



HL7 File Processing

Immunization Registry

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HL7 File Processing

INTRODUCTION

Test File Submission

Once you have installed your FTP client, the next step will be to submit test files to the FTP Folder.

Test files:

- Should contain the number of messages that is characteristic for your organization to send on a weekly basis.
- Should contain batch headers and footer segments (FHS/BHS and FTS/BTS)
- May be test or live data.
- **May contain warnings. You may disregard warnings. Please note that warnings will NOT prevent your files from being imported into ImmTrac once you are in production.**

Naming HL7 Files

If your file is not prefixed with your assigned import code or does not end with the .HL7 file extension, it cannot be processed by the validation engine. We will email individuals with FTP credentials if this occurs. You will need to correct the file name and resubmit it.

The import code, if possible, should be followed by the two digit calendar year and the Julian Date, which is the three-digit day on the Julian Calendar (see: <http://www.fs.fed.us/fire/partners/fepp/juliandate.htm>).

Example: If Provider 'MYFILE' is submitting a file on February 20, 2012, the file should be named **MYFILE12051.HL7**



Minimum Requirements to Move to Production

All Fatal Errors Must be Fixed

Fatal Errors are received for files that:

- Do not follow the naming convention
- Have the same name as a file previously submitted
- Contain an invalid file type extension (i.e, not .hl7).
- Exceed the maximum allowed file size (15 mb).
- Do not have matching HL7 header and trailer segments (FHS/FTS and BHS/BTS).
- Do not contain proper segment terminators (CR) in the HL7 file.
- Do not have unique Message Control IDs in MSH-10.

The following HL7 Fields must be included as indicated:

Required Fields	RXA Element Name	Required but may be empty	Errors Acceptable	No Acceptable Errors
MSH-1	Field Separator			
MSH-2	Encoding Characters			
MSH-3	Sending Application			
MSH-4	Sending Facility (PFS#)			
MSH-5	Receiving Application			
MSH-7	Date/Time of Message			
MSH-9	Message Type			
MSH-10	Message Control ID			
MSH-11	Processing ID			
MSH-12	Version ID			
PID-3	Patinet Identifier List			
PID-5	Patient Name			
PID-6	Mother's Maiden Name			
PID-7	Date/Time of Birth			
PID-8	Sex			
PID-11	Patient Address			
RXA-1	Give Sub-ID Counter			
RXA-2	Administration Sub-ID Counter			
RXA-3	Date/Time Start of Administration			
RXA-4	Date/Time End of Administration			
RXA-5	Administered Code (CVX/CPT)			
RXA-6	Administered Amount			
RXA-9	Administration Notes			
RXA-10	Administering Provider			
	Administered At Location (PFS # in 11.4 required when RXS-9 is New or Administered)			
RXA-11				
RXA-15	Substance Lot Number			
RXA-17	Substance Manufacturer Name			
ORC-1	Order Control			
ORC-2	Place Order Number			
ORC-3	Filled Order Number			
ORC-10	Entered By			
ORC-12	Ordering Provider			

 Indicates selected level of accuracy required for the sequence ID

 Not selected

Pre-Production Considerations

- Who will review the results of each HL7 file submitted?
 - Who will back them up?
 - Are these individuals properly trained?
- If Multi-site organization:
 - how will the errors for each site be parsed out and sent to the appropriate site?
 - Who will the staff go to for questions? What kind of support can they expect?
- How will they get resubmitted in the next weekly batch? Is the EHR set up to support this?
 - Your vendor should describe to you how to resubmit messages where the following error types were fixed:
 - Demographic errors
 - Vaccination code errors
- Who will call the EHR vendor as questions/issues arise? Is their a main point of contact at the vendor site? 800 number?
- Are your site(s) aware of the schedule date for when HL7 files will be submitted to the state?

Moved to Production

Once you complete the testing and your file submissions are approved, your status in the system will be set to “Live”

- Only live data should be sent once the status has been set to “Live”
- You may now resubmit any test files containing live data for processing and importation into ImmTrac, provided this information has not yet been submitted to ImmTrac. Be sure to rename the file first
- You will be expected to submit one live data per week, beginning the week after you are promoted.
- Files should contain patient legal names only and *should not* contain placeholder names, such as “Baby Girl” or “Baby Boy”
- After live files have been processed, feedback report files for all files submitted will be available in your DQA Reports and Receive folder for 90 days up to a 300 file maximum.
- **We cannot report you as a live provider to the CDC until you submit your first production file and that file is processed by ImmTrac.**

HL7 File Processing

HL7 FILE VALIDATION PROCESS

HL7 Validation Process

- All live HL7 files will be put through a 2-stage validation process to validate the data prior to ImmTrac importation.
 - Stage 1: DQA
 - Is the HL7 format correct? Are all required fields populated? Are the vaccination code active/accepted by Texas? etc.
 - Provides 4 feedback reports after validation in your DQA Reports folder
 - Stage 2: ImmTrac
 - Is the patient in ImmTrac? Does all their demographic information sent match what ImmTrac has on record?
 - Provides 1 feedback report in the Receive folder.
- An HL7 message must pass DQA validation without errors before it can be submitted to ImmTrac.
- An HL7 message that made it through DQA validation may still error out during ImmTrac validation.

