Infinx Patient Access Implementation Guide

A GUIDE TO SEAMLESS INTEGRATION WITH INFINX

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Modes of Integration

Infinx offers its clients three distinct ways to integrate with our platform:

1. HL7 Receiver
2. SFTP
3. VPN

Although all three methods are valid and available for the client to choose, Infinx prefers the route of the HL7 Receiver as it leads to the most robust and seamless integration.

Method 1: HL7 Receiver
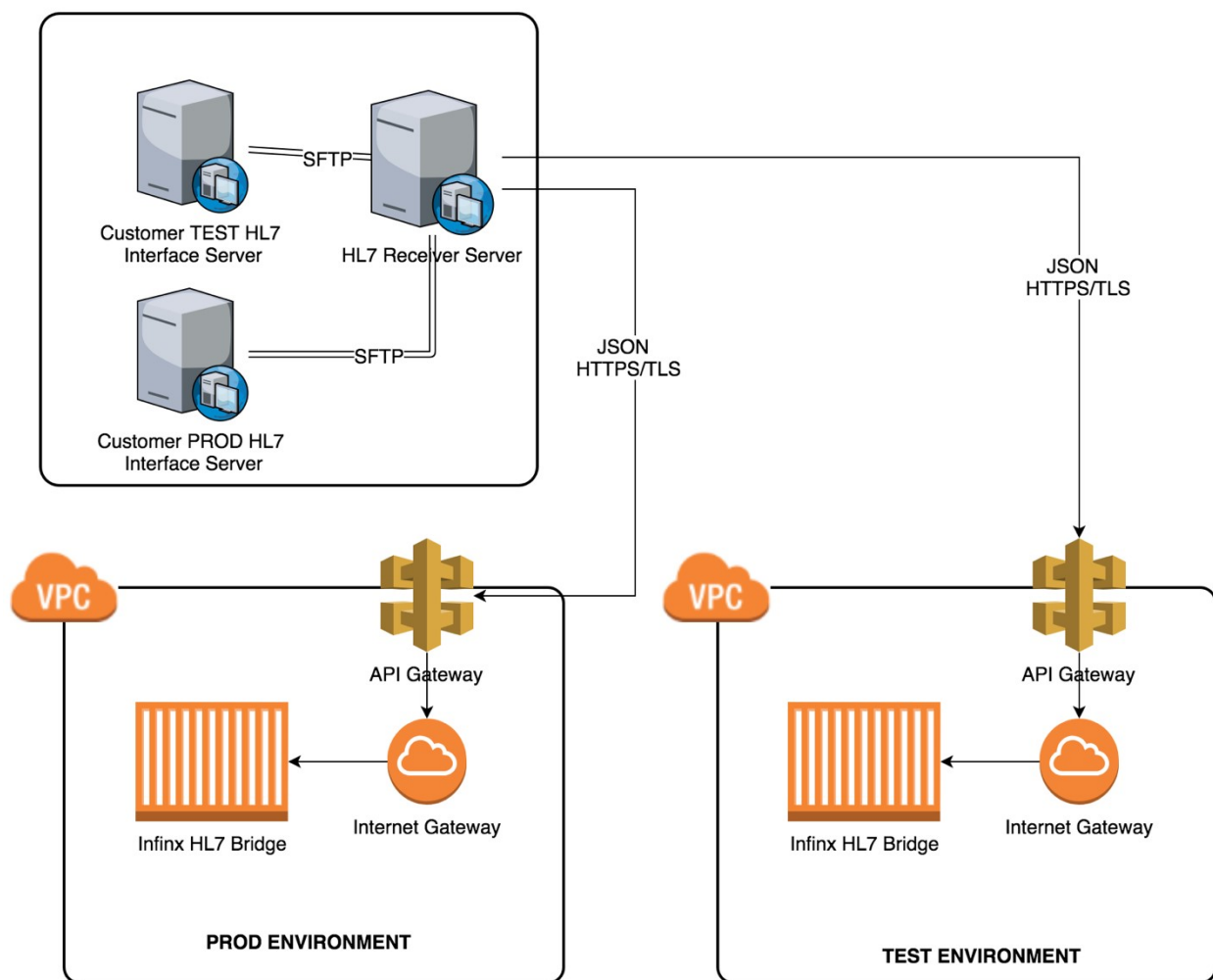
The Infinx EHR Receiver should be installed in the same network as the EMR/EHR by using our simple installer that connects to our servers over a secure HTTPS connection. The Infinx Receiver once installed and set-up will manage the communication between Infinx and EMR/EHR systems

- Infinx HL7 Receiver is installed on a Windows server on the client data center

- HL7 Receiver can listen to ports or read from SFTP folders to pick up HL7 messages from the EMR

- Receiver converts the message from HL7 format to JSON format and transmits it via HTTPS/TLS to Infinx AWS VPC

- Infinx case status responses are sent to the receiver and gets converted back to HL7 for intake into the EMR

Further details regarding installation and security of this method are listed in this document.

