (Patient Visit) segment, and occasionally the IN1 (Insurance) segment. ADT messages are extremely common in HL7 processing and are among the most widely used of all message types.

HL7 ADT MSH

defines the intent, source, destination, and some specifics of the syntax of a message.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
MSH.1	Field Separator	Yes	ST	MSH.1.1		
MSH.2	Encoding Characters	Yes	ST	MSH.2.1		^~\&
MSH.3	Sending Application	No	HD	MSH.3.1	Namespace ID	CC
				MSH.3.2	Universal ID	CareCloud
MSH.4	Sending Facility	No	HD	MSH.4.1	Namespace ID	17
				MSH.4.2	Universal ID	Practice Name
MSH.5	Receiving Application	No	HD	MSH.5.1	Namespace ID	VN
				MSH.5.2	Universal ID	Vendor_Name
MSH.6	Receiving Facility	No	HD	MSH.6.1	Namespace ID	17
				MSH.6.2	Universal ID	Practice Name
MSH.7	Date/Time of Message	Yes	DTM	MSH.7.1		20110511140526
MSH.9	Message Type	Yes	MSG	MSH.9.1	Message Code	ADT
				MSH.9.2	Trigger Event	A08
MSH.10	Message Control ID	Yes	ST	MSH.10.1		542133
MSH.11	Processing ID	Yes	PT	MSH.11.1	Processing ID	P
MSH.12	Version ID	Yes	VID	MSH.12.1	Version ID	2.3.1

```
MSH|^~\&|CC^CareCloud|7^Practice Name|VN^VendorName|7^Practice
Name|20110518040526||ADT^A08|551|P|2.3.1
```

HL7 ADT EVN

The EVN segment is used to communicate necessary trigger event information to receiving applications.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
EVN.1	Event Type Code	No	ID	EVN.1.1		A08
EVN.2	Recorded Date/Time	Yes	DTM	EVN.2.1		20110518040526

```
EVN|A08|20110518040526
```

HL7 ADT PID

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
PID.1	Set ID - PID	No	SI	PID.1.1		1
PID.2	Patient ID	No	CX	PID.2.1	ID Number	389312334
PID.3	Legacy Patient ID	No	CX	PID.3.1	ID Number	0010-2-6360453028
PID.4	Patient Account Number	Yes	CX	PID.4.1	ID Number	
PID.5	Patient Name	Yes	XPN	PID.5.1	Family Name	DOE
				PID.5.2	Given Name	JOHN
				PID.5.3	Second or Further Given Names or Initials thereof	R
PID.7	Date/Time of Birth	No	DTM	PID.7.1	Date of Birth	19781023
PID.8	Administrative Sex	No	IS	PID.8.1	Gender	M
PID.10	Race	No	CWE	PID.10.1	Identifier	1000-9
				PID.10.2	Text	White
PID.11	Patient Address	No	XAD	PID.11.1	Street Address	1234 HIDDEN ST
				PID.11.2	Other Designation	107
				PID.11.3	City	MIAMI
				PID.11.4	State or Province	FL
				PID.11.5	Zip or Postal Code	33193
				PID.11.6	Country	UNITED STATES
PID.13	Phone Number - Home	No	XTN	PID.13.1	Telephone Number	305-551-4532
				PID.13.4	Email Address	jdoe@carecloud.com
PID.14	Phone Number - Business	No	XTN	PID.14.1	Telephone Number	786-453-7890
PID.16	Marital Status	No	CWE	PID.16.1	Identifier	2
				PID.16.2	Text	Married
PID.19	SSN Number - Patient	No	ST	PID.19.1	Social Security Number	567340987
PID.20	Driver's License Number - Patient	No	DLN	PID.20.1	License Number	B0-3434343
				PID.20.2	Issuing State, Province, Country	FL

```
PID|1|389312334|0010-2-6360453028||DOE^JOHN^R||19781026|M||1000-9^White
|1234 HIDDEN ST^107^MIAMI^FL^33193^UNITED STATES||3055514532^^^jdoe@carecloud.com
|7864537890||2^Married||567340987|B0-3434343^FL|||||||||
```

