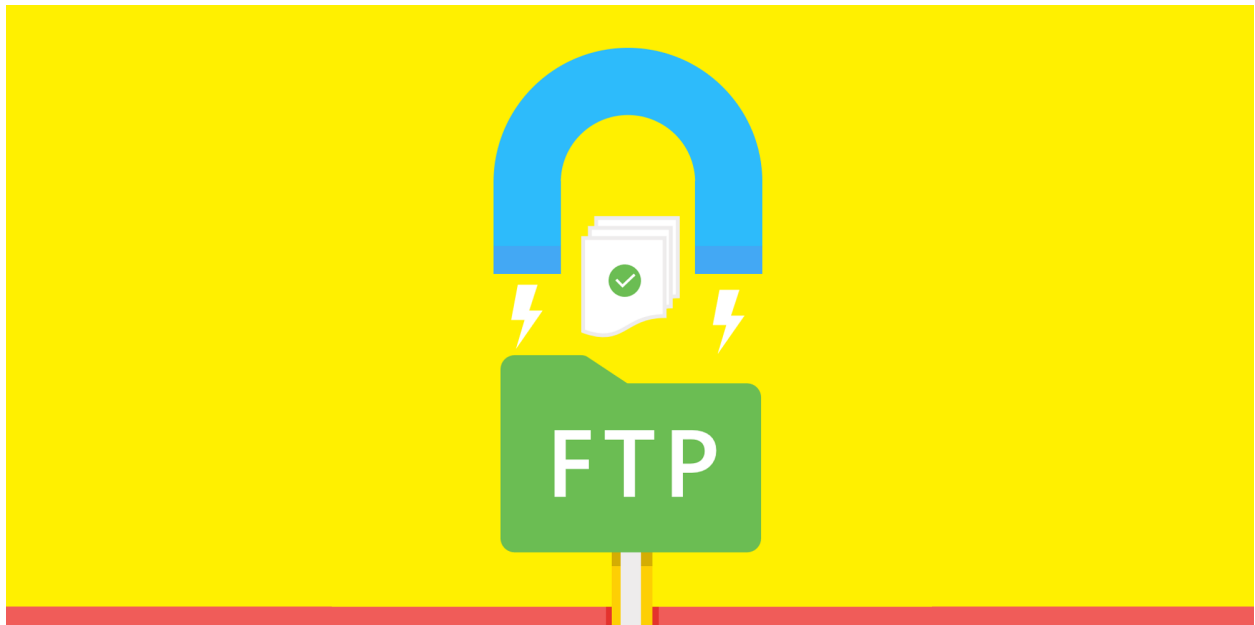# ClearTax KSA E-Invoicing FTP Magnet

Specification Document and Typical Project Plan

Defmacro Software Pvt. Ltd.

2A, 1st Floor, AMR Tech Park

Hongasandra, Bengaluru - 560068

Karnataka, India

Table of contents

1. Purpose

The purpose of this document is to provide technical specifications of the functionalities of ClearTax FTP Magnet for KSA E-Invoicing.

2. Overview

2.1 Use cases

ClearTax E-Invoicing has state-of-the-art restful APIs that can be used to send data from ERP / billing system to ClearTax. The Taxpayer can consume these APIs and push data to ClearTax on a real-time or scheduled basis. In some cases, Taxpayer may not be able to consume the APIs directly in the ERP / billing system for reasons like:

1. Integration required with multiple different systems/ERPs
2. Approval process complex/not received for direct API integration
3. Longer project timeline
4. Unavailability of an in-house IT team to customize the ERP
5. The high cost of development

In that case, the Taxpayer may want to go for a simpler solution with FTP mode. As a business, Taxpayer wants to extract input data of sales documents from Taxpayer's ERP/ billing systems to FTP so that ClearTax can generate e-Invoice for those documents. Further, Taxpayer also wants to read output data received from ClearTax back from FTP so that they can save the QR Code and ZATCA compliant XML back in Taxpayer's ERP / billing systems.