Method 2: SFTP
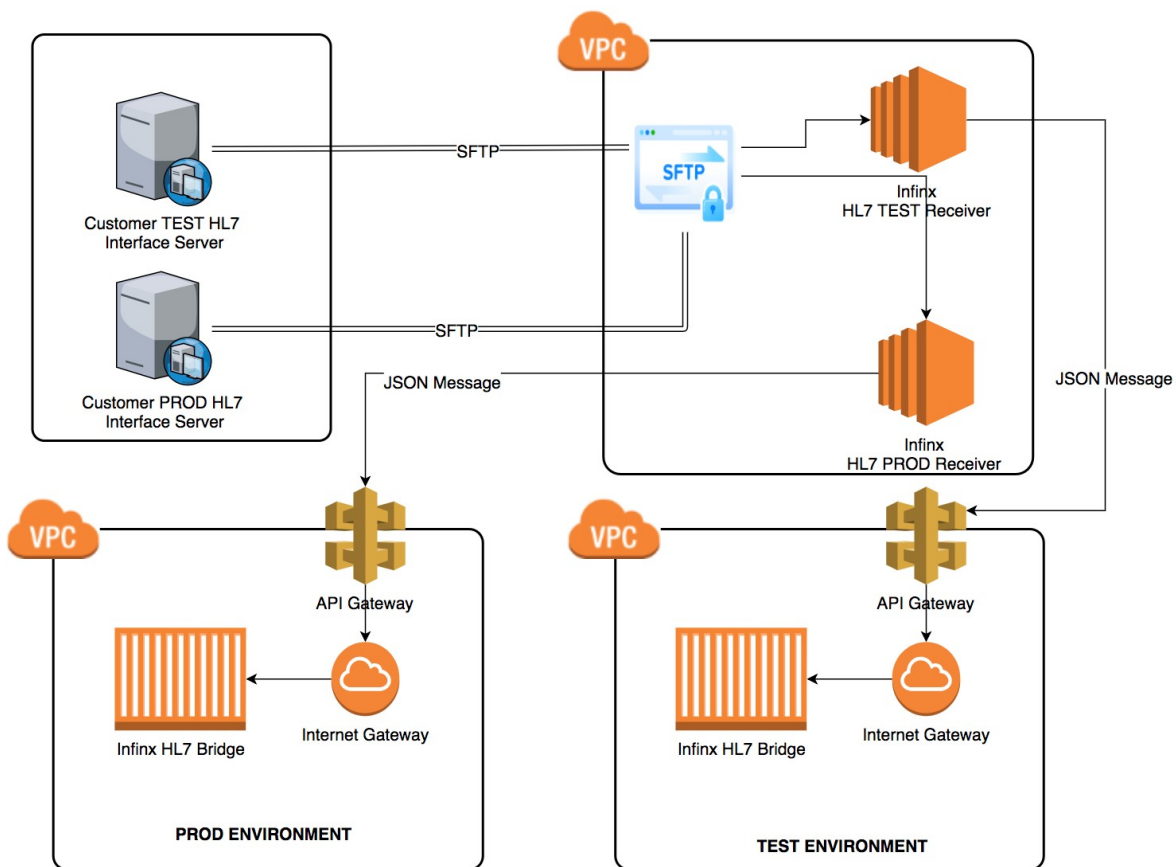
For customers that do not want to implement extensive VPN infrastructure to manage integration with their vendor partner, another viable option is to integrate securely with an SFTP integration (Secure File Transfer Protocol).

- Infinx will setup an SFTP server with specific folders for DEV and TEST environments.

- Infinx will provide the customers with specific server and security/authentication information to configure their FTP clients.

- Once the customers have configured their SFTP client, Infinx will setup an inbound folder for incoming messages and an outbound folder for outgoing messages back to customer.

- Customer can connect via SFTP to the Infinx environment and send messages either serially or in batch mode into the Infinx SFTP servers.

- Infinx HL7 Receiver is configured to monitor the inbound folders and process any new incoming messages.

