HL7 Order Specification

Connect with Practice Fusion's Electronic Health Record (EHR) System

practicefusion

Contents

About this document

This document describes how to integrate with Practice Fusion's Electronic Health Record (EHR) system for the purpose of receiving lab or imaging orders electronically, in a format conforming to HL7 v2.5.1 OML-1 messages.

Audience

This document is intended for developers who are familiar with the nature of Health Level Seven (HL7) messages and have previously integrated lab or imaging orders information with other systems. It is not intended to provide a comprehensive education about HL7 messages and integrations. For comprehensive information about HL7, go to http://www.hl7.org.

How to use this document

The OML_021 section gives some examples of messages that the Practice Fusion Ordering API could transmit. The OML-1 Definitions section then documents each field in detail, which can be helpful if your messages are being rejected by your own systems because of a specific field. The Practice Fusion Partner Ordering API section describes how to invoke the Ordering API to retrieve HL7 order data. The Appendix details the definitions of cardinality, requiredness, and data type notations used throughout this specification.

Recommended Utilities

There are several utilities you can use to view and edit HL7 files while testing your integration, which can be more helpful than trying to count delimiter positions in a text editor. Some are:

- QuickViewHL7 (http://sourceforge.net/projects/quickviewhl7)
- HL7 Analyst (http://hl7analyst.codeplex.com/downloads/get/287761)
- HL7 Inspector (http://sourceforge.net/projects/hl7inspector/)

Versions and code sets

HL7 version 2.5.1

The Practice Fusion Ordering API operates on HL7 version 2.5.1, based on the ELINCS specification v1.0. More information about HL7 and each of these versions of the standard can be found at www.hl7.org.

LOINC version 2.42 or higher

The Practice Fusion Partner Ordering API works with test codes based upon the LOINC Common Lab Orders Value Set2.27 standard or higher. All incoming results are expected to be primary coded using LOINC, and optionally coded with internal identifiers. More information about LOINC can be found at www.loinc.org

OML_1 Message format

Currently, Practice Fusion only supports HL7 v2.5.1 OML_021 order messages based upon the ELINCS v1.0 specification. This section contains sample messages that conform to the Practice Fusion OML_O21 message specification.

One example of a valid sequence of segment identifiers:

OML-1 Order Message

MSH
PID|1|…
PV1|1|…
IN1|1|…
IN1|2|…
GT1|1|…
ORC|NW|…
OBR|1|…
DG1|1|…
DG1|2|…
ORC|NW|…
OBR|2|…
DG1|1|…
OBX|1|…
OBX|2|…

The fields of each segment are detailed in the ELINCS Orders Specification v1.0, which should be treated as a companion specification to this document.

Bare Minimum OML-1 Message

```
MSH|^~\&|PracticeFusion|ClientID|||20130731091100-
0800||OML^021^OML_O21|PFOMSGID999999999|T|2.5.1|||AL|NE|||||ELINCS_MT-OML-1_1.0
PID|1||MT2000^^^^PT||TestToddler^Karen||20050301|F
PV1|1|O|||||||||||||||||T
GT1|1||TestToddler^KarenSenior||456 A St.^^Smalltown^CA^90000|||||P||||||||||
ORC|NW|X0029-9||PF-13-
10001|||||||||1234000131^MYSURNAME^DRHARRY^^^^^^^^^^NPI||||||||||||420 Taylor
St.^^San Francisco^CA^94102
OBR|1|PF-13-10001||BMP^Basic Metabolic Panel^99LAB^24321-2^Bas Metab 2000 Pnl
SerP^LN|||||||L||Y|||||||RO
DG1|1||N39.0^Urinary tract infection^I10C|||W
```

Extended OML-1 Message

```
MSH|^~\&|PracticeFusion|ClientID|||20130903193451+0000||OML^O21^OML_O21|71907078-
b037-453a-9389-1dd9a8d4bfef|T|2.5.1|||AL|NE|||||ELINCS_MT-OML-1_1.0
PID|1||JD256960^^^^PT~b79a936f-eefb-4d39-8a8f-
09ab61a8d6b4^^^^PI||Test^Patient^M||20040229|M|||10 Main St^^San
Francisco^CA^94100||^^^patientemail@email.com^^555^5555555~^^^^^555^5555555
PV1|1|U|||||||||||||||||T
```

```
IN1|1|Other|47198|Anthem Blue Cross|10 Main St^^Fairfax^CA^94930|||GRP100|||Acme
Co|||||Doe^Jane^O|SPO^Spouse^HL70063|20000410|10 Main St^^San
Francisco^CA^94100|||||||||||||||||887766
GT1|1||Doe^John^M||10 Main St^^San Francisco^CA^94100|||||P
ORC|NW|1403R8NY||1403R8NY||||||||1234567893^Provider^Test^^^^^^^^^^NPI||^^^^^555^
5555555|||||||||||420 Taylor St^^San Francisco^CA^94102
TQ1|1|||||||S
OBR|1|PF-13-00011||0029-9^ACID FAST BACILLI
STAIN,SPUTUM^99BIO^^^LN|||20130815110800+0000||||O|||||||||RO
NTE|1||Here is note with special characters like \& and \~ and even \| just for
you
DG1|1||800.3^Closed fracture of vault of skull with other and unspecified
intracranial hemorrhage^I9C|||F
DG1|2||601.1^Chronic prostatitis^I9C|||F
ORC|NW|1403R8NY||PF-13-
00011||||||||1234567893^Provider^Test^^^^^^^^^^NPI||^^^^^555^5555555|||||||||420
Taylor St^^San Francisco^CA^94102
OBR|2|PF-13-00011||0004-2^CHEM 12
PROFILE^99BIO^^^LN|||20130820111100+0000||||O|||||||||RO
DG1|1||552^Other hernia of abdominal cavity, with obstruction, but without
mention of gangrene^I9C|||F
DG1|2||350.2^Atypical face pain^I9C|||F
DG1|3||352.3^Disorders of pneumogastric [10th] nerve^I9C|||F
DG1|4||401^Essential hypertension^I9C|||F
OBX|1|ST|How are you feeling?^How are you feeling?^99BIO||True||||||F
ORC|NW|1403R8NY||1403R8NY||||||||1234567893^Provider^Test^^^^^^^^^^NPI||^^^^^555^
5|||||||||420 Taylor St^^San Francisco^CA^94102
OBR|3|1403R8NY||1165-0^ANTI-JO^99BIO^^^LN|||20130814111300+0000||||O|||||||||RO
NTE|1||And another note
DG1|1||666^Postpartum hemorrhage^I9C|||F
```