HL7 ADT PV1

Used by Registration/Patient Administration applications to transfer data on an account or visit-specific basis.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
PV1.1	Set ID - PV1	No	SI	PV1.1.1		
PV1.3	Assigned Patient Location	No	PL	PV1.3.4	Facility	78
				PV1.3.9	Location Description	MAIN OFFICE
PV1.7	Attending Doctor	No	XCN	PV1.7.1	ID Number	28
				PV1.7.2	Family Name	BECKER
				PV1.7.3	Given Name	EDUARDO
PV1.8	Referring Doctor	No	XCN	PV1.8.1	ID Number	160322
				PV1.8.2	Family Name	SANJAY
				PV1.8.3	Given Name	RADZAN

PV1|1||^78^^^MAIN OFFICE|||27^BECKER^EDWARD|1602469^ SANJAY^RAZDAN^| | | | | | | | | | | | | | | | | |

HL7 ADT GT1

Guarantor (e.g., the person or the organization with financial responsibility for payment of a patient account) data for patient and insurance billing applications.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
GT1.1	Set ID - GT1	Yes	SI	GT1.1.1		1
GT1.3	Guarantor Name	Yes	XPN	GT1.3.1	Family Name	DOE
				GT1.3.2	Given Name	JANE
				GT1.3.3	Second or Further Given Names or Initials thereof	W
GT1.5	Guarantor Address	No	XAD	GT1.5.1	Street Address	321 REAL DR
				GT1.5.2	Other Designation	FL
				GT1.5.3	City	MIAMI
				GT1.5.4	State or Province	FL
				GT1.5.5	Zip or Postal Code	33187
				GT1.5.6	Country	United States
GT1.6	Guarantor Home Phone No.	No	XTN	GT1.6.1	Telephone Number	305-458-7732
GT1.7	Guarantor Business Phone No.	No	XTN	GT1.7.1	Telephone Number	786-123-4566
GT1.8	Guarantor Date/Time of Birth	No	DTM	GT1.8.1	Date/Time of Birth	19671112
GT1.9	Guarantor Administrative Sex	No	IS	GT1.9.1	Guarantor Gender	F
GT1.11	Guarantor Relationship	No	CWE	GT1.11.1	Identifier	1
				GT1.11.2	Text	Spouse
GT1.12	Guarantor SSN	No	ST	GT1.12.1	Guarantor SSN	555873433

GT1|1||DO^JANE^||31 REAL DR^MIAMI^FL^33193^US|3052654200|7864563452|19560915|F||01^Spouse|553034343|||

HL7 ADT IN1

Insurance policy coverage information necessary to produce properly pro-rated and patient and insurance bills.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
IN1.1	Set ID - IN1	Yes	SI	IN1.1.1		1
IN1.3	Insurance Company ID	Yes	CX	IN1.3.1	ID Number	1973
IN1.4	Insurance Company Name	No	XON	IN1.4.1	Organization Name	Medicare of Florida
IN1.5	Insurance Company Address	No	XAD	IN1.5.1	Street Address	532 RIVERSDIE AVE 17
				IN1.5.2	Other Designation	
				IN1.5.3	City	JACKSONVILLE
				IN1.5.4	State or Province	FL
				IN1.5.5	Zip or Postal Code	32292
IN1.7	Insurance Phone Number	No	XTN	IN1.7.1	Telephone Number	351-345-6788
IN1.8	Group Number	No	ST	IN1.8.1	Group Number	GRP12321313
IN1.9	Group Name	No	XON	IN1.9.1	Organization Name	United Health Group
IN1.12	Plan Effective Date	No	DT	IN1.12.1	Plan Effective Date	20110517
IN1.13	Plan Expiration Date	No	DT	IN1.13.1	Plan Expiration Date	20110630
IN1.15	Plan Type	No	IS	IN1.15.1	Plan Type	Medicare
IN1.16	Name of Insured	No	XPN	IN1.16.1	Family Name	LEVI
				IN1.16.2	Given Name	WINSTON
				IN1.16.3	Second or Further Given Names or Initials Thereof	G
IN1.17	Insured's Relationship to Patient	No	CWE	IN1.17.1	Identifier	33
				IN1.17.2	Text	Father
IN1.18	Insured's Date of Birth	No	DTM	IN1.18.1	Insured's Date of Birth	19201110
IN1.19	Insured's Address	No	XAD	IN1.19.1	Street Address	7654 N REAL ST
				IN1.19.2	Other Designation	1910
				IN1.19.3	City	BROWARD
				IN1.19.4	State or Province	FL
				IN1.19.5	Zip or Postal Code	33187
IN1.36	Policy Number	No	ST	IN1.36.1	Member Number	M12039219A
IN1.43	Insured Administrative Sex	No	IS	IN1.43.1	Administrative Sex	M

```
IN1|1||1973|MEDICARE PART B OF FLORIDA|532 RIVERSIDE AVE 17 FL PO BOX
2360^^JACKSONVILLE^FL^32202||305551212|GRP2132131|GRP12321313||20110517|20110630|
|Medicare|LEVI^WINSTON^G|33^Father|19201110|7635 N REAL ST^1910^MIAMI^FL^33193|
||||||||||||||M12039219A||||||M|||||||
```

