NBS 7.11 Data Ingestion SFTP Manual File Drop Off

Introduction:

Data Ingestion service provides a secure SFTP endpoint for HL7 file ingestion. It ensures the safe and efficient delivery of data into the NBS system. This pipeline integration allows for the acceptance of non-standard file formats like .txt files, accommodating requests from STLTs and PHDs.

The primary objective of integrating the data ingestion pipeline with SFTP Manual drop off functionality is to accommodate requests from STLTs and Public Health Departments (PHDs) for accepting non-standard file formats, such as .txt and .hl7 files, a basic format HL7 ELR implementation. These files are a simplified implementation, but can be extended in the future to support additional file formats.

Features:

- The Data Ingestion service can process one or more HL7 files. You can upload '.txt' and '.hl7' files individually, in bulk, or as a zip file with multiple '.txt' and '.hl7' files
- The Data Ingestion Service currently supports ELR messages in the HL7 ORU^R01 format, with HL7 versions 2.5.1 or 2.3.1.
- Users can view the status of the ingested ELR message, along with the error reason.

Architecture:

HL7 pipeline with SFTP
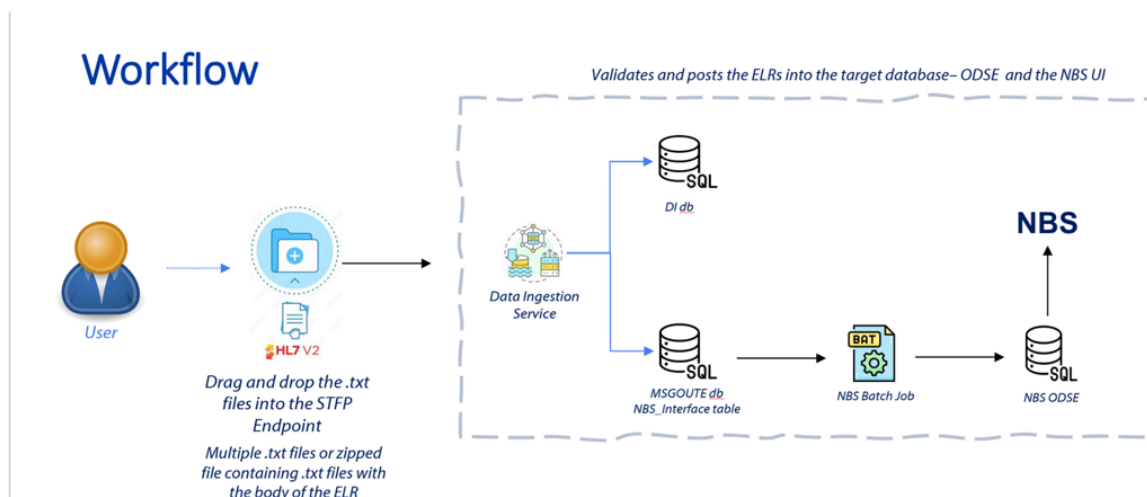
Data flow:

When we upload or drop off a file using the endpoint, the Data Ingestion service reads and processes it immediately. Once the file is processed, it will be removed from the drop-off location.

Pre-Requisites:

To integrate the Data Ingestion service with SFTP, you need to download an SFTP client on your system. There are various free and premium SFTP clients available for both Windows and Mac operating systems. We recommend the following SFTP clients:

- FileZilla – A Linux, Macintosh, and Windows graphical client.
- WinSCP – A Windows-only graphical client.
- Cyberduck – A Linux, Macintosh, and Microsoft Windows graphical client.
- OpenSSH – A Macintosh and Linux command line utility.

Connection Details:

SFTP Server host, username and password are required. Below are some sample credentials.

- Host Name: sftp-test.com
- Username: somevalidusername
- Password: somevalidpassword

Connecting to an SFTP server with FileZilla:

To connect to an SFTP server using FileZilla for securely transferring HL7 files, follow these step-by-step instructions:

1. Open FileZilla: Start by launching the FileZilla application on your computer.
2. Access Site Manager: Click on the "File" menu at the top left corner of the window and select "Site Manager" from the dropdown menu.
3. Create a New Site: In the Site Manager window, click on the "New Site" button. Give your site a descriptive name to help you remember the connection.
4. Enter Host Details: In the "Host" field, input the hostname or IP address of the SFTP server you're connecting to.
5. Select Protocol: From the "Protocol" dropdown menu, choose "SFTP - SSH File Transfer Protocol" to ensure a secure connection.