HL7 Roles

EHR Vendor:

- Install and configure the EHR software to send HL7 messages in batch file format
- Ensure Provider staff can connect to the FTP
- Fix any file errors related to HL7 configuration

Provider:

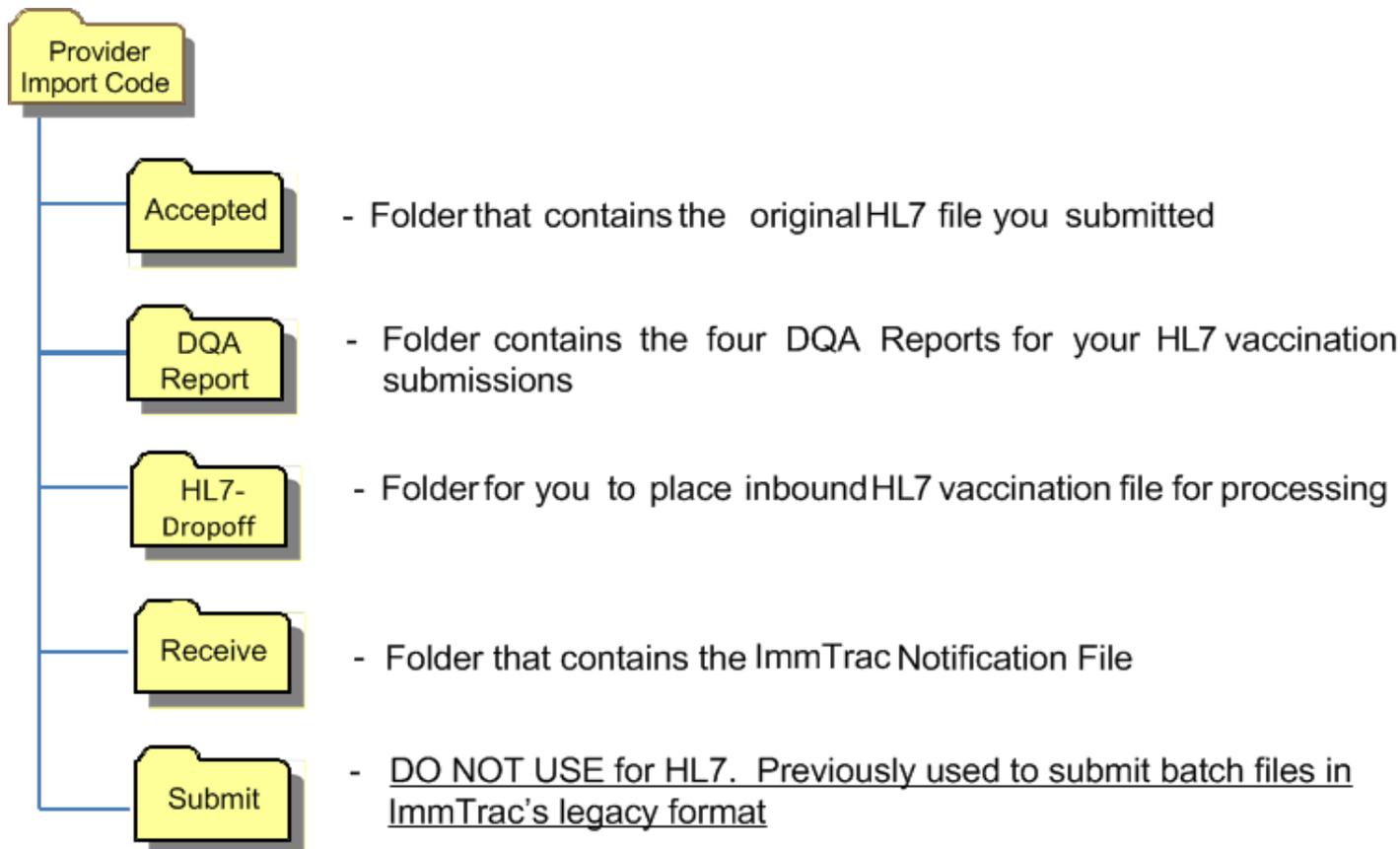
- Review validation reports and fix errors not related to HL7 configuration
- Resubmit fixed messages in the next batch, or enter shots directly into ImmTrac