HL7 ADT IN2

Additional insurance policy coverage and benefit information necessary for proper billing and reimbursement. Fields used by this segment are defined by CMS or other regulatory agencies.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
IN2.1	Set ID - IN2	Yes	SI	IN2.1.1		1
IN2.3	Insurance Company ID	Yes	CX	IN2.3.1	ID Number	1973
IN2.4	Insurance Company Name	No	XON	IN2.4.1	Organization Name	Medicare of Florida
IN2.5	Insurance Company Address	No	XAD	IN2.5.1	Street Address	532 RIVERSDIE AVE 17
				IN2.5.2	Other Designation	
				IN2.5.3	City	JACKSONVILLE
				IN2.5.4	State or Province	FL
				IN2.5.5	Zip or Postal Code	32292
IN2.7	Insurance Co. Phone Number	No	XTN	IN2.7.1	Telephone Number	351-345-6788
IN2.8	Group Number	No	ST	IN2.8.1	Group Number	GRP12321313
IN2.9	Group Name	No	XON	IN2.9.1	Organization Name	United Health Group
IN2.12	Plan Effective Date	No	DT	IN2.12.1	Plan Effective Date	20110517
IN2.13	Plan Expiration Date	No	DT	IN2.13.1	Plan Expiration Date	20110630
IN2.15	Plan Type	No	IS	IN2.15.1	Plan Type	Medicare
IN2.16	Name of Insured	No	XPN	IN2.16.1	Family Name	LEVI
				IN2.16.2	Given Name	WINSTON
				IN2.16.3	Second or further given Names or Initials thereof	G
IN2.17	Insured's Relationship to Patient	No	CWE	IN2.17.1	Identifier	33
				IN2.17.2	Text	Father
IN2.18	Insured's Date of Birth	No	DTM	IN2.18.1	Insured's Date of Birth	19201110
IN2.19	Insured's Address	No	XAD	IN2.19.1	Street Address	7654 N REAL ST
				IN2.19.2	Other Designation	1910
				IN2.19.3	City	BROWARD
				IN2.19.4	State or Province	FL
				IN2.19.5	Zip or Postal Code	33187
IN2.36	Policy Number	No	ST	IN2.36.1	Member Number	M12039219A
IN2.43	Insured Administrative Sex	No	IS	IN2.43.1	Administrative Sex	M

```
IN2||564233214|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||M984549|32^Mother|
|||||||
```

Master Files

Purpose

In an open-architecture healthcare environment there often exists a set of common reference files used by one or more application systems. Such files are called master files. Some common examples of master files in the healthcare environment include:

- a. staff and health practitioner master file
- b. system user (and password) master file
- c. location (census and clinic) master file
- d. device type and location (e.g., workstations, terminals, printers, etc.)
- e. lab test definition file
- f. exam code (radiology) definition file
- g. charge master file
- h. patient status master
- i. patient type master
- j. service item master file

Trigger Event

Message Type	Trigger Event	Traffic		Description
		Inbound	Outbound	
MFN	M02	Yes	Yes	Master File - Physician Information

HL7 MFN Segment Overview

Segment	Instance/ Set ID	Description
MSH	1	Message Header
EVN	1	Event Type
MFI	1	Master File Identifier
MFE	1	Master File Entry
STF	1	Personnel referenced by information systems
PRA	1	Detailed Medical Practitioner information

Master Files Notification Message

A given master files message concerns only a single master file. However, the provision of a record-level event code (and requested activation date) on the MFE and the MFA segments allows a single message to contain several types of changes (events) to that file.

