



CREDIT VOUCHER

Solution Design Document (SDD)

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Process Group	EPO
Process Name	Credit Voucher
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Date	22-12-2022

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Document Control

Template

The following person(s) own the format and information requested in this document template.

Team	Name	Relevant Sections

The version history of this template is as follows.

Version	Date	Author	Change Summary
0.1	23/12/2022	Bakare Sodiq	<ul style="list-style-type: none">Initial Version

Completion stages

This document will be completed as per the following sign-off points.

Version	Phase	Relevant Sections	Producer	Sign-off
0.1	Design	All	Delivery Team	Process Owner ()

Version history

This document's change history is as follows.

Version	Date	Author	Approver	Change Summary
0.1	23/01/2022	Bakare Sodiq		

1. Introduction

1.1. Document purpose

The purpose of the Solution Design Document (SDD) is to describe the technical solution developed to meet the requirements outlined in the Process Design Document (PDD), including any technical prerequisites and considerations required to deploy, operate, and maintain the process. It is a living document that is incrementally developed as the technical solution is built and is finalized prior to deployment into the production automation infrastructure.

This document will refer to the automation package ("The Solution" or "Solution") throughout, which represents the Business Objects and Processes, as well as any other peripheral technical components (e.g credentials, templates, databases etc.) used to deliver the automated process.

1.2. Process summary

The Credit Voucher process captures the steps for settling all account transactions done on Visa Transactions. This process is aimed at settling different merchants for transactions processed on the Unified Payment platform at our First Bank branches

1.3. Reference artefacts

The Process Design Document (PDD) which captures the business-related details of the process being automated and describes how the automated process is intended to work, including risk and data management control has been included as a link in this manual

The following artefacts should be read in conjunction with this document.

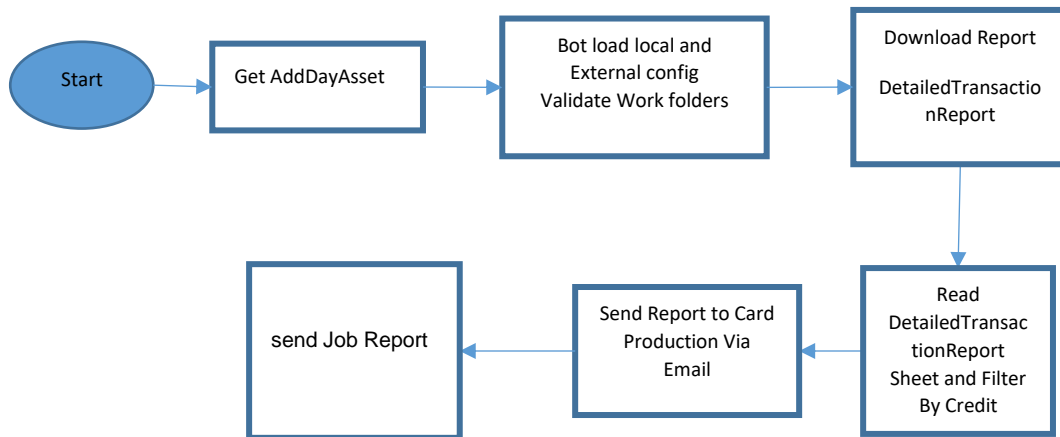
Title	Version	Location
Process Design Document (PDD) – Credit Voucher	0.1	