OML-1 Definitions of Supported Segments

This section of the document provides detailed information about every field in every segment. Each item in the following list links to the section that describes the identified segment:

Segment	Usage	Cardinality	Segment Name	Segment Notes
MSH	R	[1..1]	Message Header	
PID	R	[1..1]	Patient Identification	
PV1	R	[1..1]	Patient Visit	
IN1	C	[0..3]	Insurance	Required for tests subject to third party billing
GT1	R	[1..1]	Guarantor	
	R	**[1..*]**	**Order segment group Begin**	
ORC	R	[1..1]	Order Common	
TQ1	C	[0..1]	Timing/Quantity	
OBR	R	[1..1]	Observation Request	One per each order segment group
NTE	C	[0..*]	Notes and comments	Required if available.
DG1	R	[1..*]	Diagnosis	
OBX	C	[0..*]	Observation/Result	Used to send responses to Ask-at-Order-Entry (AOE) questions. Required if an ordered test has associated AOEs.
SPM	O	[0..*]	Specimen information	
			Order segment group End	

For a detailed description of this message profile and these segments please refer to the ELINCS Orders Specification v1.0 which you may request from your Practice Fusion implementation resource.

Message Header Segment (MSH)

The MSH segment is the first segment in every HL7 message, and defines the message's source, purpose, destination, and certain syntax specifics such as the delimiters and character sets used in the message.

The MSH segment is required for all order messages and may only appear once.

Example(s):

```
MSH|^~\&|PracticeFusion|ClientID|||20130903193451+0000||OML^O21^OML_O21|719
07078-b037-453a-9389-1dd9a8d4bfef|T|2.5.1|||AL|NE|||||ELINCS_MT-OML-1_1.0
```

Practice Fusion-specific requirements:

- The MSH-4 field will contain the unique client identifier value assigned to the practice/provider placing the order. This value corresponds to the MSH-6 value for any result message intended for the practice/provider.

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Field Separator	1	ST	R	[1..1]	6.2.1
2	Encoding Characters	4	ST	R	[1..1]	6.2.2
3	Sending Application	227	HD	O	[0..1]	6.2.3
4	Sending Facility	227	HD	RE	[0..1]	6.2.4
5	Receiving Application	227	HD	O	[0..1]	6.2.5
6	Receiving Facility	227	HD	O	[0..1]	6.2.6
7	Date/Time of Message	26	TS	R	[1..1]	6.2.7
8	Security	40	ST	X	[0..0]	
9	Message Type	15	MSG	R	[1..1]	6.2.8
10	Message Control ID	50	ST	R	[1..1]	6.2.9
11	Processing ID	3	PT	R	[1..1]	6.2.10
12	Version ID	60	VID	R	[1..1]	6.2.11
13	Sequence Number	15	NM	X	[0..0]	
14	Continuation Pointer	180	ST	X	[0..0]	
15	Accept Acknowledgment Type	2	ID	R	[1..1]	6.2.12
16	Application Acknowledgement Type	2	ID	R	[1..1]	6.2.13
17	Country Code	3	ID	X	[0..0]	
18	Character Set	16	ID	X	[0..0]	
19	Principal Language of Message	250	CE	X	[0..0]	
20	Alternate Character Set Handling Scheme	20	ID	X	[0..0]	
21	Message Profile Identifier	427	EI	R	[1..1]	6.2.14

Patient Identification Segment (PID)

The PID segment is used as the primary means of communicating patient identification information. This segment contains identifying and demographic information about the patient that is not likely to change frequently.

The PID segment is required for all order messages and may only appear once.

Example(s):

```
PID|1||MT2000^^^^PT||TestToddler^Karen||20050301|F
```

```
PID|1||JD256960^^^^PT~b79a936f-eefb-4d39-8a8f-
09ab61a8d6b4^^^^PI||Doe^John^M||20040229|M|||10 Main St^^San
Francisco^CA^94100||^^^jdoe@pf.com^^514^5551255~^^^^^415^5554444
```

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – PID	4	SI	R	[1..1]	6.3.1
2	Patient ID	20	CX	X	[0..0]	
3	Patient Identifier List	250	CX	R	[1..*]	6.3.2
4	Alternate Patient ID – PID	20	CX	X	[0..0]	
5	Patient Name	250	XPN	R	[1..2]	6.3.3
6	Mother's Maiden Name	250	XPN	O	[0..1]	6.3.4
7	Date/Time of Birth	26	TS	R	[1..1]	6.3.5
8	Administrative Sex	1	IS	R	[1..1]	6.3.6
9	Patient Alias	250	XPN	X	[0..0]	
10	Race	250	CE	RE	[0..1]	6.3.7
11	Patient Address	250	XAD	RE	[0..1]	6.3.8
12	Country Code	4	IS	X	[0..0]	
13	Phone Number - Home	250	XTN	RE	[0..2]	6.3.9

Note: Practice Fusion will not send fields beyond PID-13 in an electronic order message.