HL7 DFT Sample Message

```
MSH|^~\&|CC^CareCloud|1104^Practice|VN^VENDOR|1104^PRACTICE|20171207-  
162752||MFN^M02|20171207- f993162739-d291-416e-a5c6-69d5G11ab9f0|P|2.3.1  
EVN|M02|20091019145547|||||  
MFI||||20171207-162752  
MFE|||1767821233  
STF|1487855110|1487855110|SAM^CARLOS|||||954-498-2100^305-298-3176|1601 ARTS  
BLVD^^TIM^IN^11320  
PRA|1767821233|||VENDOR|1104
```

HL7 MFN MSH

The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
MSH.1	Field Separator	Yes	ST	MSH.1.1		
MSH.2	Encoding Characters	Yes	ST	MSH.2.1		^~\&
MSH.3	Sending Application	No	HD	MSH.3.1	Namespace ID	CC
				MSH.3.2	Universal ID	CareCloud
MSH.4	Sending Facility	No	HD	MSH.4.1	Namespace ID	17
				MSH.4.2	Universal ID	Practice Name
MSH.5	Receiving Application	No	HD	MSH.5.1	Namespace ID	VN
				MSH.5.2	Universal ID	Vendor_Name
MSH.6	Receiving Facility	No	HD	MSH.6.1	Namespace ID	17
				MSH.6.2	Universal ID	Practice Name
MSH.7	Date/Time of Message	Yes	DTM	MSH.7.1		20110511140526
MSH.9	Message Type	Yes	MSG	MSH.9.1	Message Code	MFN
				MSH.9.2	Trigger Event	M02
MSH.10	Message Control ID	Yes	ST	MSH.10.1		5421651
MSH.11	Processing ID	Yes	PT	MSH.11.1	Processing ID	P
MSH.12	Version ID	Yes	VID	MSH.12.1	Version ID	2.3.1

```
MSH|^~\&|CC^CareCloud|1104^Practice|VN^VENDOR|1104^PRACTICE|20171207-162752||MFN^M02|20171207- f993162739-d291-416e-a5c6-69d5G11ab9f0|P|2.3.1
```

HL7 MFN EVN is used to communicate necessary trigger event information to receiving applications.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
EVN.1	Event Type Code	No	ID	EVN.1.1		M02
EVN.2	Recorded Date/Time	Yes	DTM	EVN.2.1		20110314110140

```
EVN|M02|20091019145547|||||
```

HL7 MFN MFI identifies the master file object found in an MFN message.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
MFI.5	Recorded Date/Time	YES	DTM	MFI.5.1		20110314110140

```
MFI|||||20171207-162752
```

HL7 MFN MFE identifies the master file entry segment.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
MFE.4	Referring Doctor	YES	XCN	MFE.4.1	ID Number	45377

MFE||||1767821233

HL7 MFN STF

Identify any personnel referenced by information systems: providers, staff, system users, and referring agents. In a network environment, this segment can be used to define personnel to other applications such as order entry clerks, insurance verification clerks, admission clerks, as well as provider demographics.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
STF.1	Referring Physician	Yes	CX	STF.1.1	Identifier	150355
STF.2		Yes	CX	STF.2.1	Identifier	150355
STF.3		Yes	XCN	STF.3.1	Family Name	AMANDA
		Yes		STF.3.2	Given Name	CLOUDINE
		No		STF.3.3	Second or Further Given Names or Initials Thereof	S.
		No		STF.3.4	Suffix	JR.
		No		STF.3.5	Prefix	Ms.
STF.10	Staff Phone Numbers	No	XTN	STF.10.1	Telephone Number	545-478-2290
			CWE	STF.10.2	Text	PH
			XTN	STF.10.5	Fax Number	545-478-2200
			CWE	STF.10.6	Text	FX
STF.11	Staff Address	No	XAD	STF.11.1	Street Address	321 NOT REAL DR
				STF.11.2	Other Designation	MAIN OFFICE
				STF.11.3	City	MIAMI
				STF.11.4	State or Province	FL
				STF.11.5	Zip or Postal Code	33187

STF|1475110|1475110|SAM^CARLS|||||954-498-2100^305-298-3176^|101 ARTS BLVD^^TIM^IN^11320

HL7 MFN PRA adds detailed medical practitioner information to the personnel identified by the STF segment. A PRA segment may be optional but must always have been preceded by a corresponding STF segment.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
PRA.1	Referring Physician	No	CX	PRA.1.1	ID Number	1713226855
PRA.5	Receiving Application	No	HD	PRA.5.1	Namespace ID	VENDOR_NAME
PRA.6		No		PRA.6.1	Universal ID	4105

PRA|1767821233||||VENDOR|1104

Scheduling

Purpose

A schedule controls the dates and times available for the performance of a service and/or the use of a resource. One schedule applies to one service or resource, since each service or resource can be reserved independently of the others.

