**Lab Results to Insurance Payors - Cigna - Requirements Document**

**Version 1.0**

**Prepared By: Tom Fredrickson**

**Date: 8/1/2017**

[Document Control 3](#_Toc500330834)

[Resources: 3](#_Toc500330835)

[Project Distribution List 3](#_Toc500330836)

[Document Version Control 3](#_Toc500330837)

[1. Introduction 4](#_Toc500330838)

[1.1 Purpose 4](#_Toc500330839)

[1.2 Project Scope 4](#_Toc500330840)

[1.3 Terminology Standards 4](#_Toc500330841)

[1.3.1 Acronyms 4](#_Toc500330842)

[1.4 Document References 5](#_Toc500330843)

[2. Diagram 5](#_Toc500330844)

[3. Requirements 6](#_Toc500330845)

[3.1 Functional Requirements 6](#_Toc500330846)

[3.2 Non-Functional Requirements 6](#_Toc500330847)

[3.3 Messaging Protocols 7](#_Toc500330848)

[3.3.1 Inbound to BayCare Cloverleaf 7](#_Toc500330849)

[3.3.2 Outbound to the BayCare Cloverleaf 7](#_Toc500330850)

[3.3.3 Inbound to the Vendor 7](#_Toc500330851)

[3.3.4 Outbound to the Vendor 8](#_Toc500330852)

[4. HL7 Messaging 8](#_Toc500330853)

[4.1 Messaging Format 8](#_Toc500330854)

[4.1.1 Segments 8](#_Toc500330855)

[4.1.2 Cloverleaf Site Details 8](#_Toc500330856)

[4.1*.*3 Cloverleaf Files 9](#_Toc500330857)

[4.2 Data Transformation Requirements 10](#_Toc500330858)

[4.3 Sample Message 10](#_Toc500330859)

[5. Alerts 11](#_Toc500330860)

[Appendix A: Risks and Concerns 11](#_Toc500330861)

[Appendix B: Issues List 12](#_Toc500330862)

# **Document Control**

## Resources:

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|  |  |  |

## Project Distribution List

## Document Version Control

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Modifier** | **Description** |
| V1.0 | 8/1/2017 | Tom Fredrickson | Originally Created |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# 1. Introduction

## 1.1 Purpose

There is an initiative to share lab results, diagnosis codes, and vitals with payors.

The first implemented payor interface is for Cigna.

## 1.2 Project Scope

An extract is run against the Electronic Data Warehouse and transferred to the Cloverleaf server where it is processed to conform to the Cigna HL7 specification. These messages are sent to a receiving thread where they are aggregated into a temporary file. At the given processing time the temp file is scanned and statistics collected and file and batch headers and footers containing these statistics are generated. The resulting file is subsequently transported via SFTP to Cigna.

## 1.3 Terminology Standards

### 1.3.1 Acronyms

MSG – Message Header

PID – Patient Identification

ORC – Common Order

ORU – ORU - Unsolicited transmission of an observation message

ORX – Observation Result

DG1 - Diagnosis

IN1 – Insurance

FHS – File Header Segment

BHS – Batch Header Segment

BTS – Batch Trailer Segment

FTS – File Trailer Segment

1.3.2 Glossary

EDW – Electronic Data Warehouse

SFTP – Secure File Transport Protocol

CRLF – Carriage Return, Line Feed combination of characters used to separate lines as used in the Windows world.

Tcl – Tool Command Language – The computer language used for Cloverleaf Procedures.

## 1.4 Document References

Title - Lab Data Dictionary HL7 v2.3 - Baycare.xlsx

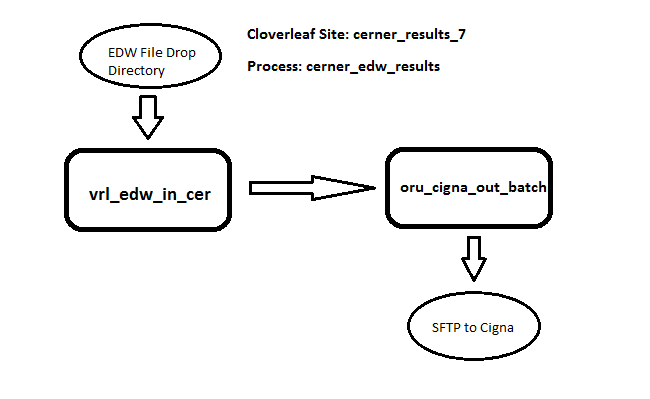
Author - Eric Schier

Date - 2/17/17

Description - This is the Cigna HL7 lab data specification and structure rules and guidelines.