As the FTP integration approach works on a scheduler, the taxpayer should expect a few minutes of lag from the time a new input file is created in the FTP folder to the time the output file is received back in the FTP folder.

In case the taxpayer needs real time output, please choose the API integration approach.

2.2 FTP Magnet Solution

FTP Magnet is a middleware application between Taxpayer's FTP server and the ClearTax E-Invoicing application. The Taxpayer can export data from Taxpayer's ERP to Taxpayer's own FTP server. As a part of onboarding, ClearTax configures its FTP Magnet to connect to Taxpayer's FTP server. The FTP Magnet reads the input files from Taxpayer's FTP server and uploads them to the

ClearTax e-Invoicing application. Once the uploaded files are processed, it writes the response back to Taxpayer's FTP server.

2.3 Key functionalities

Multi-VAT, Multi-Branch Data Processing - The Taxpayer can upload documents to multiple VATs and Branches on ClearTax platform with the same configuration using a defined directory structure and file naming conventions.

Customized Invoice Input Data Template - The FTP Magnet is compatible with the Standard ClearTax e-Invoicing template as well as customized invoice data upload templates. Customized invoice data upload templates will be set up and mapped to the Taxpayer's user account by ClearTax.

Failure Notification - In case of failure of upload of any file to ClearTax, the Taxpayer will receive a failure notification email in a predefined mailbox.

3. Onboarding requirements

To use ClearTax FTP Magnet, ClearTax will require the following prerequisites.

3.1 ClearTax Account

Before Taxpayer begins, the Taxpayer needs a ClearTax **Sandbox/ Production** account to sign up for ClearTax FTP Magnet. If the Taxpayer doesn't have a ClearTax account, please reach out to the Customer Success Manager or write to us at ksa-support@cleartax.in.

3.2 Taxpayer's FTP Server Configuration

The FTP Magnet is compatible with SFTP, FTPS and FTP protocols. Using the Taxpayer's FTP server configuration details, ClearTax FTP Magnet connects to the Taxpayer's FTP server.
- The Taxpayer needs to share FTP protocol, host and port with ClearTax.
- In order to ensure that connections can be established at all times, it is recommended to keep the server live always and remove any restrictions on the number of connections from the same client, if any.
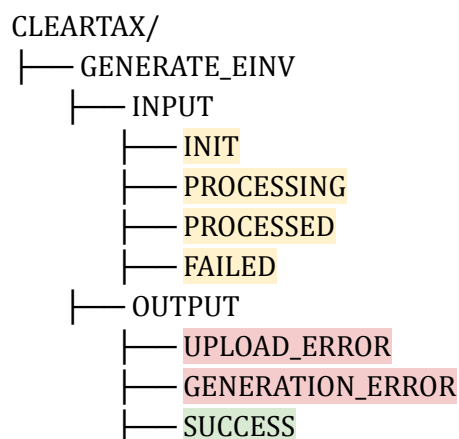
3.3 FTP User Credentials

To access the files in the Taxpayer's FTP server, ClearTax needs the FTP user credentials. For the purpose of this integration,

- Taxpayer needs to create a new user and share the username and password with ClearTax. SSH keys to login are not supported.
- This user must have permission to list, read, write, and rename to the designated directory and subdirectories recursively.

3.4 FTP Directory Structure

ClearTax will use the directories in the Taxpayer's FTP server as a data source to the FTP Magnet as well as a way to maintain states of successful and unsuccessful uploads. Here's the required directory structure:

```
CLEARTAX/
├── GENERATE_EINV
│      ├── INPUT
│      │      ├── INIT
│      │      ├── PROCESSING
│      │      ├── PROCESSED
│      │      ├── FAILED
│      ├── OUTPUT
│      │      ├── UPLOAD_ERROR
│      │      ├── GENERATION_ERROR
│      │      ├── SUCCESS
```

The directory "GENERATE_EINV" and the subdirectories within it will be used for generation of e-Invoice. More information on these directories and how it will be used is available in the "Approach" section below.

Note - The directory names and structure are subject to change. In case of any changes in directory changes, ClearTax will provide prior intimation.