Patient Visit Segment (PV1)

The PV1 segment is used exclusively to communicate the order billing type for the requisition, i.e. bill to third-party, to patient, or to ordering provider. The financial class value in PV1-20 will be either 'T' (Third-party billing), 'C' (Client Billing), or 'P' (Patient billing).

The PV1 segment is required for all order messages and may only appear once.

Example(s):

```
PV1|1|U|||||||||||||||||||T
```

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – PV1	4	SI	R	[1..1]	6.5.1
2	Patient Class	1	IS	R	[1..1]	6.5.2
3	Assigned Patient Location	80	PL	X	[0..0]	
4	Admission Type	2	IS	X	[0..0]	
5	Preadmit Number	250	CX	X	[0..0]	
6	Prior Patient Location	80	PL	X	[0..0]	
7	Attending Doctor	250	XCN	X	[0..0]	
8	Referring Doctor	250	XCN	X	[0..0]	
9	Consulting Doctor	250	XCN	X	[0..0]	
10	Hospital Service	3	IS	X	[0..0]	
11	Temporary Location	80	PL	X	[0..0]	
12	Preadmit Test Indicator	2	IS	X	[0..0]	
13	Re-admission Indicator	2	IS	X	[0..0]	
14	Admin Source	6	IS	X	[0..0]	
15	Ambulatory Status	2	IS	X	[0..0]	
16	VIP Indicator	2	IS	X	[0..0]	
17	Admitting Doctor	250	XCN	X	[0..0]	
18	Patient Type	2	IS	X	[0..0]	
19	Visit Number	250	CX	X	[0..0]	
20	Financial Class	50	FC	R	[1..1]	6.5.3

Note: Practice Fusion will not send fields beyond PV1-20 in an electronic order message.

Insurance Segment (IN1)

The IN1 segment is used to communicate insurance policy coverage information to the Order Filler when such information is relevant for a requisition.

The IN1 segment is conditional and should only be present if the value of PV1-20 is "T", i.e. for third-party billing. Up to two IN1 segments may be included.

Example(s):

```
IN1|1|HMO|ANTH|BLUESHIELD VA/ANTHEM|PO BOX
27401^^RICHMOND^VA^23279|||GRP40600|||||||TestToddler^KarenSenior|PAR^Pare
nt^HL70063|19800324|456 A
St.^^Smalltown^CA^90000|||||||||||||||YTP777M5000
```

Practice Fusion-specific requirements:

1. The insurance company ID in IN1-3 originates from the Practice Fusion global payer list, which you may request from your Practice Fusion implementation contact to complete an insurance mapping. In the event a provider/practice enters a custom payer into a patient chart, rather than a pre-populated payer located in the global payer list, the company ID in IN1-3 will be an unique auto-generated value with the format PFPC######. This value will be static on a per-practice basis e.g. - PFPC473362
2. The following values can be expected in IN1-17 (Insured's Relationship to Patient)—

   Self—SEL^Self^HL70063

   Child—DEP^Dependent^HL70063

   Other—DEP^Dependent^HL70063

   Spouse—SPO^Spouse^HL70063

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – IN1	4	SI	R	[1..1]	6.6.1
2	Insurance Plan ID	250	CE	R	[1..1]	6.6.2
3	Insurance Company ID	250	CX	R	[1..1]	6.6.3
4	Insurance Company Name	250	XON	R	[1..1]	6.6.4
5	Insurance Company Address	250	XAD	R	[1..1]	6.6.5
6	Insurance Co Contact Person	250	XPN	X	[0..0]	
7	Insurance Co Phone Number	250	XTN	X	[0..0]	
8	Group Number	12	ST	RE	[0..1]	6.6.6
9	Group Name	250	XON	X	[0..0]	
10	Insured's Group Emp ID	250	DT	X	[0..0]	

11	Insured's Group Emp Name	250	DT	C	[0..1]	6.6.7
12	Plan Effective Date	8	AUI	X	[0..0]	
13	Plan Expiration Date	8	IS	O	[0..1]	6.6.8
14	Authorization Information	239	XPN	X	[0..0]	
15	Plan Type	3	CE	X	[0..0]	
16	Name of Insured	250	TS	R	[1..1]	6.6.9
17	Insured's Relationship to Patient	250	XAD	R	[1..1]	6.6.10
18	Insured's Date of Birth	26	IS	RE	[0..1]	6.6.11
19	Insured's Address	250	IS	RE	[0..1]	6.6.12
20	Assignment of Benefits	2	ST	X	[0..0]	
21	Coordination of Benefits	2	ID	X	[0..0]	
22	Coord of Ben. Priority	2	DT	X	[0..0]	
23	Notice of Admission Flag	1	ID	X	[0..0]	
24	Notice of Admission Date	8	DT	X	[0..0]	
25	Report of Eligibility Flag	1	ID	X	[0..0]	
26	Report of Eligibility Date	8	DT	X	[0..0]	
27	Release Information Code	2	IS	X	[0..0]	
28	Pre-Admin Cert (PAC)	15	ST	X	[0..0]	
29	Verification Date/Time	12	TS	X	[0..0]	
30	Verification By	12	XCN	X	[0..0]	
31	Type of Agreement Code	2	IS	RE	[0..1]	6.6.13
32	Billing Status	2	IS	X	[0..0]	
33	Lifetime Reserve Days	4	NM	X	[0..0]	
34	Delay Before L.R. Day	4	NM	X	[0..0]	
35	Company Plan Code	8	IS	X	[0..0]	
36	Policy Number	15	ST	R	[1..1]	6.6.14

Note: Practice Fusion will not send fields beyond IN1-36 in an electronic order message.

Guarantor Segment (GT1)

The GT1 segment contains information about the person with financial responsibility for payment of services.

The GT1 segment is required and may only appear once.