Location – Sharepoint - Enterprise Integration Team

# 2. Diagram



# 3. Requirements

## 3.1 Functional Requirements

Provide detail for the below functional requirements. The message transformation requirements for the components defined in this specification should be specified in section 4.2 of this document.

|  |  |  |
| --- | --- | --- |
| **Cloverleaf** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
| FR.20XX.1.0 | Transform and Organize the EDW results set into HL7 messages. | The EDW input data consists of HL7 segments that are prepended with 6 columns of data that help to organize the segments. These columns are used to group the segments into messages that conform to the Cigna specification as described in the document:  Lab Data Dictionary HL7 v2.3 - Baycare.xlsx. |

## 3.2 Non-Functional Requirements

Provide concise detail for the below non-functional requirements. This would include external table ownership, hours of support, etc. The below requirements must be evaluated for every project.

|  |  |  |
| --- | --- | --- |
| **Cloverleaf** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
| NFR.20XX.1.0 | This interface is dependent on a data file from the EDW team plus transport scripts from the Mid-Range Server team. | These details are out of the scope of this document. |

## 3.3 Messaging Protocols

Below are listed the details for the messaging protocols that will be leveraged for this integration. This includes: TCP/IP, FTP, Web Services, etc.

### 3.3.1 Inbound to BayCare Cloverleaf

|  |  |
| --- | --- |
| FTP |  |
| MLLP Socket Connection (TCP/IP) |  |
| Local File Drop by Midrange Team |  |
| Other | Click here to enter text. |

### 3.3.2 Outbound to the BayCare Cloverleaf

|  |  |
| --- | --- |
| FTP |  |
| MLLP Socket Connection (TCP/IP) |  |
| Local File Drop by Midrange Team |  |
| Other | Click here to enter text. |

### 3.3.3 Inbound to the Vendor

|  |  |
| --- | --- |
| FTP |  |
| MLLP Socket Connection (TCP/IP) |  |
| Local File Drop by Midrange Team |  |
| Other | Click here to enter text. |

### 3.3.4 Outbound to the Vendor

|  |  |
| --- | --- |
| FTP |  |
| MLLP Socket Connection (TCP/IP) |  |
| Local File Drop by Midrange Team |  |
| Other | Click here to enter text. |

# 4. HL7 Messaging

## 4.1 Messaging Format

### 4.1.1 Segments

The segments utilized for this interface are:

# From the HL7 structure rules tab in the Data Dictionary Spreadsheet:

#

# MSH (required)

# PID (required)

# IN1 (required)

# IN2 (optional)

# ORC (required)

# DG1 (repeatable up to 24 / optional)

# OBR (required / repeatable)

# OBX (required / repeatable)

# NTE (repeatable / optional)

### 4.1.2 Cloverleaf Site Details

Cloverleaf Route Details   
Site: cerner\_results\_7   
Process: cerner\_edw\_results   
Route: vrl\_edw\_in\_cer --> oru\_cigna\_out\_batch   
PROTOCOL:upoc (User Point of Control) in this case a Tcl Procedure for each of the threads listed above. These Tcl Procedures are described below.

### 4.1*.*3 Cloverleaf Files

#########################################################################

EDW Lab and Diagnosis File Processor

#########################################################################

Tcl Procedure: tpsEdwLabResultsFileProcessor.tcl

Procedure Arguments: {FILEPATTERN \*.txt} {HOMEDIR /sites/ftp\_data\_in/edw/ins\_lab} {DEBUG 0}

Purpose: Reads data in from an Electronic Data Warehouse results set file of lab

results and diagnosis codes. The file is parsed and organized into messages conforming

to the Cigna Data Dictionary Documents. These individual HL7 messages are sent to the receiving

thread where they are aggregated into a temporary file. The input files should be placed in the

HOMEDIR and filtered using the FILEPATTERN criteria.

#########################################################################

Cigna Lab and Diagnosis File Generator

#########################################################################

Tcl Procedure: tpsCignaLabResultsFileCreator.tcl

Procedure Arguments: {SCHEDULE 22:30} {OUTPUTDIR /sites/ftp\_data\_out/cigna} {DEBUG 0}

Purpose: This is the receiving proc for tpsEdwLabResultsFileProcessor which parses EDW lab results files

and generates messages which are sent out to be consumed by this proc. This proc then aggregates these

messages into a temp file. At the designated processing time file/batch header and footer files will be

created with the appropriate statistics gathered from the temp file. All 3 will then be merged together

into one file and moved to the output directory for delivery to Cigna. The messages being generated and

sent are Cigna's flavor of HL7.

#########################################################################

## 4.2 Data Transformation Requirements

The data transformation is handled by the TCL procedures. The first 6 columns of data are used to organize the segment lines into coherent HL7 messages in the format expected by Cigna. These columns contain information elements like Master Patient Index, Encounter Number, Order Number, Start Date, End Date, and Insurer which will always be Cigna.