A schedule consists of slots of time during which the controlled service or resource is potentially available for performance or use. Slots are categorized as open, booked, or blocked.

Appointments are instances of the performance of a service or the use of a resource. Appointments can describe scheduled activities related to patients in a healthcare setting, or they can describe scheduled activities wholly unrelated to patients.

Trigger Events

Message Type	Trigger Event	Traffic		Description
		Inbound	Outbound	
SIU	S12	Yes	Yes	New Appointment
	S14	Yes	Yes	Update Appointment Schedule
	S15	Yes	Yes	Appointment Cancellation

HL7 SIU Segment Overview

Segment	Instance / Set ID	Description
MSH	1	Message Header
SCH	1	Scheduling Header Information
PID	1	Patient Demographic
PV1	1	Patient Visit Detail
RGS	1	Resource Group
AIL	1	Appointment Information - Location Resource
AIP	1	Appointment Information - Personnel Resource

Reasons

This chapter defines two kinds of reasons used with transactions. The first is an appointment reason that indicates why the appointment is being booked - and ultimately why the activity is going to occur. The second is an event reason that describes why a particular trigger event has been generated. Reasons tend to be static, whereas statuses tend to change. In contrast, trigger events describe an action to be performed.

Appointment reasons tend to be relatively static for the life of the scheduled activity. Typical examples of appointment reasons include the following: routine, walk-in, check-up, follow-up, emergency, etc.

HL7 SIU Message Notes

- The Provider ID that is provided on PV1.7.1 by default is the assigned CareCloud ID that is assigned to the provider in the CareCloud System. This ID is unique to the Provider within the CareCloud System. This ID can be replaced for the Providers NPI number.
- The Referring Physician ID that is provided on PV1.8.1 by default is the NPI that is assigned to the provider.
- The Schedule ID in the SCH.1.1 and the Placer Appointment ID in the SCH.5.1 segment both reflect the CareCloud Appointment ID. Although this identifier is unique to each appointment in CareCloud system, it does not follow the appointment when updated.

HL7 SIU Sample Message

```
MSH|^~\&|CC^CareCloud|17^Practice Name|VN^Vendor_Name|17^Practice
  Name|20110518120555|P|SIU^S12|104081|P|2.3
SCH|332944|||332944|211^NEW PATIENT|211^NEW PATIENT|211^NEW PATIENT||
|^30^201105181600^201105181630|||20^Claudia Amarin||
|20^Claudia Amarin|||1^Pending
PID|1|389312334|0010-2-6360453028||DOE^JOHN^R||19781026|M||1234 HIDDEN
  ST^107^MIAMI^FL^33193||3055514532|||567340987|||
PV1|1|^78^MAIN OFFICE||27^BECKER^EDWARD|1699473^TALARICO^SONIA|||
RGS|1||
AIL|||
AIP|1||64^NURSE|||
```


HL7 SIU MSH defines the intent, source, destination, and some specifics of the syntax of a message.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
MSH.1	Field Separator	Yes	ST	MSH.1.1		
MSH.2	Encoding Characters	Yes	ST	MSH.2.1		^~\&
MSH.3	Sending Application	No	HD	MSH.3.1	Namespace ID	CC
				MSH.3.2	Universal ID	CareCloud
MSH.4	Sending Facility	No	HD	MSH.4.1	Namespace ID	17
				MSH.4.2	Universal ID	Practice Name
MSH.5	Receiving Application	No	HD	MSH.5.1	Namespace ID	VN
				MSH.5.2	Universal ID	Vendor_Name
MSH.6	Receiving Facility	No	HD	MSH.6.1	Namespace ID	17
				MSH.6.2	Universal ID	Practice Name
MSH.7	Date/Time of Message	Yes	DTM	MSH.7.1		20110511140526
MSH.9	Message Type	Yes	MSG	MSH.9.1	Message Code	SIU
				MSH.9.2	Trigger Event	S12
MSH.10	Message Control ID	Yes	ST	MSH.10.1		104081
MSH.11	Processing ID	Yes	PT	MSH.11.1	Processing ID	P
MSH.12	Version ID	Yes	VID	MSH.12.1	Version ID	2.3.1

```
MSH|^~\&|CC^CareCloud|17^Practice Name|VN^Vendor_Name|17^Practice Name
|20110518120555|P|SIU^S12|104081|P|2.3
```