Example(s):

```
GT1|1||TestToddler^KarenSenior||456 A St.^^Smalltown^CA^90000|||||P
```

Practice Fusion-specific requirements:

1. By default, the GT1 segment data for a lab order will always contain the patient's information, unless the practice has indicated that another individual is the guarantor within the patient chart.

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – GT1	4	SI	R	[1..1]	6.7.1
2	Guarantor Number	250	CX	X	[0..0]	
3	Guarantor Name	250	XPN	C	[0..1]	6.7.2
4	Guarantor Spouse Name	250	XPN	X	[0..0]	
5	Guarantor Address	250	XAD	R	[1..1]	6.7.3
6	Guarantor Ph Num – Home	250	XTN	X	[0..0]	
7	Guarantor Ph Num – Business	250	XTN	X	[0..0]	
8	Guarantor Date/Time of Birth	26	TS	X	[0..0]	
9	Guarantor Administrative Sex	1	IS	X	[0..0]	
10	Guarantor Type	2	IS	R	[1..1]	6.7.4

Note: Practice Fusion will not send fields beyond GT1-10 in an electronic order message.

Order Common (ORC)

The ORC segment contains data and information common to all of the tests contained in the order message. One ORC segment will accompany each OBR segment contained in a message.

The ORC segment will appear once for each test placed in an individual order message.

Example(s):

```
ORC|NW|1403R8NY||1403R8NY|||||||1234000131^MYSURNAME^DRHARRY^^^^^^^^^^NPI|
|||||||||||420 Taylor St.^^San Francisco^CA^94102
```

Practice Fusion-specific requirements:

1. While not required, it is recommended that ORC-2 and ORC-4 of an order message be used to populate the ORC-2 and ORC-4 field of the subsequent result message returned to the client.
2. The provider ID will be sent in ORC-12.1. If the provider has an NPI configured in his or her user profile, this value will be sent. If they have not configured an NPI, a randomly generated GUID will be sent in this field. Let your implementation specialist know if an NPI should be required for the provider to place an order, and this setting can be enabled for the interface.

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Order Control	2	ID	R	[1..1]	6.8.1
2	Placer Order Number	50	EI	R	[1..1]	6.8.2
3	Filler Order Number	22	EI	X	[0..0]	
4	Placer Group Number	50	EI	R	[1..1]	6.8.3
5	Order Status	2	ID	X	[0..0]	
6	Response Flag	1	ID	X	[0..0]	
7	Quantity/Timing	200	TQ	X	[0..0]	
8	Parent	200	EIP	X	[0..0]	
9	Date/Time of Transaction	26	TS	X	[0..0]	
10	Entered By	250	XCN	X	[0..0]	
11	Verified By	250	XCN	X	[0..0]	
12	Ordering Provider	250	XCN	R	[1..1]	6.8.4
13	Enterer's Location	80	PL	X	[0..0]	
14	Call Back Phone Number	250	XTN	C	[1..1]	6.8.5
15	Order Effective Date/Time	26	TS	X	[0..0]	
16	Order Control Code Reason	250	CE	X	[0..0]	
17	Entering Organization	250	CE	X	[0..0]	

18	Entering Device	250	CE	X	[0..0]	
19	Action By	250	XCN	X	[0..0]	
20	Advanced Beneficiary Notice Code	250	CE	X	[0..0]	
21	Ordering Facility Name	250	XON	X	[0..0]	
22	Ordering Facility Address	250	XAD	X	[0..0]	
23	Ordering Facility Phone Number	250	XTN	X	[0..0]	
24	Ordering Provider Address	250	XAD	C	[0..1]	6.8.6

Note: Practice Fusion will not send fields beyond ORC-24 in an electronic order message.

Timing/Quantity (TQ1)

The TQ1 segment is used only to indicate when the order is a STAT order or a future order.

The TQ1 segment is conditional and omitted if the order is not a STAT or a future order.

Example(s):

```
TQ1|1|||||||||S
```

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – TQ1	4	SI	R	[1..1]	6.9.1
2	Quantity	20	ID	X	[0..0]	
3	Repeat Pattern	540	RPT	X	[0..0]	
4	Explicit Time	20	TM	X	[0..0]	
5	Relative Time and Units	20	CQ	X	[0..0]	
6	Service Duration	20	CQ	X	[0..0]	
7	Start Date/Time	26	TS	C	[0..1]	6.9.2
8	End Date/Time	26	TS	C	[0..1]	
9	Priority	250	CWE	R	[1..1]	6.9.3

Note: Practice Fusion will not send fields beyond TQ1-9 in an electronic order message.

Observation Request (OBR)

The OBR segment is used to transmit information about an order for a diagnostic study or observation, physical exam, or assessment. Among other things it specifies details such as order test identifier(s).

The OBR segment must appear at least once and may repeat for each requested observation (test). An ORC segment will accompany each OBR segment in a message.

Example(s):

```
OBR|1|1403R8NY||BMP^Basic Metabolic Panel^99LAB^24321-2^Bas Metab 2000 Pnl
SerP^LN|||||||L||Y|||||||RO
```

Practice Fusion-specific requirements:

1. While not required, it is recommended that OBR-2 and OBR-4 of an order message be used to populate the OBR-2 and OBR-4 field of the subsequent result message returned to the client.