Immunization Registry:

- Process Provider HL7 files
- Send automatic email to provider when errors are found during DQA
- Provide feedback reports stating the results of DQA validation and (once the Provider is in Production) ImmTrac validation
- Move Provider out of test to Production

FTP File Share Structure

---- Your FTP Share Server will contain the following folders ----



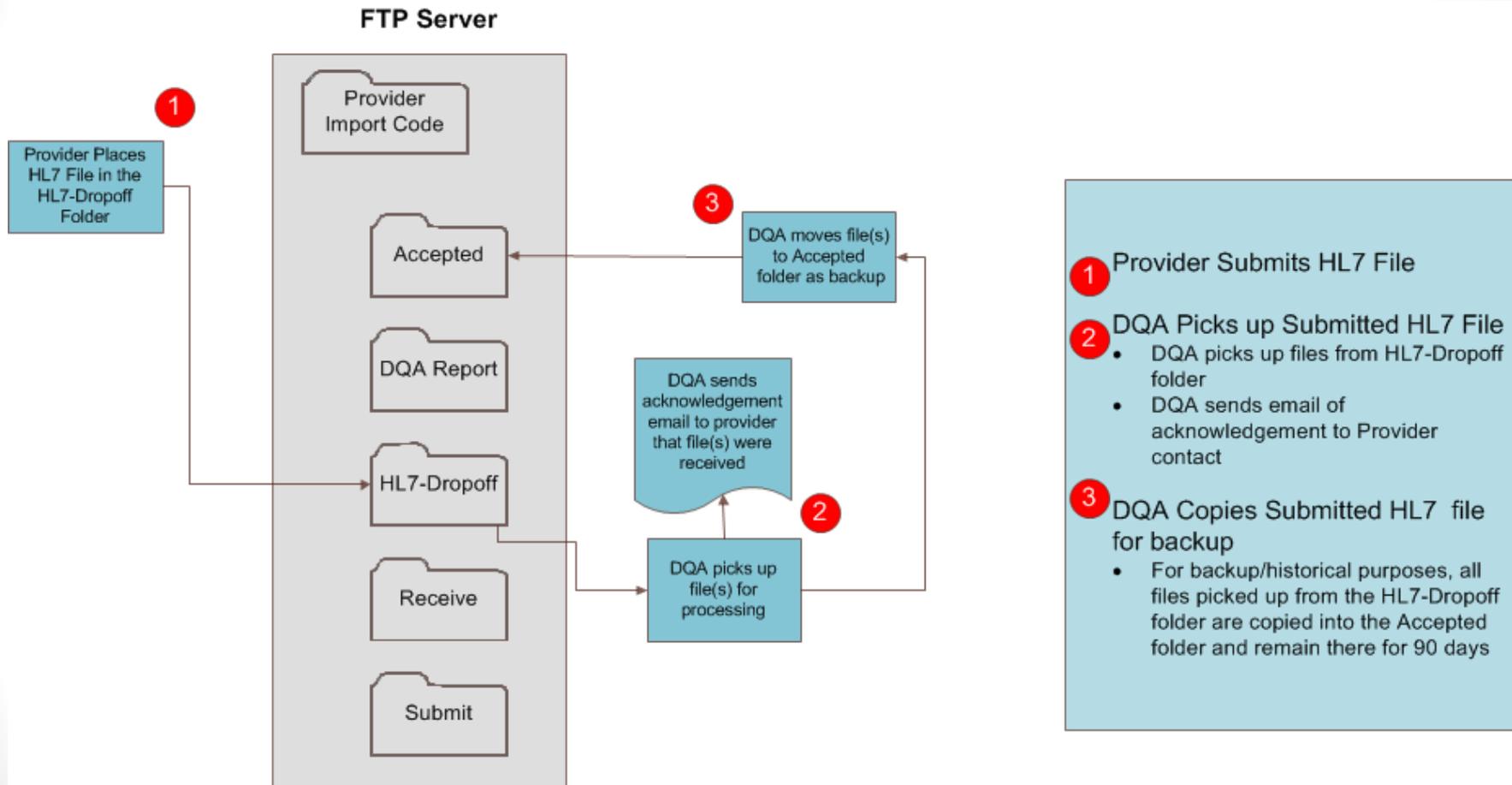
High-Level Validation Process

It may be helpful to look at the file validation process as four discrete steps:

- Submission
- Pre-Processing (DQA Processing)
- Error Notification (if applicable)
- ImmTrac Processing and Importation