- Customers will need to configure their FTP clients to monitor the Outbound messages folder and pick up any outbound messages with the pre-authorization status and details.

Method 3: VPN
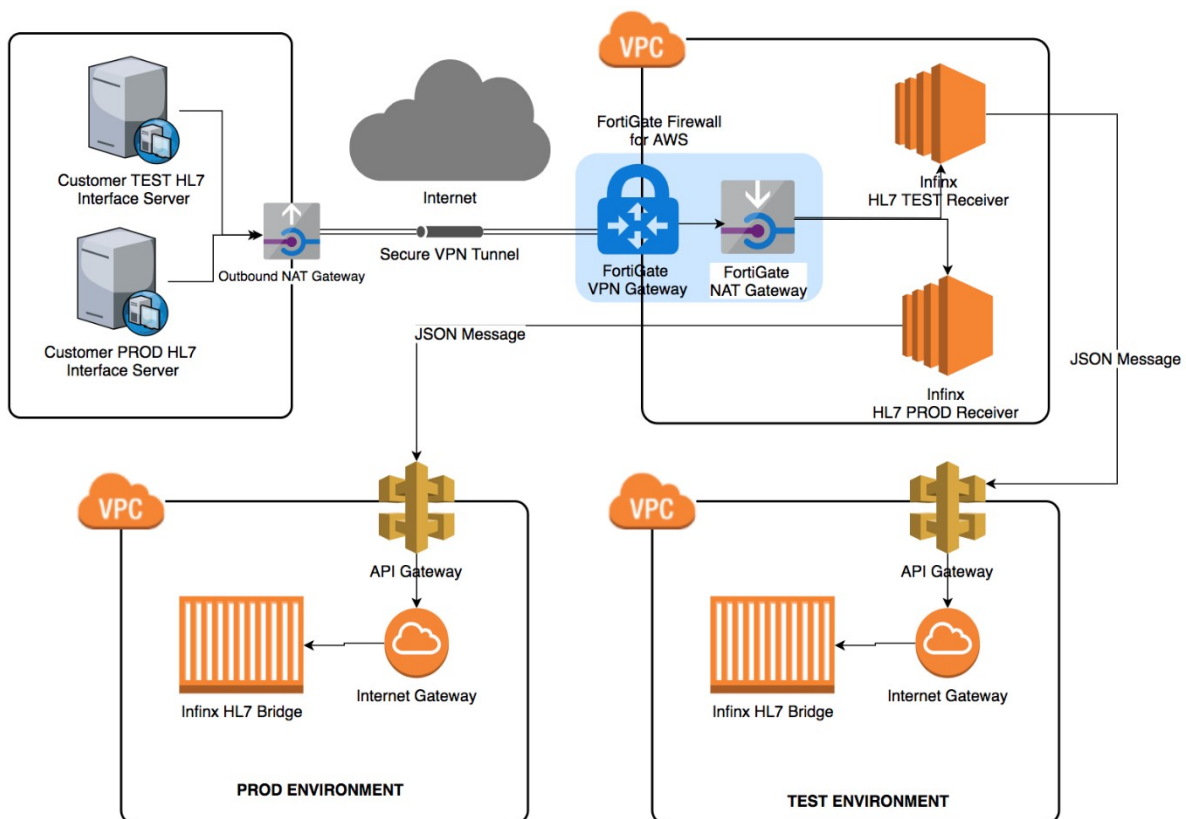
The VPN based integration is ideal for customers that do not want to install third party software in their environment without significant security reviews or do not have IT teams to manage vendor technologies.

- For a VPN based integration, the customer and Infinx will need to setup a dedicated site to site IPSec VPN connection.

- The customer EMR or HL7 Interface engines like Mirth/NexGen or CorePoint needs to be routed via a Outbound NAT/VPN gateway.

- The VPN connection is configured in Infinx's Fortigate Firewall for AWS and routed to an internal HL7 Receiver in an Infinx VPC.

- This receiver transforms a given HL7 message into a standardized JSON format for consumption by the Infinx Patient Assist product via an HL7 Bridge in the product.

- Outbound messages from Patient Assist and communicated back via the same HL7 Receiver to the client interface engine.

- Hence the VPN tunnel configuration needs to support both inbound and outbound traffic.

- In case of setting up a dedicated TEST and PROD environments with a customer, we can use the same VPN tunnel as long as the customer has the ability to use the same VPN tunnel from their TEST and PROD environments.