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – OBR	4	SI	R	[1..1]	6.10.1
2	Placer Order Number	50	EI	R	[1..1]	6.10.2
3	Filler Order Number	50	EI	X	[0..0]	
4	Universal Service Identifier	250	CE	R	[1..1]	6.10.3
5	Priority – OBR	2	ID	X	[0..0]	
6	Requested Date/Time	26	TS	X	[0..0]	
7	Observation Date/Time	26	TS	C	[0..1]	6.10.4
8	Observation End Date/Time	26	TS	CE	[0..1]	6.10.5
9	Collection Volume	20	CQ	X	[0..0]	
10	Collection Identifier	250	XCN	X	[0..0]	
11	Specimen Action Code	1	ID	R	[1..1]	6.10.6
12	Danger Code	250	CE	X	[0..0]	
13	Relevant Clinical Info – Fasting Status	705	CWE	O	[0..1]	6.10.7
14	Specimen Received Date/Time	26	TS	X	[0..0]	
15	Specimen Source	300	SPS	X	[0..0]	
16	Ordering Provider	250	XCN	X	[0..0]	
17	Order Callback Phone Number	250	XTN	X	[0..0]	
18	Placer Field 1	60	ST	O	[0..1]	6.10.8
19	Placer Field 2	60	ST	O	[0..1]	6.10.9
20	Filler Field 1	2	ST	R	[1..1]	6.10.10

Notes and Comments Segment (NTE)

The NTE segment is used to carry notes and comments from a provider regarding test orders.

The NTE segment is conditional and only required if/when such information is available.

Example(s):

```
NTE|1||test comment, patient is a toddler
```

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – NTE	4	SI	R	[1..1]	6.12.1
2	Source of Comment	8	ID	X	[0..0]	
3	Comment	65536	FT	R	[1..*]	6.12.2
4	Comment Type	250	CE	X	[0..0]	

Diagnosis Segment (DG1)

The DG1 segment is used to communicate one or more diagnoses associated with an ordered observation (test). Each diagnosis will be included as an individual DG1 segment nested beneath the OBR segment of the corresponding ordered test.

The DG1 segment is required and may appear one or more times for each OBR segment.

Example(s):

```
DG1|1||N39.0^Urinary tract infection^I10C|||W
```

Practice Fusion-specific requirements:

1. All order messages will contain at least one diagnosis for each test in a requisition.

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – DG1	4	SI	R	[1..1]	6.13.1
2	Diagnosis Coding Method	2	ID	X	[0..0]	
3	Diagnosis Code – DG1	250	CE	R	[1..1]	6.13.2
4	Diagnosis Description	40	ST	X	[0..0]	
5	Diagnosis Date/Time	26	TS	X	[1..1]	
6	Diagnosis Type	2	IS	R	[1..1]	6.13.3

Note: Practice Fusion will not send fields beyond DG1-6 in an electronic order message.

Observation/Result Segment (OBX)

The OBX segment is specifically and solely used to report responses to Ask at Order Entry (AOE) questions. When AOE responses are applicable to an ordered test, all AOE questions and answers will be included in the message.

The OBX segment is conditional and only required if/when AOE response information is available. Each AOE response will be included as an individual OBX segment nested beneath the OBR segment of the corresponding ordered test.

Example(s):

```
OBX|1|ST|LMP^Date of patient's last menstrual
period^ZLAB||20130715||||||F
```

Practice Fusion-specific requirements:

1. The component values in OBX-3 will populate based on the question code (OBX-3.1) and question (OBX-3.2) supplied to Practice Fusion in a copy of your organizations AOE.
2. The answer will be populated in OBX-5.
3. For Yes/No questions, the value “True” or “False” will be sent.

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – OBX	4	SI	R	[1..1]	6.14.1
2	Value Type	2	ID	R	[1..1]	6.14.2
3	Observation Identifier	250	CE	R	[1..1]	6.14.3
4	Observation Sub-ID	20	ST	X	[1..1]	
5	Observation Value	999999	*	R	[1..*]	6.14.4
6	Units	250	CE	O	[0..1]	6.14.5
7	References Range	60	ST	X	[0..1]	
8	Abnormal Flags	54	IS	X	[0..2]	
9	Probability	5	NM	X	[0..0]	
10	Nature of Abnormal Test	2	ID	X	[0..0]	
11	Observation Result Status	1	ID	R	[1..1]	6.14.6

Note: Practice Fusion will not send fields beyond OBX-11 in an electronic order message.

Specimen Segment (SPM)

The SPM segment may be used to communicate information about specimens collected by the ordering provider at the provider site.

The SPM segment is optional and multiple SPM segments may be sent related to a single test order (OBR - order segment group).

Example(s):

```
SPM|1|||BLDA^BLOOD ARTERIAL^HL70487||||||||||||20130731103000-0800
```

Note – The specimen code located in SPM-4.1 maps to the values located in HL7 table 0487, beginning on page 194 of the ELINCS specification.

The table below identifies the fields you can expect in an order message originating from Practice Fusion. Fields in **green** are sent with every message, fields in **blue** are sent if the appropriate information has been entered into the EHR by the provider/practice, and fields in **grey** are never sent.

SEQ	ELEMENT NAME	LEN	DATA TYPE	USAGE	CARDINALITY	ELINCS SECTION
1	Set ID – SPM	4	SI	R	[1..1]	6.15.1
2	Specimen ID	80	EIP	O	[0..1]	6.15.2
3	Specimen Parent IDs	80	EIP	X	[0..0]	
4	Specimen Type	250	CWE	R	[1..1]	6.15.3
5	Specimen Type Modifier	250	CWE	X	[0..0]	
6	Specimen Additives	250	CWE	X	[0..0]	
7	Specimen Collection Method	250	CWE	O	[0..1]	6.15.4
8	Specimen Source Site	250	CWE	O	[0..1]	6.15.5
9	Specimen Source Modifier	250	CWE	O	[0..*]	6.15.6
10	Specimen Collection Site	250	CWE	X	[0..0]	
11	Specimen Role	250	CWE	X	[0..0]	
12	Specimen Collection Amount	20	CQ	O	[0..1]	6.15.7
13	Grouped Specimen Count	6	NM	X	[0..0]	
14	Specimen Description	250	ST	O	[0..1]	6.15.8
15	Specimen Handling Code	250	CWE	X	[0..0]	
16	Specimen Risk Code	250	CWE	X	[0..0]	
17	Specimen Collection Date/Time	26	DR	R	[1..1]	6.15.9
18	Specimen Received Date/Time	26	TS	X	[0..0]	
19	Specimen Expiration Date/Time	26	TS	X	[0..0]	
20	Specimen Availability	1	ID	X	[0..0]	
21	Specimen Reject Reason	250	CWE	X	[0..0]	
22	Specimen Quality	250	CWE	X	[0..0]	

23	Specimen Appropriateness	250	CWE	X	[0..0]	
24	Specimen Condition	250	CWE	X	[0..0]	
25	Specimen Current Quantity	20	CQ	X	[0..0]	
26	Number of Specimen Containers	4	NM	X	[0..0]	

Note: Practice Fusion will not send fields beyond SPM-26 in an electronic order message.