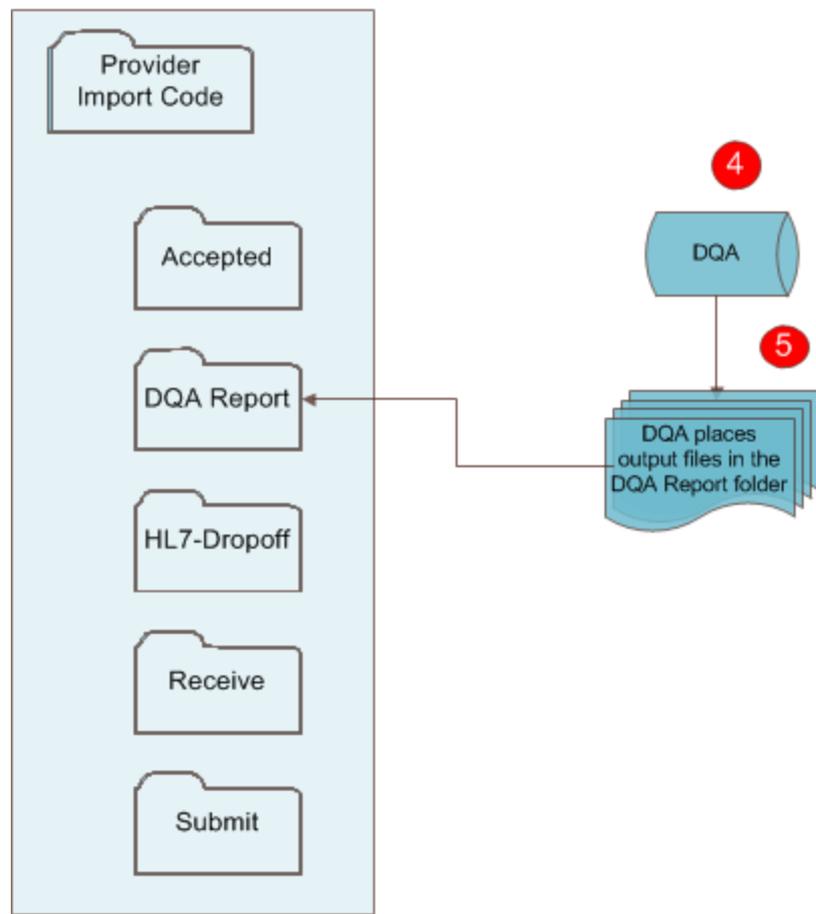
Each of these steps are detailed on the following slides