HL7 SIU SCH contains general information about the scheduled appointment.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
SCH.1	Placer Appointment ID	No	EI	SCH.1.1	Entity Identifier	332944
SCH.5	Schedule ID	No	CWE	SCH.5.1	Identifier	332944
SCH.6	Event Reason	Yes	CWE	SCH.6.1	Identifier	211
				SCH.6.2	Text	NEW PATIENT
SCH.7	Appointment Reason	No	CWE	SCH.7.1	Identifier	211
				SCH.7.2	Text	NEW PATIENT
SCH.8	Appointment Type	No	CWE	SCH.8.1	Identifier	211
				SCH.8.2	Text	NEW PATIENT
SCH.9	Appointment Duration	No	CWE	SCH.9.1	Duration	30
SCH.11	Appointment Timing Quantity	Yes	CWE	SCH.11.3	Duration	30
				SCH.11.4	Start Date/Time	201105181600
				SCH.11.5	End Date/Time	201105181630
SCH.16	Filler Contact Person	No	XCN	SCH.16.1	ID Number	20
				SCH.16.2	Family Name	Claudia Amorina
SCH.20	Entered by Person	No	XCN	SCH.20.1	ID Number	20
				SCH.20.2	Family Name	Claudia Amorina
SCH.25	Filler Status Code	No	CWE	SCH.25.1	Identifier	1

				SCH.25.2	Text	Pending
--	--	--	--	----------	------	---------

```
SCH|332944|||3329|211^NEW PATIENT|11^NEW PATIENT|11^NEW PATIENT||
|^30^201105181600^201105181630|||20^Claudia Amin|||20^Claudia Amin|||1^Pending
```

HL7 SIU PID

Used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
PID.1	Set ID - PID	No	SI	PID.1.1		1
PID.2	Patient ID	No	CX	PID.2.1	ID Number	389312334
PID.3	Legacy Patient ID	No	CX	PID.3.1	ID Number	0010-2-6360453028
PID.4	Patient Account Number	Yes	CX	PID.4.1	ID Number	
PID.5	Patient Name	Yes	XPN	PID.5.1	Family Name	DOE
				PID.5.2	Given Name	JOHN
				PID.5.3	Second or Further Given Names or Initials thereof	R
PID.7	Date/Time of Birth	No	DTM	PID.7.1	Date of Birth	19781023
PID.8	Administrative Sex	No	IS	PID.8.1	Gender	M
PID.10	Race	No	CWE	PID.10.1	Identifier	1000-9
				PID.10.2	Text	White
PID.11	Patient Address	No	XAD	PID.11.1	Street Address	1234 HIDDEN ST
				PID.11.2	Other Designation	107
				PID.11.3	City	MIAMI
				PID.11.4	State or Province	FL
				PID.11.5	Zip or Postal Code	33193
				PID.11.6	Country	UNITED STATES
PID.13	Phone Number - Home	No	XTN	PID.13.1	Telephone Number	305-551-4532
				PID.13.4	Email Address	jdoe@carecloud.com
PID.14	Phone Number - Business	No	XTN	PID.14.1	Telephone Number	786-453-7890
PID.16	Marital Status	No	CWE	PID.16.1	Identifier	2
				PID.16.2	Text	Married
PID.19	SSN Number - Patient	No	ST	PID.19.1	Social Security Number	567340987
PID.20	Driver's License Number - Patient	No	DLN	PID.20.1	License Number	B0-3434343
				PID.20.2	State, Province, Country	FL

```
PID|1|389312334|0010-2-6360453028||DOE^JOHN^R||19781023|M||1234 HIDDEN
ST^107^MIAMI^FL^33193||305-551-4532|||567340987|||
```


			AIP.3.3	Given Name	DOE
--	--	--	---------	------------	-----

AIP|1||64^NURSE|||||||

Patient Accounting

Purpose

The Finance describes patient accounting transactions. Financial transactions can be sent between applications.

The patient accounting message set provides for the entry and manipulation of information on billing accounts, charges, payments, adjustments, insurance, and other related patient billing and accounts receivable information.

Trigger Event

Message Type	Trigger Event	Traffic		Description
		Inbound	Outbound	
DFT	P03	Yes	No	Process detail financial Transaction

The triggering events that follow are served by Detail Financial Transaction (DFT).