Practice Fusion Partner Ordering API

Overview

This section describes the system interaction between a partner's system and the Practice Fusion Ordering API. It also provides some information on certification and enablement in production. The Ordering APIs are available as either a REST (Representational State Transfer) or SOAP service.

At this time the API offers two operations for you to use:

1. Retrieve all pending orders for your company from Practice Fusion
    a. API provides a list of orders. The REST API can return the orders in either XML or JSON format.
    b. Each order is specified in HL7 format according to the ELINCS specification. See: ELINCS Orders Specification v1.0.
2. Acknowledge the order by sending an acknowledgement to Practice Fusion
    a. Individual acknowledgement messages are sent in HL7 format according to the ELINCS specification.

Testing Process

Practice Fusion will offer a testing environment where partners can exercise the functionality of the API and test the end-to-end ordering process, including creating, submitting, and electronically retrieving a lab or imaging order.

Once enabled in the test environment:

1. A user in a partner's test EHR practice will be able to create an order and submit it for electronic transmission to your lab or imaging center.
2. Once submitted, the Practice Fusion backend system will make the order available for retrieval (pendingOrders).
3. Upon retrieval of an order message your system would send back an acknowledgment message indicating success or failure (AcknowledgeOrder).

Once you are able to successfully receive and acknowledge an order and complete the Practice Fusion certification process for ordering you can request that Practice Fusion enable your company for electronic order processing in production.

Authentication

The Authorization Header must contain user credentials (username and password) according to the Basic Authentication Protocol. An Authorization header is created as follows:

1. Concatenate username and password into a string separated by ':' ('username:password')
2. Convert string into a Base64 encoded string *(removed previous 2nd step)*
3. Prepend Base64 encoded string with "Basic"

For example, if the username is "username1" and the password is "password!", the Authorization header would be:

```
Authorization: Basic dXNlcm5hbWUxOnBhc3N3b3JkIQ==
```

If an API request does not have an Authorization header with valid credentials, an HTTP 401 Unauthorized response will be returned, and a WWW-Authenticate header value of “Basic realm=”api.practicefusion.com” will be given.

RESTful Ordering Services

GET pendingOrders/{sequence}/{quantity}

Test Pending Orders URL: https://testapi.practicefusion.com/ordering/lab/v1/PendingOrders

Production Pending Orders URL: https://api.practicefusion.com/ordering/lab/v1/PendingOrders/

This SSL-authenticated GET call allows you to retrieve pending orders. The endpoint can return results in either XML or JSON. This API call only includes orders which have not yet been acknowledged in a prior transaction. Each item in the list of returned orders contains a single property with the HL7 order.

Parameter Name	Description	Req'd
`{sequence}`	Sequence number of the last order successfully retrieved and processed. Orders are always returned in increasing sequential order; however the sequences will not necessarily be consecutive. For example, the sequences for 5 orders might be 325, 328, 329, 402, and 407.	No
`{quantity}`	Default if unspecified is 10 orders per request. Maximum allowed is 50 orders per request.	No

Your application logic should persist the sequence number of the last order you successfully processed, and use that value for subsequent calls. This ensures you are only checking for orders that haven't been processed.

Result format is determined by the Accept header passed in on the incoming request. The service supports either XML (text/xml) or JSON (application/json).

Example Request

```
GET …/pendingOrders/0/25
```

POST AcknowledgeOrder/

Test Acknowledge Orders URI: https://testapi.practicefusion.com/ordering/lab/v1/AcknowledgeOrder

Acknowledge Orders URI: https://api.practicefusion.com/Ordering/Lab/v1/AcknowledgeOrder

This call passes an HL7 acknowledgment message to the API to indicate your acceptance/rejection of the order. Once an order has been acknowledged it will be removed from the Pending Orders API results.

Parameter Name	Description	Req'd
`{body}`	HL7 structure specifying the ELINCS order acknowledgement.	R

Sample HL7 ACK Message

Given a retrieved order message with the following MSH segment:

```
MSH|^~\&|PracticeFusion|ClientID|||20130930225002+0000||OML^O21^OML_O21|a783a5d7-c9b2-42e9-abb1-a1b473079512|P|2.5.1|||AL|NE|||||ELINCS_MT-OML-1_1.0
```

The expected HL7 ACK message would contain the following MSH and MSA segments:

```
MSH|^~\&|PracticeFusion|VendorCode||ClientID|20130930225002+0000||ACK^ELINCS^ACK_ELINCS|MessageControlID|P|2.5.1|||||||| ELINCS_MT-ACK-1_1.0

MSA|CA|a783a5d7-c9b2-42e9-abb1-a1b473079512
```

***As indicated by the color coordination in the sample order and acknowledgement message above, your ACK logic should populate MSH-6 Client ID of the acknowledgement using the MSH-4 Client ID value of the associated order, and the MSA-2 value using the control ID in MSH-10 of the order message.

***The 'Vendor Code' value populated in MSH-4 of your acknowledgement message is a unique value assigned by Practice Fusion. Please contact your implementation resource for this value if it has not previously been provided.