3.5 File Naming Convention

ClearTax allows a user to manage multiple VATs and Branches in the same user account. At the time of uploading files to ClearTax, it is important to specify which VAT or Branch that particular document belongs to. For this purpose, ClearTax has defined a specific file naming convention.

ClearTax has different input templates for different document types. The template name helps us to identify the data type of the documents. While exporting data from the ERP / Billing system to the Taxpayer's FTP server, Taxpayer needs to follow the below file naming convention. This is very crucial as the identity of the VAT and Branch depends on the filename.

VAT level file:
<VAT-NUMBER>_<DOCUMENT-TEMPLATE-NAME>_<FILENAME-WITH-DATE-TIMESTAMP>.<EXT>
Example:
329720318763923_E-INVOICE GCC Standard_EINV16052019015401.xlsx

Branch level file:
<VAT-NUMBER>_<BRANCH>_<DOCUMENT-TEMPLATE-NAME>_<FILENAME-WITH-DATE-TIMESTAMP>.<EXT>
Example:
329720318763923_JEDDAH_E-INVOICE GCC Standard_EINV16052019015401.xlsx

Upload templates/formats allowed:

ClearTax accepts data in multiple excel templates based on the user requirements. User can prepare and pass data in any of the excel templates supported as per their convenience. Below are the templates supported:

1. E-INVOICE GCC Standard - English + Arabic template which accepts values in both english and arabic
2. GCC Eng Standard - Only English template in which only English values are accepted

Note:

1. ClearTax supports only XLSX, XLS and CSV formats for input
2. In CSV, please use a delimiter other than a comma. Eg: Pipeline "|"
3. Avoid spaces or invisible characters in the filename. Instead use a hyphen "-".
4. ClearTax recommends using underscore "_" as a separator in the file name. Please make sure not to use this character in the branch name or the template name

Note - The file naming convention is subject to change. In case of any changes in changes, ClearTax will provide prior intimation.

3.6 Notification Email ID

● While trying to upload a file to ClearTax, if the FTP Magnet runs into an error or exception, it will send out a failure notification to the email address provided.
● This can be helpful for the Taxpayer to check the file from the corresponding status directory, review the data, and upload it again. The Taxpayer needs to share an email address to receive such notifications.
● All notifications related to the configured implementation will go to the same mailbox. In case multiple people need to receive, ClearTax recommends using a group email ID for notifications and adding all concerned people under that group.
● Sample email snapshot:

○ Subject line - *ClearTax EINV FTP SANDBOX - Validation Failed for 312345678900003_E-INVOICE-GCC-Standard_19052022105568.csv*

```
Hello,
The file 312345678900003_E-INVOICE GCC STANDARD_19052022105568.csv was uploaded to your ClearTax EINV SANDBOX account (clear-
invoicing@cleartax.in) but there were a few data validation errors. Please review the error file generated in your FTP directory
/ct-integrations-sftp/demo/STAGING/ftpjava/GENERATE_INVOICE/OUTPUT/UPLOAD_ERROR and try uploading again after fixing the data
issue

For more help contact integrations-support@cleartax.in
Thank you.
ClearTax Integrations
```
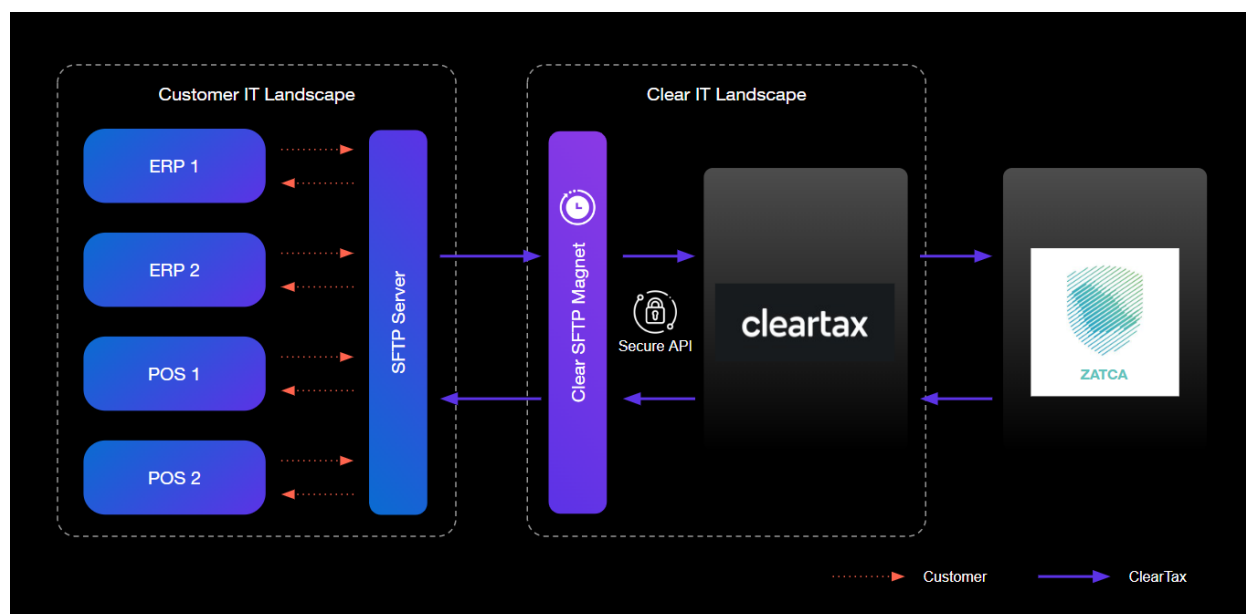
4. Approach

Figure 1. High-level architecture of FTP mode of integration.

4.1 Extraction of data from ERP/ Billing System

- Taxpayer will extract data from Taxpayer's ERP / billing system in the ClearTax template in CSV format and save it in the "INPUT/INIT'' directory of Taxpayer's FTP server. This is the primary source of input data for ClearTax.
- The format of the file can be CSV or XML
  - In the case of a CSV file, the invoice data should be presented in the ClearTax template.
  - One CSV file can contain data of multiple invoices. In case one invoice has more than one line item, then each line item should be added as a new row in the CSV with the same invoice header level details repeated in each row.

- ○ In the case of XML file, the data should be presented in ZATCA specified UBL 2.1 schema. One XML file can contain data of only one invoice.
- To download the ClearTax template for reference, go to your ClearTax account and click on the "Import" tab or go to the <u>documentation page</u>.

4.2 Uploading files to ClearTax

- FTP Magnet is configured to keep looking for new files in the "INPUT/INIT" directory.
- Whenever a new file is found, the ClearTax FTP magnet will upload the file to ClearTax Cloud Platform for further processing.
- This is an asynchronous process and the final state of the upload will be available after the process is completed.
- Hence, the uploaded documents may remain in interim states until they reach the final states (Success/Failure).
- Once a file upload is initiated, the file will be automatically moved from the "INPUT/INIT" directory to the "INPUT/PROCESSING" directory.
- The FTP Magnet will use these subdirectories to check the processing status. As a user, there is no need to take any action on the files in interim state directories.
- **Exception Handling** :
  - ○ If the file upload gets aborted due to any reasons (E.g., corrupted input file, wrong filename, wrong configuration, authorization failure, network error), the FTP Magnet moves the input file to the "INPUT/FAILED" subdirectory. This file will be in the same name and extension as the input file.
  - ○ The Taxpayer would also receive a failure notification over email.
  - ○ **User action needed :** Since ClearTax could not read the input file, ClearTax would not be able to provide an exact reason for failure. Once the failure notification is received, the user should
    - i. Check the input file and manually rectify the error.
    - ii. Save this new input file with a different filename in "INPUT/INIT'' directory for reprocessing. The timestamp field in the filename can be changed to save it with a different name.
    - iii. If the user sends a rectified file with the same filename (which was provided in the original file) then ClearTax will not process this file. This is a validation constraint added to avoid duplication of invoices.