6. For "Logon Type," select "Ask for password" for added security, or "Normal" if you prefer to save your password (not recommended for shared devices).

7. Enter your "User" name as provided by the SFTP server administrator. If you selected "Normal" as the Logon Type, also enter your password.

8. Connect to the Server: Click the "Connect" button. If you chose "Ask for password" as the Logon Type, you'll be prompted to enter your password now. Accept any security certificates if prompted, ensuring they match what you expect or have been provided by the server administrator.
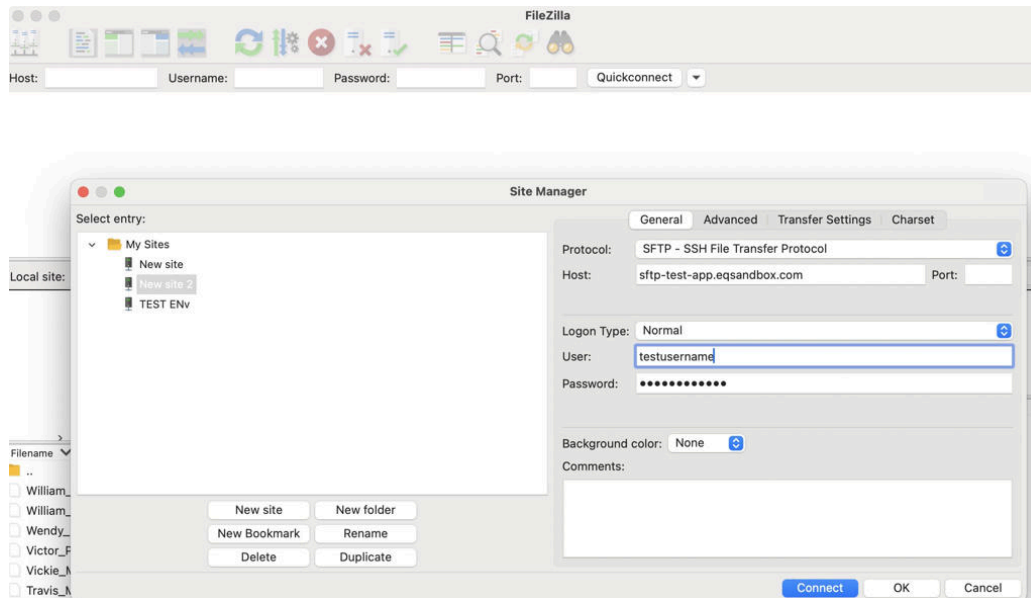
Smoke Test:

Send ELR via SFTP Manual Drop Off:

1. Once connected, the local files are displayed on the left panel and the server's files are displayed on the right panel. To transfer HL7 files, simply drag and drop them from your local directory to the blank white section on the right panel. We can drag and drop a single file, select and drag multiple files simultaneously, or drag a zip file containing several .txt/.hl7 files. **Each .txt/.hl7 file should contain only one HL7 message.**