2. Solution Overview

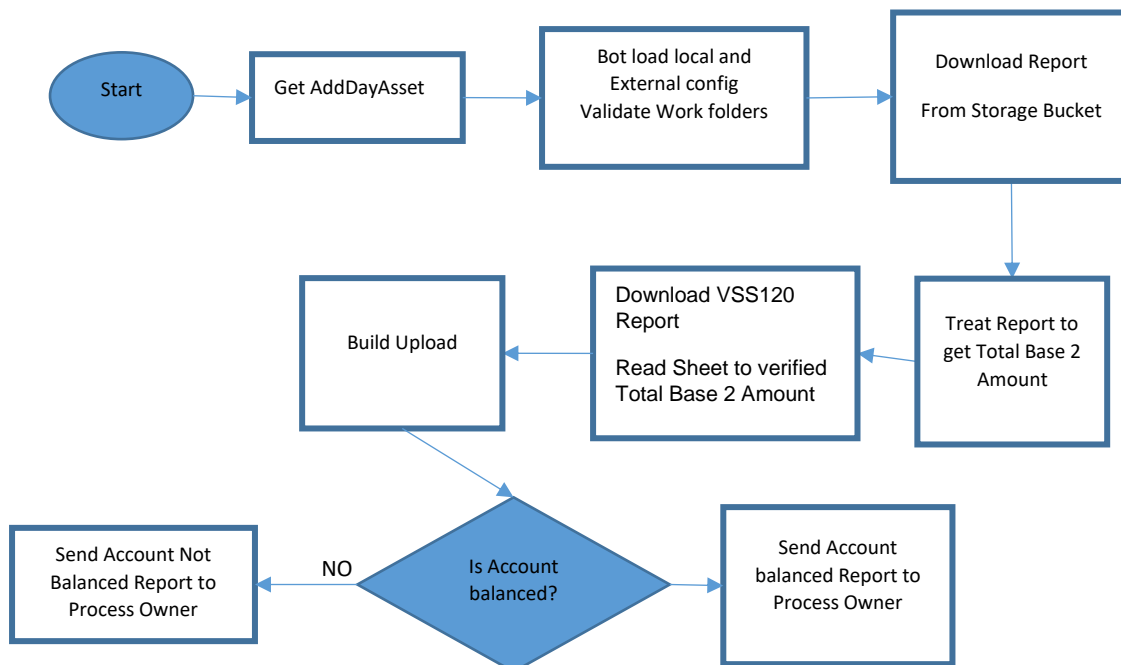
This section describes the high-level design of the automated solution.

2.1. High level design (HLD)

Depatcher



Performer



2.2. Solution description (Dispatcher)

- Bot Kill all application
- Bot check the day set on Orchestrator, if it is Monday; Bot will run Saturday, Sunday and Monday. Else the bot only treats the day.
- Sequence: Load all Config Portal
 - Load Internal Config Values: These load all assets in the internal config excel In the project directory. Output Argument: Config
 - Validate Work Folders: Create folder its does not exist
 - Load External Config workflow: Read system settings output Argument Sysfig
 - Delete work folders and validate again
 - Assign report Date
 - Sequent to check for Monday Logic
- Download Logic workflow
 - Assign all WF Variables: all needed variables
 - Create File to Processing workflow
 - Sequence Download: Logic of Downloading report
 - Sequence: Login and Download
 - Get Credentials
 - Do While: Try to login 3 Times
 - Logout from FTP workflow
 - Login FTP workflow
 - If Login Successfully: Download Report FTP
 - Sequence If Can't Login: Exception error throw
 - If File Unable to Download: Exception error throw
 - READ ALL SHEET
 - Delete Download File
 - Send Report To Card Production Team
- Send Job Report workflow

2.2.1 Solution description (Performer)

- Bot Kill all application
- Bot check the day set on Orchestrator, if it is Monday; Bot will run Saturday, Sunday and Monday. Else the bot only treats the day.
- Sequence: Load all Config Portal
 - Load Internal Config Values: These load all assets in the internal config excel In the project directory. Output Argument: Config
 - Validate Work Folders: Create folder its does not exist
 - Load External Config workflow: Read system settings output Argument Sysfig
 - Delete work folders and validate again
 - Assign report Date
 - Sequent to check for Monday Logic
- Sequence: Get Storage Bucket
 - Assign all WF Variables: all needed variables
 - Sequence: Download File
 - Try and Catch
 - Download Storage Bucket File: Credit Voucher Report
 - Rename File