HL7 File Submissions



HL7 File Pre-Processing

FTP Server

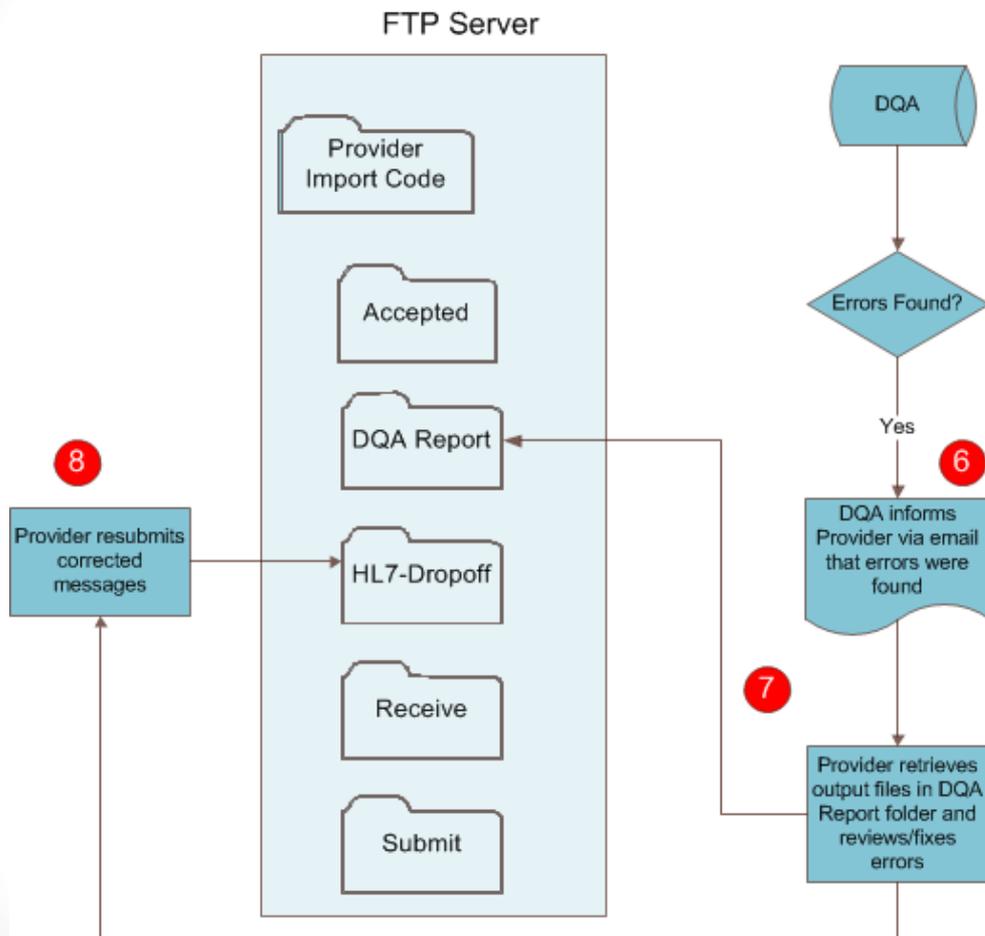


4 DQA Pre-Processes File
DQA validates the messages received and processes the file

5 Output Files Placed in DQA Report Folder
Four files are generated and placed in the DQA Report Folder for Provider to access:

- Error File
- Log File
- Acknowledgement File
- DQA Summary Report

HL7 Error Notification (if applicable)



6 Receive Notification that the submitted HL7 File Contains Errors

If errors are found during pre-processing, the Provider is informed via email.

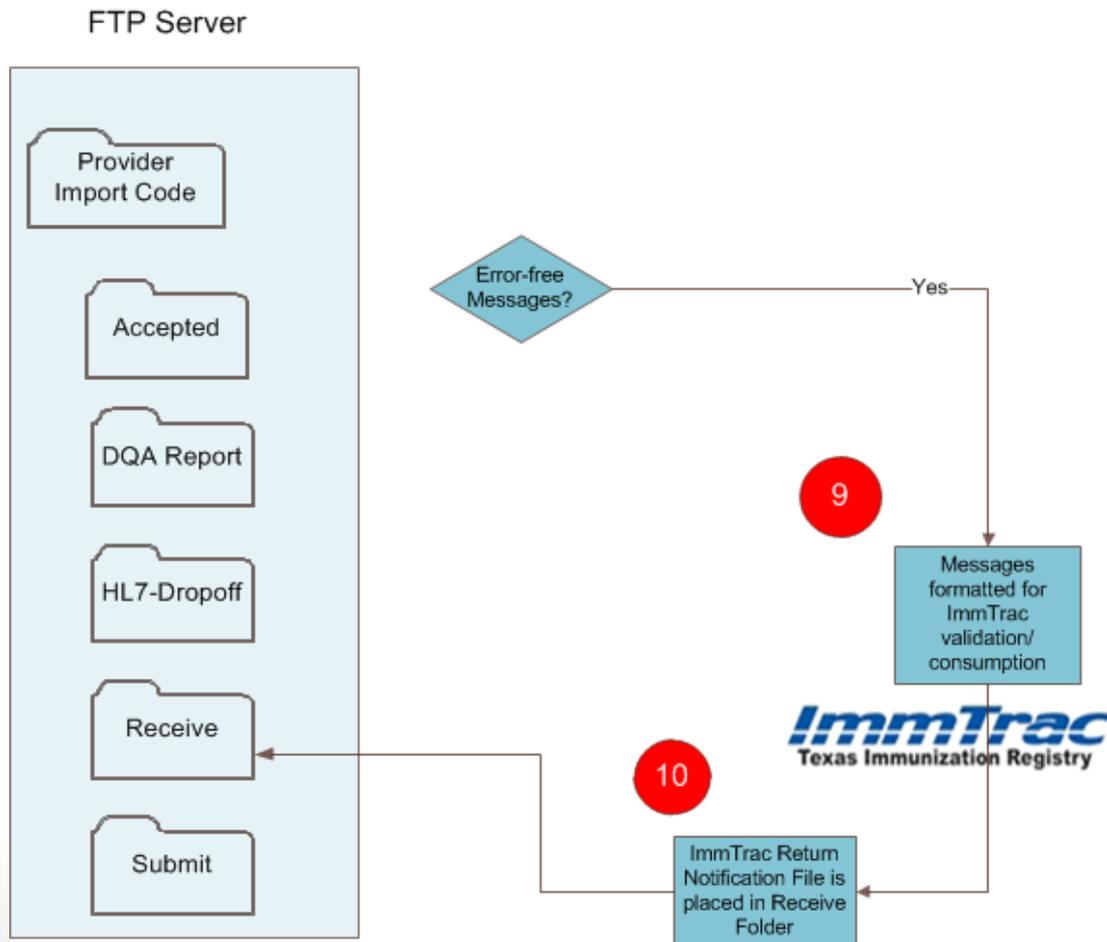
7 Review and Fix Errors

The Provider may navigate to the DQA Report folder to review and fix the messages containing errors.