Drag and Drop the files to the blank white section
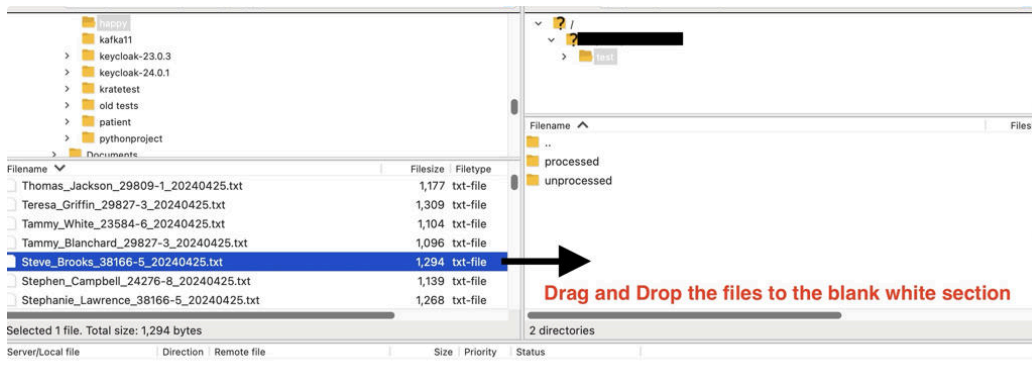
2. Once you drag it to the right panel, you will see it as below. Based on the size of the file, give it few seconds to a minute for it to process and then it goes away from the blank space on the right panel and goes into processed folder.
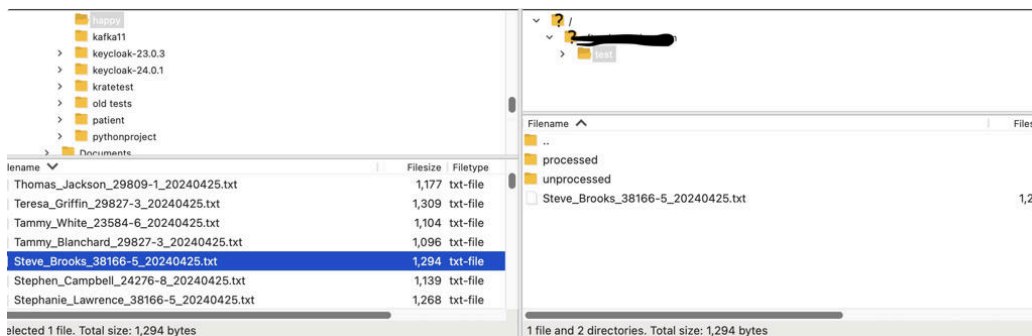
3. If it does not go away, just click on refresh button on the top panel.

Refresh button
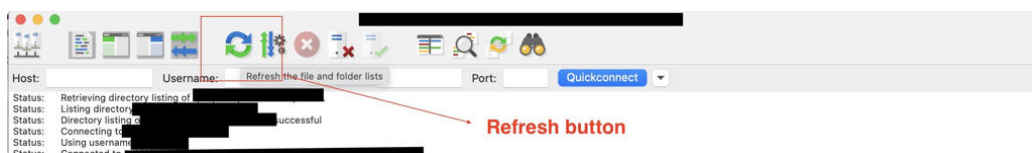
4. Click on the Processed folder. The file might not appear immediately if it's still being processed and validated by the batch job, which runs every two minutes. If the job is already running when you post the message, the file may process faster; if the job hasn't started yet, it will take longer. Use the refresh button as needed to check for the file.

After the batch job validates the file and it becomes visible, it appends a timestamp and the status of   the ingested ELR message to the filename. For instance, in the example below, "Success" and the timestamp "20240417165615" have been added to the original filename "Christopher Blevins."