4.3 Parsing uploaded files

- Once the upload succeeds, the uploaded file will be parsed in ClearTax and saved in ClearTax as input data. The FTP Magnet moves the input file to the "INPUT/PROCESSED" subdirectory. This file will be in the same name and extension as the input file.
- **Exception Handling**:

- If at the time of parsing, any data validation error is detected, the FTP Magnet creates and saves an error file in the "OUTPUT/UPLOAD_ERROR" directory.
- This file will be in the ClearTax template in CSV format at an invoice line item level and will have an additional column in the end for "Errors" with detailed error description. To download a sample upload failure error template, go to the documentation page.
- The Taxpayer would also receive a failure notification over email.
- **User action needed :**
  - Check the Output file in the "OUTPUT/UPLOAD_ERROR" directory and manually rectify the error in the input file.
  - Save this new input file with a different filename in "INPUT/INIT'' directory for reprocessing. The timestamp field in the filename can be changed to save it with a different name.
  - If the user sends a rectified file with the same filename (which was provided in the original file) then ClearTax will not process this file. This is a validation constraint added to avoid duplication of invoices.
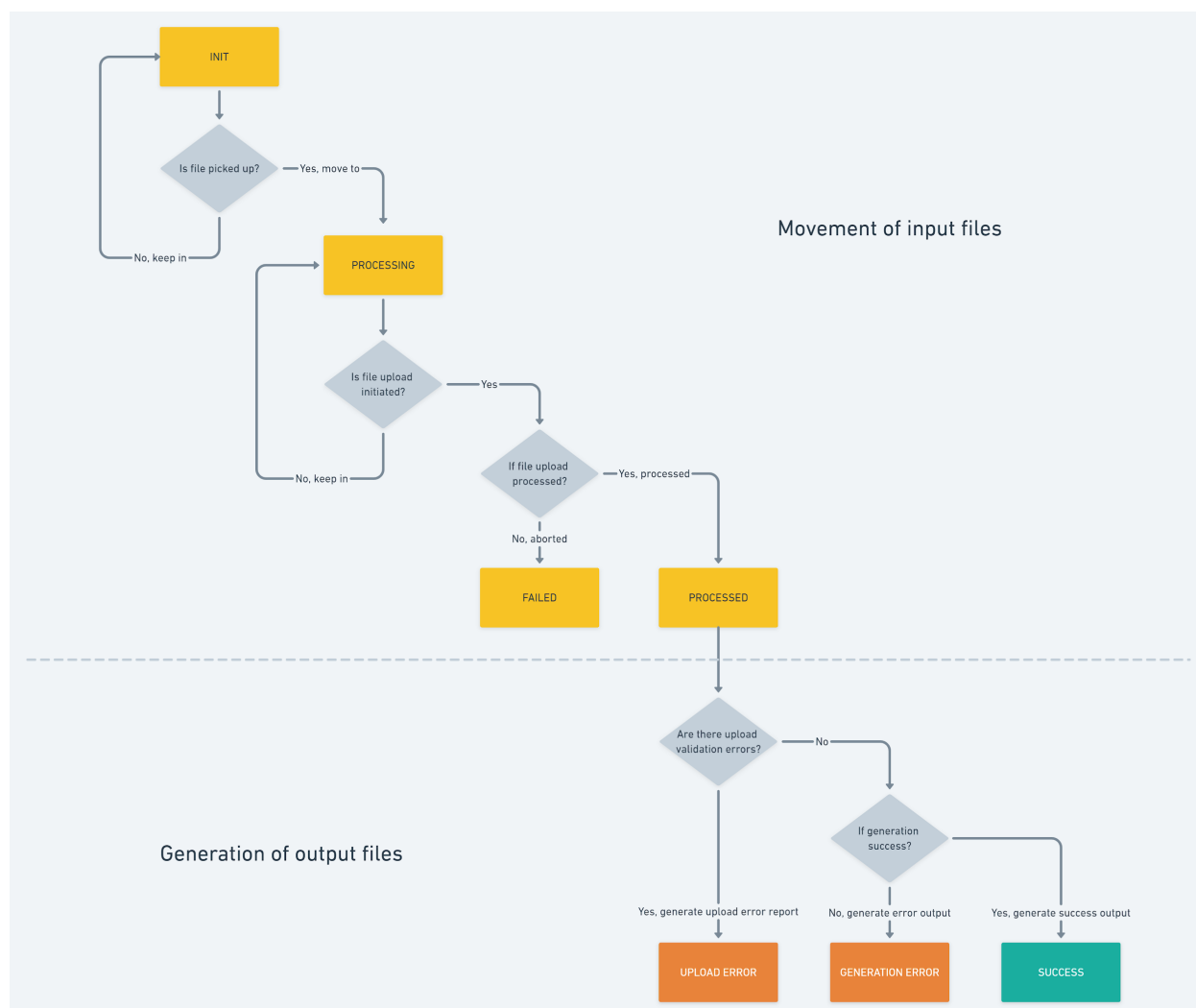
4.4 Processing parsed documents