8 Resubmit Fixed Messages

Message with errors should be resubmitted to the HL7-Dropoff folder for processing.

ImmTrac Processing & Importation



9

File Imported into ImmTrac

- Only Providers who have completed their onboarding process will have their files imported into ImmTrac. Test files are not imported.

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Retrieve the ImmTrac Return Notification File

- For files sent to ImmTrac, a Return Notification will be placed in your Received folder.
- **It is recommended that this file be reviewed, since the validation method is different for ImmTrac than DQA.**

HL7 File Processing

EMAIL NOTIFICATIONS AND FEEDBACK REPORTS

Email notifications during the HL7 file submission process

The following is a list of emails that Providers could potentially receive during the HL7 file submission process:

- Email Acknowledgement of File Receipt
 - Email Notification of Fatal Errors
 - Email Notification of File Errors
-
- Error notifications are received only if the submitted HL7 file contained errors.
 - If your file contains no errors, the only email you will receive will be the acknowledgement.
 - While we do not recommend it, you may unsubscribe from the automatic notifications.

Feedback Report Files

Once DQA completes its validation, it will generate four detailed feedback report files for you. These will be placed in your DQQ Report folder:

- Summary Report
 - Acknowledgement File
 - Log File
 - Error File
- Once you have been moved to production, ImmTrac will generate a fifth feedback for you. This will be placed in your Receive folder:
- Return Notification File

Notes:

- Your feedback report files will be kept on our secure FTP server for 90 days. **After 90 days they will be deleted due to regulatory requirements.**
- There is a 300 file limit for the FTP folder. This limitation is combined for all Provider folders on the FTP server.

What will I see after the validation process is complete?

Four Generated Files will appear in your DQA Report Folder after processing is complete. Each of these will be detailed on the following slides.

The screenshot shows an FTP window titled 'FTP' with a menu bar (File, Edit, View, Favorites, Tools, Help) and navigation buttons (Back, Forward, Refresh, Search). The address bar shows 'Y:\users\myfiles\dqa-report'. The file list is as follows:

Name	Size	Type	Date Modified
MYFILE.VXU.00000000053.hl7.ack.hl7			5/4/2012 9:15 AM
MYFILE.VXU.00000000053.hl7.errors			5/4/2012 9:14 AM
MYFILE.VXU.00000000053.hl7.htm	305 KB	HTML Document	5/4/2012 9:06 AM
MYFILE.VXU.00000000053.hl7.log			5/4/2012 9:14 AM

Four blue callout boxes with red arrows pointing to the files in the table are labeled: Acknowledgement File, Error File, Summary Report, and Log File.