The status and timestamp of the message is appeneded to the file name
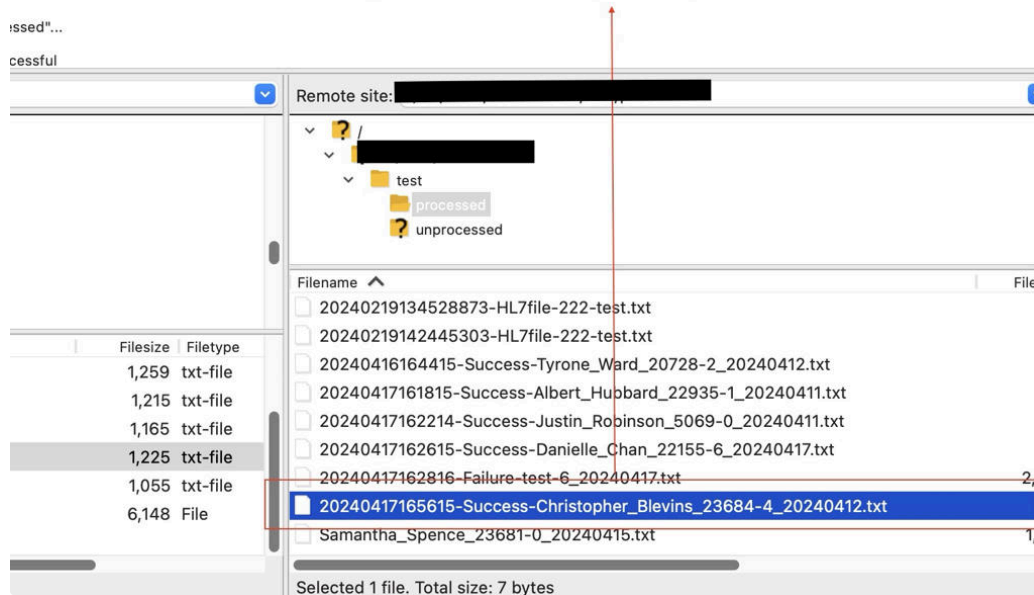
5. Right click on the filename and select the "view/edit" option. A pop-up window will then open, displaying a success message. For successful operations, no additional details are provided except for the status as Success.
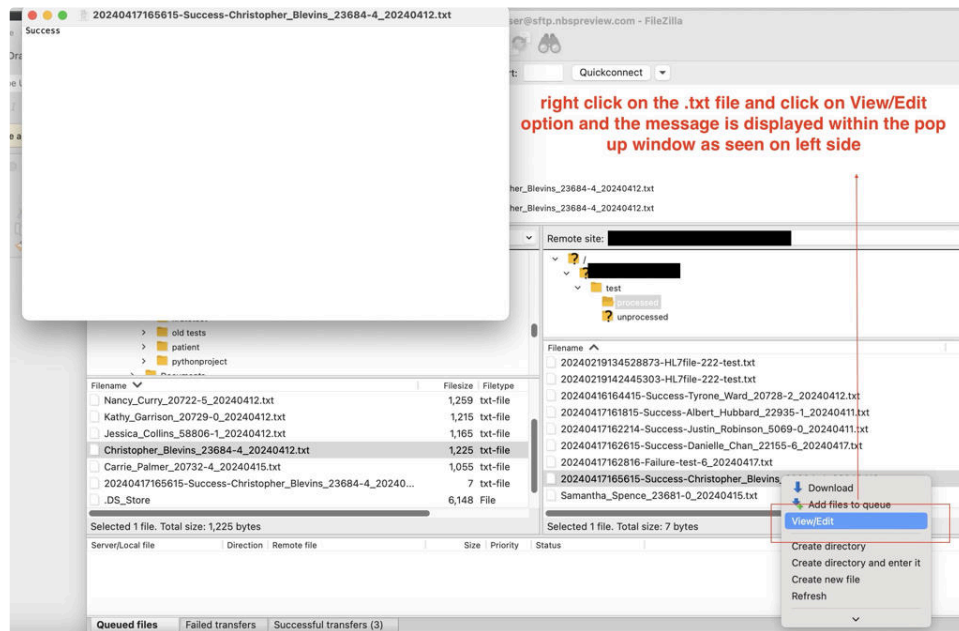
6. In failure scenarios, the pop-up will include more information, such as the error reason, ID, status. Below is an example of a failure message where the ELR validation failed within the data ingestion service itself.

20240417182645-Failure-Christopher_Blevins_23684-4_20240412.txt

Status: Validation Error
Error Message: DuplicateHL7FileFoundException: HL7 document already exists in the database.
Please check elr_raw table for the failed document. Record Id: 81711B94-F51D-4B12-8227-
E670638BF4E0
Created On: 2024-04-17 18:26:43.343
ELR Id: 81711B94-F51D-4B12-8227-E670638BF4E0

For Failure messages, when we right click on view/edit button, it displays this pop up window with detail error reason and other info. This particular message failed during DI validation step due to being flagged as duplicate

Christopher_Blevins_23684-4_20240412.txt   1,220   txt-file
Carrie_Palmer_20732-4_20240415.txt   1,055   txt-file
20240417165615-Success-Christopher_Blevins_23684-4_20240   7   txt-file

_Blevins_23684-4_20240412.txt

Remote site: ██████████████████████

- ? /
  - ? ██████████
    - test
      - processed
    - ? unprocessed

Filename ^	File
20240416164415-Success-Tyrone_Ward_20728-2_20240412.txt	
20240417161815-Success-Albert_Hubbard_22935-1_20240411.txt	
20240417162214-Success-Justin_Robinson_5069-0_20240411.txt	
20240417162615-Success-Danielle_Chan_22155-6_20240417.txt	
20240417162816-Failure-test-6_20240417.txt	2,
20240417165615-Success-Christopher_Blevins_23684-4_20240412.txt	
20240417180215-Success-Jessica_Collins_58806-1_20240412.txt	
20240417182645-Failure-Christopher_Blevins_23684-4_20240412	