C# REST Sample Code

Below is some sample code that demonstrates some interaction with the ordering API. The code snippets intentionally have little error handling to keep the samples easier to read. Therefore, this code isn't intended for production use, but as an accelerator to using our API.

The samples below assume a configuration section like:

```
  <appSettings>

    <add key="PendingOrdersUri"
value="https://testapi.practicefusion.com/Ordering/Lab/v1/PendingOrders"/>

    <add key="OrderAcknowledgementUri"
value="https://testapi.practicefusion.com/Ordering/Lab/v1/AcknowledgeOrder"/>

    <add key="OrderSequence" value="0"/>

    <add key="OrderingPageSize" value="20"/>

    <add key="PF.ApiUserName" value="apiUsername"/>

    <add key="PF.ApiPassword" value="apiP@ssword"/>

  </appSettings>
```

```
    /// <summary>
    /// Download and save one page of HL7 orders from Practice Fusion.
    /// </summary>
    static int DownloadPracticeFusionOrders()
    {
      var downloadCount = 0;
      var request = (HttpWebRequest)WebRequest.Create(GetPracticeFusionPendingUri());
      request.PreAuthenticate = true;
```

```
      request.Credentials = new
NetworkCredential(ConfigurationManager.AppSettings["PF.ApiUserName"],

ConfigurationManager.AppSettings["PF.ApiPassword"]);
      request.Method = WebRequestMethods.Http.Get;

      // request the response in XML format -- can also get JSON back by using
"application/json"
      request.Accept = "text/xml";
      using (var response = (HttpWebResponse)request.GetResponse())
      {
        if (response.StatusCode == HttpStatusCode.OK)
        {
          // parse the web response content
          var xml = XDocument.Load(response.GetResponseStream());
          var orders = from p in xml.Descendants()
                       where p.Name.LocalName == "PracticeFusionPartnerOrders"
                       select p;
          if (orders.Any())
          {
            XNamespace ns = orders.FirstOrDefault().Name.Namespace;

            foreach (var order in orders.Elements(ns + "PartnerOrder"))
            {
              var hl7 = order.Element(ns + "Hl7Document");
              var messageId = order.Element(ns + "MessageGuid");
              var sequence = order.Element(ns + "SequenceNumber");
              if (hl7 != null && sequence != null && messageId != null)
              {
                // found an order write the HL7 to a text file for now...
                File.WriteAllText(messageId.Value + ".hl7", hl7.Value);
                downloadCount++;
                // update the configuration value to track where we left off in our processing
                UpdateLastProcessedSequence(sequence.Value);
              }
            }
          }
        }
      }
      return downloadCount;
    }

    /// <summary>
    /// Post an HL7 Order Acknowledgement message back to PracticeFusion to signal
acceptance...
    /// </summary>
    static void AcknowledgeOrder(string hl7AckMessage)
    {
      var request = (HttpWebRequest)

       WebRequest.Create(ConfigurationManager.AppSettings["OrderAcknowledgementUri"]);
      request.PreAuthenticate = true;
      request.Credentials = new
NetworkCredential(ConfigurationManager.AppSettings["PF.ApiUserName"],

ConfigurationManager.AppSettings["PF.ApiPassword"]);
      request.Method = WebRequestMethods.Http.Post;
      request.ContentType = "application/x-www-form-urlencoded";
      using (var writer = new StreamWriter(request.GetRequestStream()))
      {
        writer.Write(hl7AckMessage);
```

```
      }
    }

    /// <summary>
    /// Constructs a REST Uri to the PracticeFusion endpoint specifying the point we left off
processing
    /// as well as our preference for the number of orders per page of results.
    /// </summary>
    private static string GetPracticeFusionPendingUri()
    {
      var baseUri = ConfigurationManager.AppSettings["PendingOrdersUri"];
      var orderSequence = ConfigurationManager.AppSettings["OrderSequence"];
      var pageSize = ConfigurationManager.AppSettings["OrderingPageSize"];
      return string.Format("{0}/{1}/{2}", baseUri, orderSequence, pageSize);
    }

    /// <summary>
    /// We need to track where we left off in the processing, so in this sample we will just
update a
    /// configuration value with where we left off.
    /// </summary>
    private static void UpdateLastProcessedSequence(string value)
    {
      Configuration config =
ConfigurationManager.OpenExeConfiguration(ConfigurationUserLevel.None);
      config.AppSettings.Settings["OrderSequence"].Value = value;
      config.Save(ConfigurationSaveMode.Modified);
      ConfigurationManager.RefreshSection("appSettings");
    }
```

SOAP Ordering Services

Service WSDLs

Production WSDL

https://api.practicefusion.com/ordering/lab/v1/PartnerOrderService.svc?singleWsdl

Test WSDL

https://testapi.practicefusion.com/ordering/lab/v1/PartnerOrderService.svc?singleWsdl

Request Headers

```
Content-Type: text/xml; charset=utf-8
Authorization: Basic [base 64 string]
SOAPAction: http://practicefusion.com/PartnerOrderingApi/2013/07/...
Content-Length: ...
```

Get Pending Orders

This SSL-authenticated call allows you to retrieve a list of pending orders. This API call only includes orders which have not yet been acknowledged in a prior transaction.