- Infinx will map the customer traffic based on TEST and PROD IPs from the customer to the appropriate TEST or PROD HL7 Receivers.

HL7 Receiver Installation

Infinx Receiver Installation Guide

The Infinx EHR Receiver can be installed by using our simple installer that connects to our servers over a secure connection. Installation is simple and requires you to have a 6-digit activation code from Infinx Healthcare. We will send across the activation code before the installation.

Pre-Requisites

Pre-requisites on your computer and computer network:

- .Net version 4.0 must be installed on the machine you intend to install our software. It can be downloaded at the following location

http://www.microsoft.com/en-us/download/details.aspx?id=17851

- Infinx Receiver may be installed on most PCs. You will need to have Microsoft Windows XP (although no longer supported by Microsoft), Windows 7, or later. If you are installing the Infinx Receiver on a server, it must have Microsoft Windows Server 2003 or later.

- You will need 50MB of available RAM for the Infinx Plugin to run.
- The Receiver uses very little CPU resources and all computers supporting the above operating systems will have ample CPU resources.

Downloading the Infinx Receiver Installer

Installer link would be provided

Running the Installer

Download the Infinx Receiver installer to your local hard drive. Right-click the Infinx Receiver installer and select "run as administrator." This will ensure that you are using administrative privileges during the installation process.

Installation Screen

When you run the Infinx Receiver installer you will be presented with the following installation screen. This will be the only time you will need to interact with our software. All tasks after installation are automated and will not require any human interaction. Simply enter the activation code that will be provided in the box and click the Continue button.

INFINX

Welcome to the EHR Plugin configuration. This will automatically configure the plugin for your system.

Please enter the plugin activation code and click Continue.

Continue   Cancel

The Infinx Receiver will show you what it is doing and usually takes between 30 seconds and 1 minute to complete. If there is an error, please call your Infinx Healthcare representative.

Once the installer finishes, click the Done button to exit the installer.

HL7 Receiver Security

TCP Socket Listener

The Infinx Receiver establishes a TCP socket listener on the pre-configured port. This port is used to receive information from the electronic health record (EHR) system.

The Infinx Receiver does <u>not</u> set up an external TCP socket listener. This is specifically for security reasons. It instead uses an outbound dynamic connection as described in the Outbound Connections Only section below.

Outbound Connections Only

All communication originating from the Infinx Receiver uses a dynamic connection. The dynamic connection uses a request/response methodology to create a two-way communication over a one-way (outbound) connection.

It is important to note that the software verifies the structure of each payload to ensure it is the proper format from the correct system and if not, terminates the message processing.

Does Not Require Firewall Changes

The Infinx Receiver works within existing firewall configurations. The software does not require that any external ports on the firewall be opened. This maintains the existing security infrastructure and all compliance aspects.

The only change possible to the firewall would be for locations that have implemented a whitelist/blacklist. In this case the security infrastructure will need to add two URLs and/or IP addresses to the whitelist.

Uses TLS instead of SSL

Health and Human Services has published guidance for the use of TLS for securing health information in transit.

The Infinx Receiver encrypts all electronic PHI as specified in the HIPAA Security Rule and 45 CFR 164.304 with "the use of an algorithmic process to transform data into a form in which there is a low probability of assigning meaning without use of a confidential process or key" and such confidential process or key that might enable decryption has not been breached.

The encryption processes identified below have been tested by the National Institute of Standards and Technology (NIST) and judged to meet this standard.

NIST 800-52 states that SSL version 3 must not be used, and TLS version 1.0+ is ok to be used. The Infinx Plugin uses TLS version 1.2+ which goes beyond that prescribed by NIST.

Direct Connections Only

The Infinx Receiver uses a direct connection between the EHR and the Infinx Receiver.

The internal connections from the EHR to the Infinx Receiver run over the standard HL7 protocol with the Minimum Lower Level Protocol (MLLP). All connections from the Infinx Receiver to the data center use TLS version 1.2+.

Listen, Receive, Encrypt, and Forward

The Infinx Receiver uses a model that begins with the software listening on the internal network for messages from the EHR. When it receives a message it immediately encrypts it and forwards it over a dynamic outbound connection using port 443 and TLS version 1.2+.

All communication to the EHR starts with an encrypted outbound connection to retrieve messages for the EHR. Those encrypted messages are decrypted and forwarded to the EHR using HL7 and MLLP.