- Once parsing succeeds, the successfully parsed documents will be submitted to ZATCA for reporting or clearance.
- For all the documents which are approved by ZATCA, the FTP Magnet creates and saves a single output file (containing one row for each document) in the "OUTPUT/SUCCESS" subdirectory.
- This output file will contain some basic fields in CSV format and will have additional columns for QR Code, XML string received from the ZATCA etc. To download a sample success file template, go to the documentation page.
- **Exception Handling**:

- ○ For all the documents which are not approved by ZATCA, the FTP Magnet creates and saves an error file (containing one row for each document) in the "OUTPUT/GENERATION_ERROR" subdirectory.
- ○ This file will contain some basic fields in CSV format and will have an additional column in the end for "Errors". To download a sample processed failure error template, go to the [documentation page](#).
- ○ **User action needed :**
    - ■ Check the output file in the "OUTPUT/GENERATION_ERROR" directory for "Invoice Status" column.
    - ■ "Invoice Status" can have 3 values (a) NOT_REPORTED (only for Standard Tax invoice) (b) NOT_CLEARED (only for Standard Tax invoice) (c) PENDING
    - ■ If "Invoice Status" = NOT_CLEARED or NOT_REPORTED then
        - ● Check the output file for the "Error" column for a detailed error description.
        - ● Save this new input file with a different filename in "INPUT/INIT'' directory for reprocessing. The timestamp field in the filename can be changed to save it with a different name.
        - ● If the user sends a rectified file with the same filename (which was provided in the original file) then ClearTax will not process this file. This is a validation constraint added to avoid duplication of invoices.
    - ■ "Invoice Status" = PENDING means ClearTax has shared data with ZATCA but did not receive any response from ZATCA (even after multiple automatic retries from ClearTax). In such scenario
        - ● Save the same invoice data (without any modification) with a different filename in "INPUT/INIT'' directory for reprocessing. The timestamp field in the filename can be changed to save it with a different name.
        - ● If the user sends a rectified file with the same filename (which was provided in the original file) then ClearTax will not process this file. This is a validation constraint added to avoid duplication of invoices.

4.5 Writing response back to ERP

- ● The Taxpayer will read the file from the "OUTPUT" subdirectories and update the generated QR Code, XML and other metadata back in the Taxpayer's ERP/ billing system.
- ● Please note that the responsibility of ClearTax will end once the response files are updated in the output FTP folder.
- ● The Taxpayer can use this information from Output files to generate/ print/ share PDF A/3 e-invoices as per Taxpayer's requirement.

5. System Configuration

The Taxpayer's FTP server will have to be hosted in the Taxpayer's environment.
1. **Storage** - This depends on the number of files and the size of Taxpayer's input data extracted from the ERP/ billing system.
2. **Processing** - There is no requirement of processing capacity.