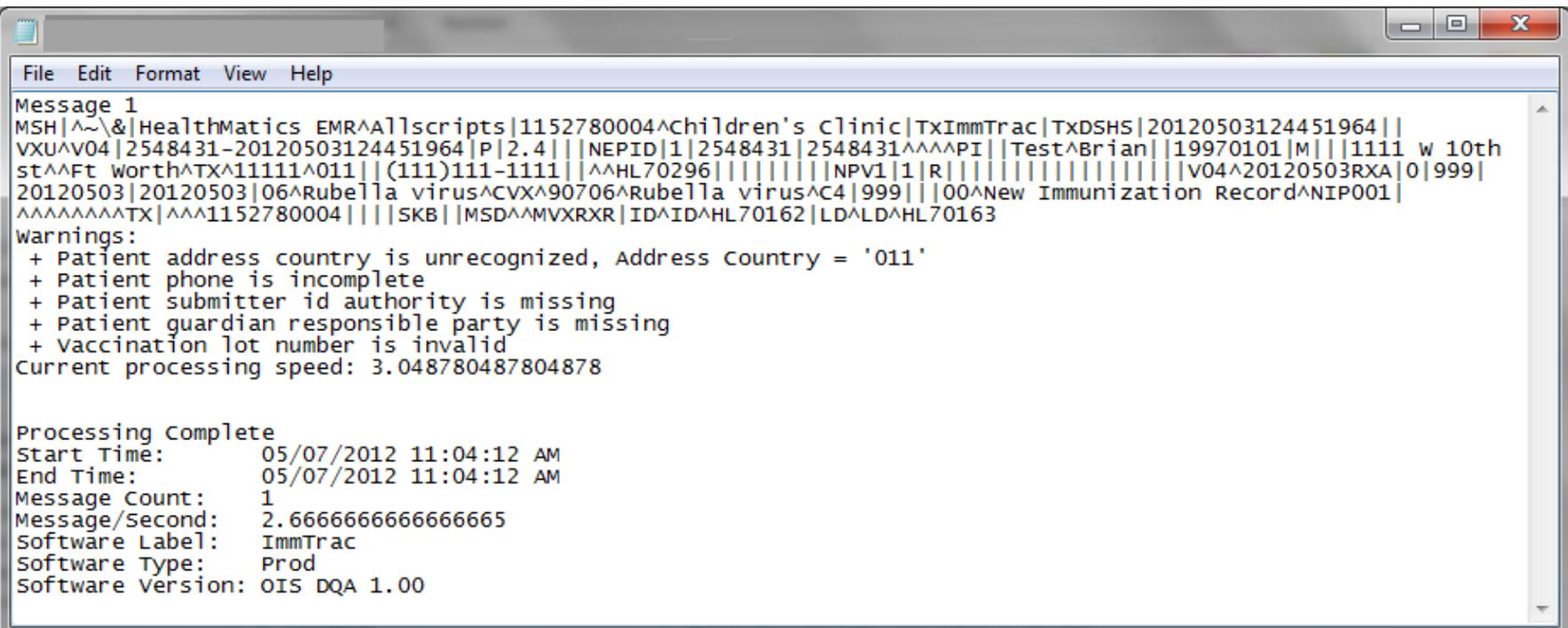
Error File

- Lists specific warnings and errors found in the segments of all messages
- If there were no errors this file will be empty

```
1 Message 6^A^A^PI-000004513733^A^A^MR-4513733^A^A^MR||Last^Doe^Adam||201110141809|M|Doe^Adam-Doe^BOY^Adam|2106-3^A^white|1234 Street^A^City^TX^A75235^A^USA^A^TX^
2 NK1|1|Lastname^A^First|MTH^A^MOTHER
3 NK1|2|Lastname^A^First|FTH^A^FATHER|7123 Lane^A^City^TX^A75235^A^US|||FAT
4 PV1||R|
5 |
6 RXA|0|999|20120416|20120416|90670^A^PREVNAR-13^A^C4|0.5|||00^A^New Immunization Record|10541^A^Doe^JANET^E.^A^A^A^A^A^A^A^OEI|^A^A^A^1234567890^A^A^A^A^A^5 Clinic Address^A^Cit
7 |
8 Errors:
9 + Vaccination product is invalid
10 Warnings:
11 + HL7 MSH message structure is missing____
12 + Patient address country is deprecated, Address Country = 'US', use 'USA' instead
13 + Patient ethnicity is deprecated, Patient Ethnicity = 'H', use '2135-2' instead
14 + Patient primary language is unrecognized, Person Language = 'SPA'
15 + Patient submitter id authority is missing
16 + Next-of-kin address country is deprecated, Address Country = 'US', use 'USA' instead, in repeat #2
17 Message Data:
18 IssueAction
19   ActionCode = 'E'
20   ActionLabel = 'Error'
21 MessageHeader
22   AckTvneAccent|
```

Log File

- Detailed information about each message received
- Includes detailed errors and warnings