HL7 Messages
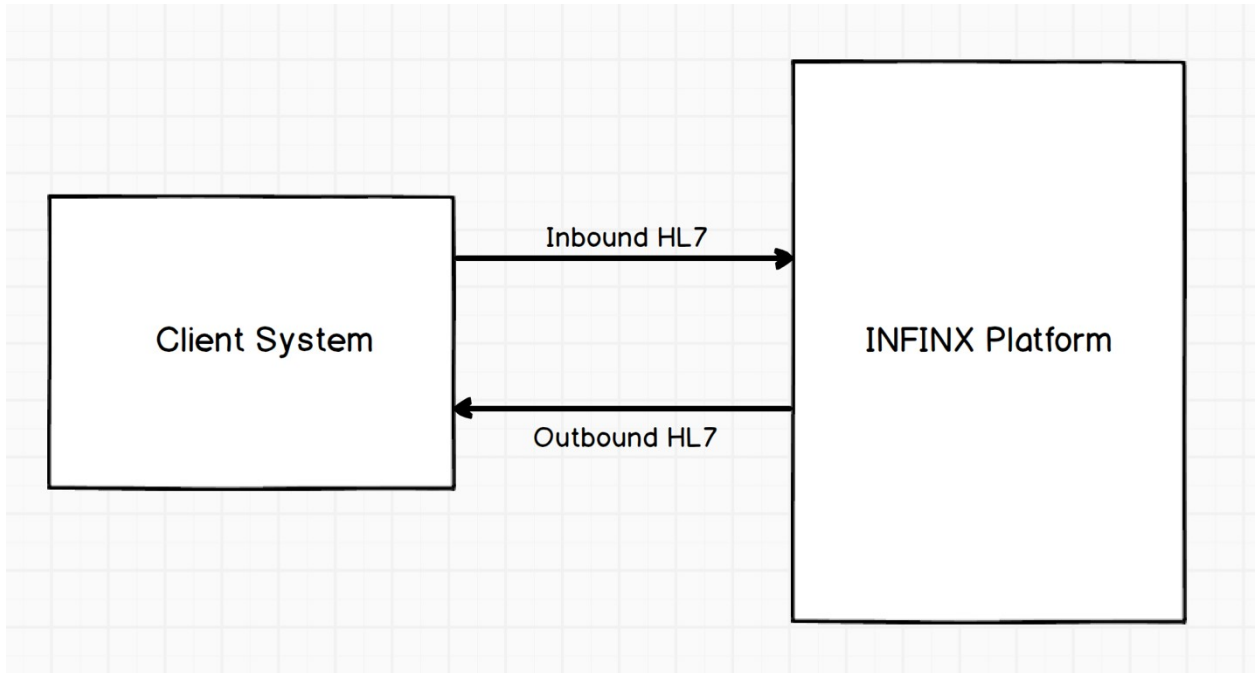
The Inbound HL7

The Inbound HL7 is the standard through which the client PMS/EHR communicates with the Infinx platform. All the information required by Infinx from the client system will be delivered via the inbound HL7. This section will outline all the necessary parameters and concurrent HL7 message types and segments needed by Infinx.

Infinx utilizes the following HL7 message types:

1. ORM
2. ADT
3. SIU

Infinx will use either one of the three above stated message types or a combination of all three. The client must be able to send all three messages to Infinx.

Although specific HL7 message segments for respective parameters are detailed below, Infinx would prefer the client to send us all message segments within a message type at all trigger events

HL7 Message Types

ORM

Parameter Type	Parameter	HL7 Message Segment	Requirement	Example
Ordering Physician Information	Physician Last Name	PV1.8.2	Mandatory	Miller
Ordering Physician Information	Physician First Name	PV1.8.3	Mandatory	Nicole
Ordering Physician Information	Physician External ID	PV1.8.1	Optional	12345
Ordering Physician Information	Physician NPI	PV1.8.5	Mandatory	1234567890
Ordering Physician Information	Physician Address	PV1	Optional	4301, East Wolf Ave, Chicago, IL, 60910
Patient Information	Patient ID	PID.3	Mandatory	12345
Patient Information	Request Type Indicator	PID.4	Mandatory	1 – PA 2 – IV
Patient Information	Patient Last Name	PID.5	Mandatory	Smith
Patient Information	Patient First Name	PID.5	Mandatory	Richard
Patient Information	Gender	PID.8	Mandatory	M/F/U/O
Patient Information	Address	PID.11	Optional	308, E Green Street, Champaign, IL, 61820
Patient Information	Phone Number	1. PID.13 2. PID.14	Optional	3127893422
Patient Information	Date of Birth	PID.7	Mandatory	04/01/1975
Scheduling Information	Date of Service	OBR.6 OBR.7	Mandatory	09/03/2018
Scheduling Information	Facility/Facility Code	1. PD1.3 2. PV1.3	Mandatory	California Radiology Facility