6. Activities and Timeline

Sl	Particulars	Responsible	Best Case Efforts Estimation	Dependencies
1	Commissioning FTP Server with the defined directory structure and configuring the FTP user with required permissions.	Taxpayer	Minimum 2 days	No dependencies on ClearTax
2	Extracting data from ERP / Billing system to the FTP server in the ClearTax template and defined naming convention.	Taxpayer	Minimum 7 days	#1
3	Sharing prerequisites with ClearTax: 1. ClearTax Account details. 2. FTP Server Configuration. 3. FTP User Credentials. 4. Notification Email ID.	Taxpayer	Minimum 3 days	#1
4	Configuring FTP Magnet	ClearTax	Minimum 2 days	#3
5	UAT	Taxpayer	Minimum 7 days	#4
6	Go-live	Taxpayer	Minimum 2 days	#5

7. RAID Log

7.1 Risks

1. Any delays in the development effort from Taxpayer team may impact the project implementation timelines
2. No other known risks

7.2 Assumptions

1. The ClearTax account used for integration with Taxpayer's FTP server has an Account Admin role so that all communication required for upload and generation are accessible.
2. The files in the "INPUT/INIT" directory are in the ClearTax data template format.
3. Every input file has a unique filename.Taxpayer can change filenames using the timestamp field in filename.
4. There are no duplicate VATs in the same user account on ClearTax platform. In case there are duplicates, then the files will be uploaded to one of the entities based on the response sequence.

7.3 Issues

1. No issues are known as of date.

7.4 Dependencies

1. The integration can be started once the onboarding prerequisites mentioned in this document are provided to ClearTax.

8. FAQ

1. **Where can the Taxpayer find sample Input and Output files from ClearTax?**

    *   **Input File :** This is the file extracted from Taxpayer's ERP / Billing system. Please download sample files here - ⊠ KSA_Einv_FTP_Eng_Arabic_template.xlsx

    *   **Output File**

        *   UPLOAD_ERROR - [KSA_Einv_FTP_Upload Error](#)

        *   GENERATION_ERROR - [KSA_Einv_FTP_Generation Error](#)

        *   SUCCESS - [KSA_Einv_FTP_Generation Success](#)

2. **What is the taxpayer expected to do after receiving a successful Output File from ClearTax?**

    Once the data has been processed, the Taxpayer can pick up data in a CSV file (output file from ClearTax) from the taxpayer FTP server and consume it as per the status of the invoice. Taxpayer should design a utility on Taxpayer side to perform following steps :

    *   Based on status, **extract following information** from the output file and update these fields against respective invoice in ERP or Billing system.
        *   Status
        *   QRCode
        *   InvoiceXml
        *   UUID
        *   ICV (Invoice Counter Value)
        *   PIH (Previous Invoice Hash)
        *   Invoice Hash
    *   This is to ensure that the data in the billing system and ClearTax is in sync. Also, if the status of invoice is failed then right corrective actions can be taken by the user.

    *   **Generation of PDF A/3 (XML embedded) files**

        *   Either customize the ERP or billing system's internal invoice layout to PDF A/3 (Xml embedded) format **OR**

        *   Download PDF A/3 (XML embedded) file as per link provided in output CSV file

    *   **Sharing invoice with taxpayer**

■ Download PDF A/3 file from the location specified in "PDF" field in output CSV file

3. **What is the taxpayer expected to do after receiving a failed/ error from ClearTax?**

- Taxpayer should read the output CSV file from the taxpayer SFTP server
- Refer to following information from the output file to understand the reason for failure.
  - Status
  - ErrorCode
  - ErrorMessage
  - ErrorSource
- **In order to fix the failed invoices**
  1. Canceling original invoice in ERP:
     a. Taxpayer may issue a credit note to nullify this invoice in the source ERP/ billing system (based on accounting processes)
     b. **In case Credit note is issued for internal accounting purpose, it should not be shared with ZATCA**
  2. Issue new invoice :
     a. Taxpayers should understand the list of error messages provided in the Output file
     b. The Taxpayer should issue a new invoice with all errors fixed and share this invoice with ClearTax. Please refer to "Exception Handling" flows as the detailed document above.

9. Need more help?

Write to integrations-support@cleartax.in or ksa-support@cleartax.in