## 4.3 Sample Message

**Input message file fragment:**

MPI\_NBR|ECD\_NBR|STRT\_DT|END\_DT|INSURER|ORDER\_ID|IN1\_0|IN1\_1|IN1\_2|IN1\_3|IN1\_4|IN1\_5|IN1\_6|IN1\_7|IN1\_8|IN1\_9|IN1\_10|IN1\_11|IN1\_12|IN1\_13|IN1\_14|IN1\_15|IN1\_16|IN1\_17|IN1\_18|IN1\_19|IN1\_20|IN1\_21|IN1\_22|IN1\_23|IN1\_24|IN1\_25|IN1\_26|IN1\_27|IN1\_28|IN1\_29|IN1\_30|IN1\_31|IN1\_32|IN1\_33|IN1\_34|IN1\_35|IN1\_36|IN1\_37|IN1\_38|IN1\_39|IN1\_40|IN1\_41|IN1\_42|IN1\_43|IN1\_44|IN1\_45|IN1\_46|IN1\_47|IN1\_48|IN1\_49

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA||DG1|0|ICD|789.03^^10||||||||||||||||||||||||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA||DG1|1|ICD|789.01^^10||||||||||||||||||||||||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA||DG1|2|ICD|564.00^^10||||||||||||||||||||||||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA||DG1|3|ICD|278.00^^10||||||||||||||||||||||||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA||IN1|1|||||||3338043|||||||| XXXXXX^XXXX

M|||||||||||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA|5464040751|OBR|1||000002015025009553|669395^UA Reflex MICRO and CULT^L^^^L|||2015-01-25|||||||||1417232125^XXXXXX^XXXX^^^^^NPI||||BAYCR||2015-01-25|||F||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA|5464040757|OBR|2||000002015025009551|911502^CBC w/ Differential^L^^^L|||2015-01-25|||||||||1417232125^ XXXXXX^XXXX ^^^^^NPI||||BAYCR||2015-01-25|||F||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA|5464168603|OBR|3||000002015025009551|29450877^\*ER VENIPUNC^L^^^L|||2015-01-25|||||||||1417232125^ XXXXXX^XXXX ^^^^^NPI||||BAYCR||2015-01-25|||F||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA|5464191235|OBR|4||000002015025009878|653033^CMP^L^^^L|||2015-01-25|||||||||^UNASSIGNED^ER DOCTOR^^^^^NPI||||BAYCR||2015-01-25|||F||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA|5464191237|OBR|5||000002015025009878|663183^Lipase Level^L^^^L|||2015-01-25|||||||||^UNASSIGNED^ER DOCTOR^^^^^NPI||||BAYCR||2015-01-25|||F||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA|5464191235|OBX|1||10466-1^^LOINC^670439^Anion Gap^L||3||5^16^5 - 16|L|||F||||||||||||||||||||||||||||||||||||||

100004946|1100350624|2015/01/25 18:22:00|2015/01/25 21:03:00|CIGNA|5464191237|OBX|1||3040-3^^LOINC^670963^Lipase^L||150|IU/L|73^393^73 - 393||||F||||||||||||||||||||||||||||||||||||||

**Output message file fragment:**

FHS|^~\&|BAYCR|Q6R9DL11|||2017-07-28-22.30.39.000000

BHS|^~\&|BAYCR|Q6R9DL11|||2017-07-28-22.30.39.000000

MSH|^~\&|BAYCR|Q6R9DL11|||2017-07-28-15.16.56.000000||ORU^R01||T|2.3

PID|1|U4218042601|100016662||XXXXXX^XXXXX^||1823-09-19|M|||123 OLD FART RD^^LITHIA^FL^33547

IN1|1|||||||3333319||||||||XXXXX^XXXXX

ORC|1||000002017164010508||||||2017-06-13|||1033165279^Turner^Daryl^^^^^NPI

DG1|1|ICD|J44.1^^10

DG1|2|ICD|S96.911A^^10

DG1|3|ICD|Y92.812^^10

DG1|4|ICD|F17.210^^10

DG1|5|ICD|R13.10^^10

DG1|6|ICD|X50.1XXA^^10

OBR|1||000002017164010508|663516^PT/INR^L^^^L|||2017-06-13|||||||||1033165279^Turner^Daryl^^^^^NPI||||BAYCR||2017-06-13|||F

OBX|1||6301-6^^LOINC^670908^INR^L||1.1||^^||||F

OBX|2||5902-2^^LOINC^671118^PT^L||12.8|second(s)|9.4^13.4^9.4 - 13.4||||F

…

BTS|13980||281986

FTS|1|2017-07-28-22.30.39.000000^281986

# 5. Alerts

Are you going to need alerting on this connection?

|  |  |
| --- | --- |
| Yes |  |
| No |  |

If the answer is yes, please complete the table below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Site Name** | **Hours of Support** | **Distribution Group** | **Comments** |
|  |  |  |  |
|  |  |  |  |

# Appendix A: Risks and Concerns

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Name** |  |  | | |  |  |  |  |
| **Number** | **Risk / Concern** | **Comment** | **Mitigation** | | |  |  |  |
| RC.2017.8.30 |  |  | |  | |  |  |  |

# Appendix B: Issues List

This is a dynamic list of the open issues related to the IDBB that remain to be solved, including but not limited to TBDs, pending decisions, information needed, conflict awaiting resolution, and the like.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Name** |  |  | | |  |  |  |  |
| **Number** | **Issue** | **Comment** | **Fix** | | |  |  |  |
| I.2017.8.30 |  |  | |  | |  |  |  |

* End of document