Scheduling Information	Facility NPI	PD1.4	Optional	1234567980
Scheduling Information	Order Number /Appointment ID	OBR.2 OBR.3	Mandatory	78923
Scheduling Information	Patient Class	PV1.2	Optional	I – Inpatient O – Outpatient E – Emergency P – Preadmit R – Recurring
Scheduling Information	Admission Type	PV1.4	Optional	A – Accident E – Emergency L – Labor
Scheduling Information	Order Status	ORC.1	Optional	1. NW 2. CA 3. XO 4. XX
Insurance Information	Type	IN1	Mandatory	Primary
Insurance Information	Group Number	IN1.8	Optional	Xyz3128
Insurance Information	Group Name	IN1.9	Optional	XYZ
Insurance Information	Plan ID	IN1.2	Optional	12345
Insurance Information	Payer Name	IN1.4	Mandatory	UHC
Insurance Information	Phone	IN1.7	Mandatory	5126476733
Insurance Information	Member ID	IN1.36	Mandatory	872934
Procedure Information	CPT Code	OBR.4	Mandatory	73721
Procedure Information	Modifier	OBR.15	Optional	RT
Procedure Information	ICD-10 Code	DG1.3	Mandatory	S62.5
Case Identifier	Patient Account Number	PID.18	Mandatory for Multi-Message	1234532

List of Message Segments Required:

1. PV1
2. PID
3. PD1
4. OBR

5. ORC
6. DG1
7. IN1

ADT

Parameter Type	Parameter	HL7 Message Segment	Requirement	Example
Ordering Physician Information	Physician Last Name	PV1.8.2	Mandatory	Miller
Ordering Physician Information	Physician First Name	PV1.8.3	Mandatory	Nicole
Ordering Physician Information	Physician External ID	PV1.8.1	Mandatory	1234567890
Patient Information	Patient ID	PID.3	Mandatory	12345
Patient Information	Request Type Indicator	PID.4	Mandatory	1 – PA 2 - IV
Patient Information	Patient Last Name	PID.5.2	Mandatory	Smith
Patient Information	Patient First Name	PID.5.1	Mandatory	Richard
Patient Information	Sex	PID.8	Mandatory	M
Patient Information	Address	PID.11	Optional	308, E Green Street, Champaign, IL, 61820
Patient Information	Phone Number	1. PID.13 2. PID.14	Optional	3127893422
Patient Information	Date of Birth	PID.7	Mandatory	04/01/1975
Patient Information	Patient Visit Identifier	PV1.1	Optional	
Scheduling Information	Appointment ID	PV1.50	Mandatory	
Scheduling Information	Patient Class	PV1.2	Optional	I – Inpatient O – Outpatient E – Emergency P – Preadmit R – Recurring
Scheduling Information	Admission Type	PV1.4	Optional	A – Accident E – Emergency L – Labor
Insurance Information	Type	IN1	Mandatory	Primary

Insurance Information	Group Number	IN1.8	Optional	Xyz3128
Insurance Information	Group Name	IN1.9	Optional	XYZ
Insurance Information	Payer Name	IN1.4	Mandatory	UHC
Insurance Information	Phone	IN1.7	Mandatory	5126476733
Insurance Information	Plan ID	IN1.2	Optional	872934
Insurance Information	Member ID	IN1.36	Mandatory	A98237401
Case Identifier	Patient Account Number	PID.18	Mandatory for Multi-Message	1234532

List of Message Segments Required:

1. PV1
2. PID
3. IN1

SIU

Parameter Type	Parameter	HL7 Message Segment	Requirement	Example
Ordering Physician Information	Physician Last Name	PV1.8.2	Mandatory	Miller
Ordering Physician Information	Physician First Name	PV1.8.3	Mandatory	Nicole
Ordering Physician Information	Physician NPI	PV1.8.5	Mandatory	1234567890
Patient Information	Patient ID	PID.3	Mandatory	12345
Patient Information	Patient Last Name	PID.5	Mandatory	Smith
Patient Information	Patient First Name	PID.5	Mandatory	Richard
Patient Information	Sex	PID.8	Mandatory	M
Patient Information	Address	PID.11	Optional	308, E Green Street, Champaign, IL, 61820
Patient Information	Phone Number	1. PID.13 2. PID.14	Optional	3127893422
Patient Information	Request Type Indicator	PID.4	Mandatory	1 – PA 2 - IV
Patient Information	Date of Birth	PID.7	Mandatory	04/01/1975
Scheduling Information	Date of Service	AIS.4	Mandatory	09/03/2018
Scheduling Information	Facility/Facility Code	1. AIL.4 2. AIL.5	Mandatory	California Radiology Facility
Scheduling Information	Facility NPI	AIL.3	Mandatory	1234567980
Scheduling Information	Schedule ID	SCH.5	Mandatory	234829
Scheduling Information	Patient Class	PV1.2	Optional	I – Inpatient O – Outpatient E – Emergency P – Preadmit R – Recurring

Scheduling Information	Admission Type	PV1.4	Optional	A – Accident E – Emergency L – Labor
Scheduling Information	Order Status	SCH.25		1. NW 2. CA 3. XO 4. XX
Procedure Information	CPT Code	AIS.3	Mandatory	73721
Procedure Information	Modifier	AIS.3	Mandatory	RT
Procedure Information	ICD-10 Code	DG1.3	Mandatory	S62.5
Insurance Information	Type	IN1	Mandatory	Primary
Insurance Information	Group Number	IN1.8	Optional	Xyz3128
Insurance Information	Group Name	IN1.9	Optional	XYZ
Insurance Information	Payer Name	IN1.4	Mandatory	UHC
Insurance Information	Phone	IN1.7	Mandatory	5126476733
Insurance Information	Plan ID	IN1.2	Mandatory	872934
Insurance Information	Member ID	IN1.36	Mandatory	A98237401
Case Identifier	Patient Account Number	PID.18	Mandatory for Multi-Message	1234532

List of Message Segments Required:

1. PV1
2. PID
3. AIS
4. AIL
5. SCH
6. DG1
7. IN1

Notes – Multiple parameters such as ICD's and CPT's will be supported in the same field delimited by a ^

REF

Parameter Type	Parameter	HL7 Message Segment	Requirement	Example
Ordering Physician Information	Physician Last Name	PRD.2.2	Mandatory	Miller
Ordering Physician Information	Physician First Name	PRD.2.1	Mandatory	Nicole
Ordering Physician Information	Physician External ID	PRD.7.2	Optional	12345
Ordering Physician Information	Physician NPI	PRD.7.1	Mandatory	1234567890
Ordering Physician Information	Physician Address	PRD.3	Optional	4301, East Wolf Ave, Chicago, IL, 60910
Patient Information	Patient ID	PID.3	Mandatory	12345
Patient Information	Request Type Indicator	PID.4	Mandatory	1 – PA 2 - IV
Patient Information	Patient Last Name	PID.5.2	Mandatory	Smith
Patient Information	Patient First Name	PID.5.1	Mandatory	Richard
Patient Information	Gender	PID.8	Mandatory	M
Patient Information	Address	PID.11	Optional	308, E Green Street, Champaign, IL, 61820
Patient Information	Phone Number	3. PID.13 4. PID.14	Optional	3127893422
Patient Information	Date of Birth	PID.7	Mandatory	04/01/1975
Scheduling Information	Date of Service	PR1.5	Mandatory	09/03/2018
Scheduling Information	Facility/Facility Code	PV1.3.1	Mandatory	California Radiology Facility
Scheduling Information	Facility NPI	PV1.3.2	Optional	1234567980

Scheduling Information	Accession Number /Appointment ID	RF1.11	Mandatory	78923
Scheduling Information	Patient Class	PV1.2	Optional	I – Inpatient O – Outpatient E – Emergency P – Preadmit R – Recurring
Scheduling Information	Admission Type	PV1.4	Optional	A – Accident E – Emergency L – Labor
Insurance Information	Type	IN1.1	Mandatory	Primary
Insurance Information	Group Number	IN1.8	Optional	Xyz3128
Insurance Information	Group Name	IN1.9	Optional	XYZ
Insurance Information	Plan ID	IN1.2	Optional	12345
Insurance Information	Payer Name	IN1.4	Mandatory	UHC
Insurance Information	Phone	IN1.7	Mandatory	5126476733
Insurance Information	Member ID	IN1.36	Mandatory	872934
Procedure Information	CPT Code	PR1.3	Mandatory	73721
Procedure Information	Modifier	PR1.4	Optional	RT
Procedure Information	ICD-10 Code	DG1.3	Mandatory	S62.5

List of Message Segments Required:

1. PRD
2. PID
3. PR1
4. RF1
5. PV1
6. DG1
7. IN1

The Outbound HL7

The Inbound HL7 is the standard through which Infinx communicates with the client's PMS/EHR. All the information produced by Infinx will be delivered via the outbound HL7 to the client system. This section will outline all the necessary parameters and concurrent HL7 message types and segments that are a part of Infinx's outbound specifications.