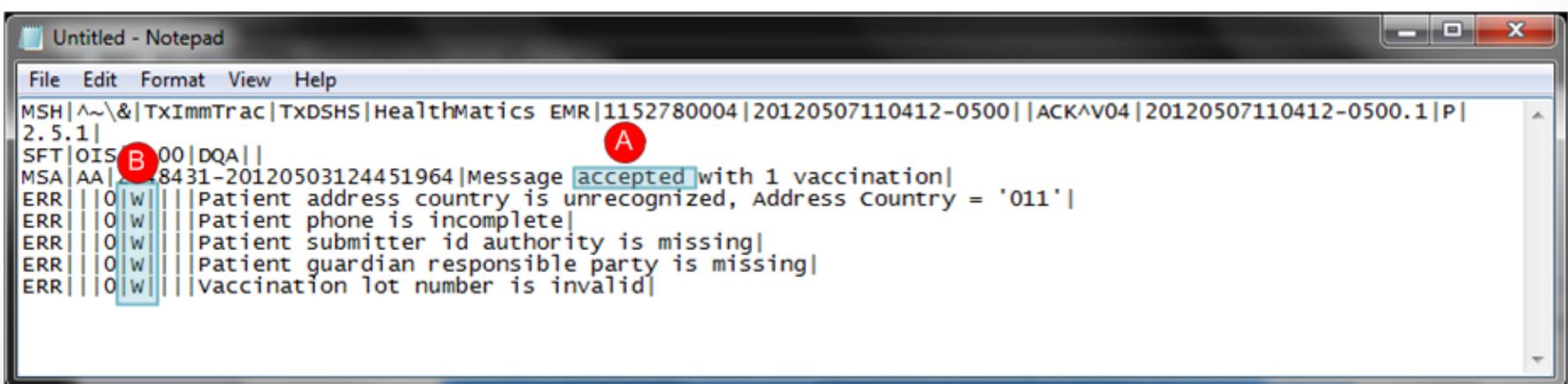


```
File Edit Format View Help
Message 1
MSH|^~\&|HealthMatics EMR^A|Allscripts|1152780004^Children's clinic|TxImmTrac|TxDSHS|20120503124451964||
VXU^V04|2548431-20120503124451964|P|2.4|||NEPID|1|2548431|2548431^^^^PI||Test^Brian||19970101|M|||1111 w 10th
st^Ft worth^TX^11111^011|||(111)111-1111||^HL70296|||NPV1|1|R|||V04^20120503RXA|0|999|
20120503|20120503|06^Rubella virus^CVX^90706^Rubella virus^C4|999|||00^New Immunization Record^NIP001|
^^^^^^TX|^^1152780004|||SKB|MSD^MVXRXR|ID^ID^HL70162|LD^LD^HL70163
warnings:
+ Patient address country is unrecognized, Address Country = '011'
+ Patient phone is incomplete
+ Patient submitter id authority is missing
+ Patient guardian responsible party is missing
+ Vaccination lot number is invalid
current processing speed: 3.048780487804878

Processing complete
Start Time:      05/07/2012 11:04:12 AM
End Time:       05/07/2012 11:04:12 AM
Message Count:  1
Message/Second: 2.6666666666666665
Software Label: ImmTrac
Software Type:  Prod
Software Version: OIS DQA 1.00
```

Acknowledgement File

- A list of HL7 acknowledgements for each received message
- States whether messages were accepted or rejected (A)
- Errors will be marked with an |e| and warnings with a |w| in the 5th column. In this example, only warnings were received (B)



```
Untitled - Notepad
File Edit Format View Help
MSH|^~\&|TxImmTrac|TXDSHS|HealthMatics EMR|1152780004|20120507110412-0500||ACK^V04|20120507110412-0500.1|P|
2.5.1|
SFT|OIS|00|DQA||
MSA|AA|B|8431-20120503124451964|Message accepted with 1 vaccination|
ERR||0|w|||Patient address country is unrecognized, Address Country = '011'|
ERR||0|w|||Patient phone is incomplete|
ERR||0|w|||Patient submitter id authority is missing|
ERR||0|w|||Patient guardian responsible party is missing|
ERR||0|w|||Vaccination lot number is invalid|
```

Summary Report

- Gives a high level analysis of a file's data quality
- Quantifiably measures the DQA submission in three areas:
 - **Completeness**- Are all required and recommended fields being sent as expected?
 - **Quality**- Are there errors or warnings in the received data?
 - **Timeliness**- Are reports of vaccination administration being received on time per CDC guidelines?
- A user guide for the DQA Summary Report can be found here:
<http://openimmunizationsoftware.org/dataQuality/dqaReport.html>

Scoring Summary

DQA Score	Description
75	Okay

Measurement	Score	Description	Weight
Completeness	93	Excellent	50%
- Patient	99	Excellent	22%
- Vaccination	87	Good	22%
- Vaccine Group	92	Excellent	5%
Quality	70	Okay	40%
- No Errors	100	Excellent	28%
- No Warnings	0	Problem	12%
Timeliness	0	Problem	10%

ImmTrac Return Notification Files

ImmTrac will continue to produce return notification files that will be placed in your RECEIVE folder. Notification files let you know that the patient for which the immunization was received:

- was matched in the registry
- had a consent on file to accept immunization data, and
- was imported into ImmTrac.

HL7 File Processing

ADDITIONAL RESOURCES

Job Aids

- The following resources are available on the TxDSHS Meaningful Use website (<http://www.dshs.state.tx.us/immunize/immtrac/Helpful-Links/>):
 - HL7 Implementation Guide
 - Common Error Messages and FAQs
 - Current list of vaccination codes
 - Job Aid for Reviewing/Fixing Errors
 - Issue List
 - Return Notification Instructions and File Sample

Questions?

If you have questions regarding Meaningful Use:

Contact	Number	Email
Customer Service	800-348-9158	ImmtracMU@dshs.state.tx.us

THANK YOU AND
GOOD LUCK!