Sample Request

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <GetPendingOrders xmlns="http://practicefusion.com/PartnerOrderingApi/2013/07">
      <request xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <StartingSequence>0</StartingSequence>
        <PageSize>5</PageSize>
      </request>
    </GetPendingOrders>
  </s:Body>
</s:Envelope>
```

Your application logic should persist the sequence number of the last order you successfully processed, and use that value for subsequent calls. This ensures you are only checking for orders that haven't already been processed by you. The "NextQuerySequence" in the response contains the value that can be used on a subsequent call. The MessageGuid provided with each order is required to construct the HL7 acknowledgement message.

Sample Response

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <GetPendingOrdersResponse xmlns="http://practicefusion.com/PartnerOrderingApi/2013/07">
      <GetPendingOrdersResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <Orders>
          <PartnerOrder>
            <SequenceNumber>20</SequenceNumber>
            <MessageGuid>e71ae250-e649-49a7-bad1-9ea5d5ee60ca</MessageGuid>
            <Hl7Document>MSH|...</Hl7Document>
          </PartnerOrder>
          <PartnerOrder>
            <SequenceNumber>21</SequenceNumber>
            <MessageGuid>dd224c49-b833-4d5b-8f84-43d80809e335</MessageGuid>
            <Hl7Document>MSH|...</Hl7Document>
          </PartnerOrder>
          <PartnerOrder>
            <SequenceNumber>24</SequenceNumber>
            <MessageGuid>696c814b-c1d9-46ff-b057-892b36cc347e</MessageGuid>
            <Hl7Document>MSH|...</Hl7Document>
          </PartnerOrder>
        </Orders>
        <NextQuerySequence>24</NextQuerySequence>
      </GetPendingOrdersResult>
    </GetPendingOrdersResponse>
  </s:Body>
</s:Envelope>
```

C# Sample - Get Pending Orders

```
private long ProcessPracticeFusionPendingOrders(long previousSequence)

{

    var address = new EndpointAddress(

       "https://testapi.practicefusion.com/ordering/lab/v1/PartnerOrderService.svc");

    var binding = new BasicHttpBinding

    {

        Security =

        {

            Mode = BasicHttpSecurityMode.Transport,

            Transport = { ClientCredentialType = HttpClientCredentialType.Basic }

        }

    };


    using (var client = new PracticeFusionPartnerOrdersClient(binding, address))
```

```
    {
        client.ClientCredentials.UserName.UserName = "myLabAccount";
        client.ClientCredentials.UserName.Password = "myPassword";

        var pendingOrdersResult = client.GetPendingOrders(new GetPendingOrdersRequest
        {
            PageSize = 10,
            StartingSequence = previousSequence
        });

        if (pendingOrdersResult.Orders != null && pendingOrdersResult.Orders.Count > 0)
        {
            foreach (var partnerOrder in pendingOrdersResult.Orders)
            {
                var hl7 = partnerOrder.Hl7Document;
                var messageIdentifier = partnerOrder.MessageGuid;
                //TODO:  Process each order


                //TODO: Acknowledge order once "processed"
            }
            return pendingOrdersResult.NextQuerySequence;
        }
    }
    return 0;   // all caught up, no new orders
}
```

Acknowledge Pending Order

This call passes an HL7 acknowledgment message to the API to indicate your acceptance/rejection of the order. Once an order has been acknowledged it will be removed from the Pending Orders API results.

Sample Request

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <AcknowledgeOrder xmlns="http://practicefusion.com/PartnerOrderingApi/2013/07">
      <request xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <Hl7AcknowledgementMessage>
          MSH|...
        </Hl7AcknowledgementMessage>
      </request>
    </AcknowledgeOrder>
  </s:Body>
</s:Envelope>
```

The result from this call is currently a placeholder for future use and contains no fields.

Sample Response

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <AcknowledgeOrderResponse
xmlns="http://practicefusion.com/PartnerOrderingApi/2013/07"/>
  </s:Body>
</s:Envelope>
```

C# Sample – Acknowledge Order

```
private void AcknowledgePracticeFusionOrder(string hl7AcknowledgementMessage)

{

    var address = new EndpointAddress(

        "https://testapi.practicefusion.com/ordering/lab/v1/PartnerOrderService.svc");

    var binding = new BasicHttpBinding

    {

        Security =

        {

            Mode = BasicHttpSecurityMode.Transport,

            Transport = { ClientCredentialType = HttpClientCredentialType.Basic }

        }

    };
```

```
    using (var client = new PracticeFusionPartnerOrdersClient(binding, address))
    {
        client.ClientCredentials.UserName.UserName = "myLabAccount";
        client.ClientCredentials.UserName.Password = "myPassword";

                client.AcknowledgeOrder(new AcknowledgeOrderRequest
        {
            Hl7AcknowledgementMessage = hl7AcknowledgementMessage
        });
    }
}
```

Appendix

This section details the values that appear in the “Req’d”, “Card”, and “Type” columns in the detailed segment definition tables.

Requiredness

This section defines the values that appear in the “Req’d” of the detailed segment definitions, which specify whether the segment is required, optional, or required based on certain conditions.

R

The segment is required.

O

The segment is optional, and may be omitted.

C

The segment might be required depending on conditions related to the trigger event or the value of other fields.

Cardinality

This section defines the cardinality values displayed in the “Card” column of the detailed segment definitions, which specify the logic behind how a segment may repeat or not.

0..1

The segment may be omitted and can occur only once.

1..1

The segment must occur only once.

0..*

The segment may be omitted or may repeat an unlimited number of times.

1..*

The segment must appear at least once, and may repeat an unlimited number of times.

0..N

The segment may be omitted or may repeat a specific number of times.

Version History

Version	Date	Comment
v. 0	October 11, 2013	New Document
v. 1.1	November 11, 2013	• Added example ACK message with corresponding original order (MT-OML-1) message sample for comparison. • Added short field mapping table to clarify ACK message data coming from the original order message data • Added notes specifying what message segments have specific Practice Fusion specific requirements or callouts.
v. 1.2	November 18, 2013	• Incorporated various suggested changes from Seth. Additional minor cleanup.
v. 1.3	January 14, 2014	• Added information on using SOAP interface
v.1.32	November 11, 2014	• Removed 2.3 from supported HL7 versions
V1.4	June 13, 2016	• Updated with Practice Fusion specific content