Outbound Parameter List

Parameter Group	Parameter
Preauthorization	Case Reference Number
Preauthorization	Status – CPT, Status, Auth Number, Effective Date, Expiry Date
Preauthorization	Notes

Infinx can utilize any of the following approaches:

1. Standard IN1/AUI - ADT/ORM/SIU
2. NTE: For Case Comments
3. MDM

Standard Outbound Specification

Outbound for ORM/SIU/ADT

Parameter Type	Parameter	HL7 Message Segment	Requirement	Example
Insurance Information	Case Reference Number	[IN1.14][AUI.1]	Mandatory	12345
Insurance Information	Status	[IN1.14][AUI.3]	Mandatory	CPT level AUTH details: CPT, Status, AuthNumber, Effective Date, Expiry Date & CPT2, Status2, AuthNumber2,
				Effective Date2, Expiry Date2.
Notes	Case Comments	NTE.3	Optional	"Case was authorized by AIM on 09/10/19"

*Authorization Status for multiple procedures will be delimited by an "&"

Outbound for REF: AUT SEGMENT

Parameter Type	Parameter	HL7 Message Segment	Requirement	Example
Insurance Information	Payer Name	AUT.3	Mandatory	
Insurance Information	Payer Plan ID	AUT.1	Mandatory	
Insurance Information	Effective Date	AUT.4	Mandatory	
Insurance Information	Expiry Date	AUT.5	Mandatory	
Insurance Information	Authorization Number	AUT.6	Mandatory	

Notes		NTE.3	Optional	"Case was authorized by AIM on 09/10/19"
	Case Comments			

AUTs will be sent out per unique CPT/Modifier and Insurance combination

NTE-Segment – Alternate Outbound Spec for Preauthorizations

The NTE segment will support appended outbound parameters from Infinx. Below is the outbound NTE segment specification:

Segment	Description	Example Value
NTE|1.1	CPT	"CPT"
NTE|1.2	CPT Value	73721
NTE|1.3	Payer	"Payer"
NTE|1.4	Payer Name	UHC
NTE|1.5	Modifier	
NTE|1.6	Modifier Value	
NTE|1.7	Case Reference Number	
NTE|1.8	Case Reference Number Value	
NTE|1.9	Authorization Number	
NTE|1.10	Authorization Number Value	
NTE|1.11	Effective Date	
NTE|1.12	Effective Date Value	
NTE|1.13	Expiry Date	
NTE|1.14	Effective Date Value	
NTE|1.15	Notes	

All the above parameters will be communicated in the chronological order from the above table and will be separated by commas.

Each unique CPT/Insurance pair will have its own NTE segment. For e.g. NTE\|2 will contain all the same information as NTE\|1 but for the secondary insurance.

Z-Segment

The Z-segment will support appended outbound parameters from Infinx. Below is the outbound Z-segment specification:

Segment	Description	Example Value
Z01	Benefit Type	"Benefit Type"
Z02	Benefit Type Value	Full/Partial/No Response
Z03	Copay	"Copay"
Z04	Copay Value	20
Z05	CoInsurance	"Coinsurance"
Z06	Coinsurance Value	0.2
Z07	Deductible	"Deductible"
Z08	Deductible Value	200
Z09	Deductible Remaining	"Deductible Remaining"
Z10	Deductible Remaining Value	50
Z11	Out of Pocket	"Out of Pocket"
Z12	Out of Pocket Value	5000
Z13	Out of Pocket Remaining	"Out of Pocket Remaining"
Z14	Out of Pocket Remaining Value	1000
Z15	CoverageType	"Coverage Type"
Z16	Coverage Type Value	IND/SPO/FAM
Z17	Network Type	"Network Type"
Z18	Network Type Value	In Network
Z19	Job Status	"Job Status"
Z20	Job Status Value	Eligible with Complete Benefits
Z21	CPT	"CPT"
Z22	CPT Value	73721
Z23	Insurance	"Insurance"
Z24	Insurance Value	UHC

Note – Each Z-segment will be sent per unique combination of CPT and insurance.