HL7 DFT Segment Overview

Segment	Instance / Set ID	Description
MSH	1	Message Header
EVN	1	Event Type
PID	1	Patient Demographic
PV1	1	Patient Visit Detail
FT1	0	Resource Group
FT1	1	Financial Transaction
FT1	2	Financial Transaction
FT1	3	Financial Transaction
FT1	4	Financial Transaction
FT1	5	Financial Transaction
FT1	6	Financial Transaction


```
^~860.16^~870.17^|^^|^^|99088^eighth op visit|HT1~HT2~HT3~HT4
```

HL7 DFT MSH

The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
MSH.1	Field Separator	Yes	ST	MSH.1.1		
MSH.2	Encoding Characters	Yes	ST	MSH.2.1		^~\&
MSH.3	Sending Application	No	HD	MSH.3.1	Namespace ID	CC
				MSH.3.2	Universal ID	CareCloud
MSH.4	Sending Facility	No	HD	MSH.4.1	Namespace ID	17
				MSH.4.2	Universal ID	Practice Name
MSH.5	Receiving Application	No	HD	MSH.5.1	Namespace ID	VN
				MSH.5.2	Universal ID	Vendor_Name
MSH.6	Receiving Facility	No	HD	MSH.6.1	Namespace ID	17
				MSH.6.2	Universal ID	Practice Name
MSH.7	Date/Time of Message	Yes	DTM	MSH.7.1		20110511140526
MSH.9	Message Type	Yes	MSG	MSH.9.1	Message Code	ADT
				MSH.9.2	Trigger Event	P03
MSH.10	Message Control ID	Yes	ST	MSH.10.1		5421651
MSH.11	Processing ID	Yes	PT	MSH.11.1	Processing ID	P
MSH.12	Version ID	Yes	VID	MSH.12.1	Version ID	2.3.1

```
MSH|^~\&|VN^Vendor_Name|17^Practice Name|CC^CareCloud|17^Practice
Name|20110314110139||DFT^P03|53651|P|2.4 EVN|P03|20110314110140
```

HL7 DFT EVN

The EVN segment is used to communicate necessary trigger event information to receiving applications.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
EVN.1	Event Type Code	No	ID	EVN.1.1		P03
EVN.2	Recorded Date/Time	Yes	DTM	EVN.2.1		20110314110140

```
EVN|P03|20110518040526
```

HL7 DFT PID

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
PID.1	Set ID - PID	No	SI	PID.1.1		1
PID.2	Patient ID	No	CX	PID.2.1	ID Number	389312334
PID.3	Legacy Patient ID	No	CX	PID.3.1	ID Number	0010-2-6360453028
PID.4	Patient Account Number	Yes	CX	PID.4.1	ID Number	
PID.5	Patient Name	Yes	XPN	PID.5.1	Family Name	DOE
				PID.5.2	Given Name	JOHN
				PID.5.3	Second or Further Given Names or Initials Thereof	R
PID.7	Date/Time of Birth	No	DTM	PID.7.1	Date of Birth	19781023
PID.8	Administrative Sex	No	IS	PID.8.1	Gender	M
PID.33	SSN Number - Patient	No	ST	PID.19.1	Social Security Number	567340987

PID|389312334|0010-2-6360453028||DOE^JOHN^R||19781026|M|||||||||||||||||||||||20110131

HL7 DFT PV1

used by Registration/Patient Administration applications to communicate information on an account or visit-specific basis. The default is to send account level data.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
PV1.1	Set ID - PV1	No	SI	PV1.1.1		
PV1.3	Assigned Patient Location	No	PL	PV1.3.4	Facility	78
				PV1.3.9	Location Description	MAIN OFFICE
PV1.7	Attending Doctor	No	XCN	PV1.7.1	ID Number	28
				PV1.7.2	Family Name	BECKER
				PV1.7.3	Given Name	EDUARDO
PV1.8	Referring Doctor	No	XCN	PV1.8.1	ID Number	160322
				PV1.8.2	Family Name	SANJAY
				PV1.8.3	Given Name	RADZAN

PV1|||^^^78^^^MAIN OFFICE|||27^BECKER^EDWARD^M|1602469^SANJAY^RAZDAN^P|||||||||^|||||||||

HL7 DFT FT1

The FT1 segment contains the detail data necessary to post charges, payments, adjustments, etc. to patient accounting records.

