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# TurboCASH5-3-Release Candidate 8

# AI / ETL / Bank statements

The bank statement is indeed a form of **ETL (Extract, Transform, Load)**. Let me break it down and explain how your system aligns with the ETL process:

***What is ETL?***

ETL stands for **Extract, Transform, Load**. It’s a process used in data integration to:

* **Extract:** Pull data from one or multiple sources (e.g., databases, files, APIs).
* **Transform:** Clean, organize, and convert the data into a consistent format.
* **Load:** Store the transformed data in a target system (e.g., data warehouse, data lake).

***How Your System Fits into ETL:***

***1. Extract:***

Your system extracts data from **bank statement files** (e.g., OFC, MT940) stored in a specific directory:

|  |
| --- |
| *C:\TCASH5-3\bin\Tutorials\BANK-IMPORT\BANK-STATEMENTS\2024-03-Bank-Statement-ABC-Bank.ofc* |

These files contain raw transaction data that needs to be processed.

***2. Transform:***

* The system uses **OpenAI's language model** to transform the raw data into a structured JSON format.
* Specific transformations include:
  + Parsing dates, amounts, and descriptions.
  + Reversing debit and credit values based on instructions.
  + Handling missing values (e.g., using 0.00 for numeric fields and empty strings for text fields).
* The transformation is guided by **system prompts** and **user prompts** stored in the root directory of your osFinancials5.1 or TurboCASH5-3 installation folder:
  + accounting\_banksystemprompt.txt
  + accounting\_bankuserprompt.txt

***3. Load:***

* The transformed data (in JSON format) is stored or made available for further use in your financial system (e.g., osFinancials5.1 or TurboCASH5-3).
* This data can then be used for reporting, analysis, or integration with other systems.

***Your System as an ETL Process:***

|  |  |
| --- | --- |
| ***ETL Stage*** | ***Your System Example*** |
| ***Extract*** | *Read raw data from OFC/MT940 files in the BANK-STATEMENTS folder.* |
| ***Transform*** | *Use OpenAI to convert raw data into JSON, reverse debit/credit, and handle missing values.* |
| ***Load*** | *Store the JSON output in the system for further use (e.g., financial reporting).* |

***Why This is ETL:***

* **Data Integration:**
  + You’re combining data from bank statements into a single, consistent format (JSON).
* **Data Cleaning:**
  + You’re handling missing values, reversing debit/credit, and ensuring data consistency.
* **Automation:**
  + The process is automated using AI, reducing manual effort and improving accuracy.
* **Target System:**
  + The transformed data is loaded into your financial system for storage and analysis.

***Example Workflow:***

***Input (Extract):***

|  |
| --- |
| *Raw OFC file (2024-03-Bank-Statement-ABC-Bank.ofc):*  *:61:2301010101D100,NTRFNONREF//Payment for services*  *:61:2301050101C200,NTRFNONREF//Refund* |

***Transformation:***

|  |
| --- |
| *Parse the data.*  *Reverse debit (D100) to credit and credit (C200) to debit.*  *Handle missing fields (e.g., emailaddress).* |

***Output (Load):***

json

|  |
| --- |
| *[*  *{*  *"transactionDate": "01-03-2024",*  *"amountDebit": 0.00,*  *"amountCredit": 100.00,*  *"bankAccountNumber": "NL91ABNA0417164300",*  *"emailaddress": "",*  *"description": "Payment for services"*  *},*  *{*  *"transactionDate": "05-03-2024",*  *"amountDebit": 200.00,*  *"amountCredit": 0.00,*  *"bankAccountNumber": "NL91ABNA0417164300",*  *"emailaddress": "",*  *"description": "Refund"*  *}*  *]* |

***Next Steps:***

* **Refine the ETL Process:**
  + Update the prompts (accounting\_banksystemprompt.txt and accounting\_bankuserprompt.txt) to improve accuracy.
  + Test with different bank statement formats (e.g., MT940, OFC).
* **Automate Further:**
  + Schedule the ETL process to run automatically when new bank statements are added to the folder.
* **Integrate with Downstream Systems:**
  + Load the JSON data into a database, data warehouse, or reporting tool for further analysis.