Pos	Segment Name	Required	Data Type	Pos	Fields	Sample
FT1.1	Set ID - FT1	No	SI	FT1.1.1		1
FT1.4	Transaction Date	Yes	DR	FT1.4.1	Range Start Date/Time	201711131423
FT1.5	Transaction Posting Date	No	DTM	FT1.5.1		20110917
FT1.10	Transaction Quantity	No	NM	FT1.10.1		1
FT1.11	Transaction Amount - Extended	No	CP	FT1.11.1		2.01711E+11
FT1.19	Diagnosis Code - FT1	Yes	CWE	FT1.19.1	Identifier	100.1
				FT1.19.1	Identifier	110.11
				FT1.19.1	Identifier	120.12
				FT1.19.1	Identifier	124.56
				FT1.19.1	Identifier	130
				FT1.19.1	Identifier	170.17
				FT1.19.1	Identifier	150.15
FT1.25	Procedure Code	Yes	CNE	FT1.25.1	Identifier	132.22
				FT1.25.2	Text	first op visit
FT1.26	Procedure Code Modifier	Yes	CNE	FT1.26.1	Identifier	AT1
				FT1.26.1	Identifier	AT2
				FT1.26.1	Identifier	AT3
				FT1.26.1	Identifier	AT4

```

FT1|0|||01/11/2011|01/10/2011|||1|0|||100.10^~110.11^~120.12^~130.13^~140.14^~150.15
^~160.16^~170.17^|^^|^^|99011^first op visit|AT1~AT2~AT3~AT4
FT1|1|||02/12/2011|02/12/2011|||1|0|||200.10^~210.11^~220.12^~230.13^~240.14^~250.15
^~260.16^~270.17^|^^|^^|99022^second op visit|BT1~BT2~BT3~BT4
FT1|2|||03/13/2011|03/13/2011|||1|0|||300.10^~310.11^~320.12^~330.13^~340.14^~350.15
^~360.16^~370.17^|^^|^^|99033^third op visit|CT1~CT2~CT3~CT4
FT1|3|||04/14/2011|04/14/2011|||1|0|||400.10^~410.11^~420.12^~430.13^~440.14^~450.15
^~460.16^~470.17^|^^|^^|99044^fourth op visit|DT1~DT2~DT3~DT4
FT1|4|||05/15/2011|05/15/2011|||1|0|||500.10^~510.11^~520.12^~530.13^~540.14^~550.15
^~560.16^~570.17^|^^|^^|99055^fifth op visit|ET1~ET2~ET3~ET4
FT1|5|||06/16/2011|06/16/2011|||1|0|||600.10^~610.11^~620.12^~630.13^~640.14^~650.15
^~660.16^~670.17^|^^|^^|99066^sixth op visit|F1~F2~F3~F4
FT1|6|||07/17/2011|07/17/2011|||1|0|||700.10^~710.11^~720.12^~730.13^~740.14^~750.15
^~760.16^~770.17^|^^|^^|99077^seventh op visit|G1~GT2~GT3~GT4
FT1|7|||08/18/2011|08/18/2011|||1|0|||800.10^~810.11^~820.12^~830.13^~840.14^~850.15
^~860.16^~870.17^|^^|^^|99088^eighth op visit|HT1~HT2~HT3~HT4

```


Appendix A

HL7 Message ID Library

Appointment IDs

ID	Name
1	Pending
2	Checked-in
3	Checked-Out
4	Cancelled
5	Request Denied
6	Billed
7	Manually Billed

Relationship IDs

ID	Name
60	Attorney
40	Cadaver Donor
19	Child
43	Child Where Insured Has No Financial Responsibility For
24	Dependent of a Minor Dependent
36	Emancipated Minor
20	Employee
33	Father
10	Foster Child
4	Grandparent
5	Grandson
22	Handicapped Dependent
41	Injured Plaintiff
53	Life Partner
32	Mother
7	Nephew
39	Organ Donor
18	Self
29	Significant Other
23	Sponsored Dependent
1	Spouse
17	Stepchild
21	Unknown
15	Ward

Race IDs

ID	Name
2108-9	American Indian
2109-7	Asian
2106-3	Black or African American
2110-0	Hispanic
2110-5	Native Hawaiian
1000-9	White
2110-9	Other

Marital Statuses IDs

ID	Name
A	Annulled
C	Cohabitation
D	Divorced
I	Interlocutory
L	Legally Separated
M	Married
P	Polygamous
S	Single
U	Unknown
W	Widowed

Gender IDs

Code	Name
F	Female
M	Male
U	Unknown

G8	Other
----	-------