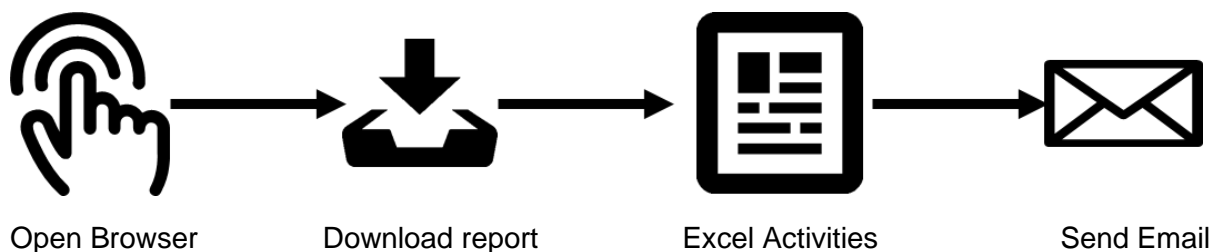
- Get TotalAmountBase2
 - Assign TotalAmountBase2: `Math.Abs(DT.AsEnumerable().Sum(x => Convert.ToDecimal(x[DestinationColName])))`
- Download VSS 120
- Sequence: Read VSS Sheet
- Delete VSS File workflow
- Verify Account Details VSS workflow
- Build Upload File
 - Multiple Assign: all needed variables
 - Build Upload File Data Table: UploadFileDT
 - Get Merchant Details workflow: get details for " VISA MERCHANT FUND
 - Assign Credit Account Number
 - Sequence: Write all Data
 - Read Range Process File: CreditVDT
 - For Each in the CreditVDT
 - Invoke code: Get the Transaction Type
 - If Acct type is Unconfirmed
 - Sequence Get Acct Type
 - Get Account Type
 - Assign Account Type
 - If Acct Type is null
 - Sequence Undetermined
 - Multiple Assign Upload details
 - Add Data Row
 - Switch: Account Type
 - USD
 - Multiple Assign Upload details
 - Add Data Row
 - NGN
 - Sequence: Send Mail
 - Multiple Assign Upload details
 - Add Data Row
 - GBPEUR
 - Check for GEP or EUR and assign value
 - Multiple Assign Upload details
 - Add Data Row
 - Sequence Credit Voucher
 - Multiple Assign Upload details
 - Add Data Row
 - END the Upload File
 - Update Row
 - Assign debit:
 `Convert.ToDecimal(UploadFileDT.AsEnumerable().Where(x => x.Field<string>("Type") == "D").Sum(z=>z.Field<decimal>("Amount").ToString()))`
 - Assign Credit :
 `Convert.ToDecimal(UploadFileDT.AsEnumerable().Where(x => x.Field<string>("Type") == "C").Sum(z=>z.Field<decimal>("Amount").ToString()))`

- If Account is Balanced: $\text{Math.Round}(\text{debit}, 1) - \text{Math.Round}(\text{credit}, 1) == 0$
 - Assign out_IsBalanced : True
 - Else
 - Assign out_IsBalanced : False
 - Assign out_UploadFileName
 - Copy File: Upload Template File to Processing folder
 - Write Range: UploadFileDT
- Is Account Balanced?
 - If True:
 - Send Job Report workflow: Account is Balanced
 - Else
 - Send Job Report workflow: Account not Balanced

3. Solution Detail

This section describes the low-level design of the automated solution.

3.1. Object model



3.2. Solution components

Ref.	Type	Name	Purpose
C1	Process	Open Application	Opens Unified Payment portal to download the required reports
C2	Process	Excel Activities	<ul style="list-style-type: none"> • Read Excel document into datatable • Add rows • Sort document by columns • Perform computations i.e Add, Subtract, Multiply
C3	Process	Send Email	<ul style="list-style-type: none"> • Attach excel file to email

- Send email

4. Operations

This section describes the controls, reporting and alerting required to operate the solution.

4.1. Business exceptions

Events classified as Business Exceptions are those that are not expected to be handled by the virtual worker. That is, they are out of scope of what is described in the PDD.

Business Exceptions are marked as follows.

No	Exception	Solution
1	Change in report Format - Change in number of columns.	<ul style="list-style-type: none"> • Send email alert to process owner
2	Inability to find report - The bot is unable to download report due to change in naming convention of the required report.	<ul style="list-style-type: none"> • Send email alert to process owner
2	Inability to find report - The bot is unable to download report due to change in naming convention of the required report.	<ul style="list-style-type: none"> • Send email alert to process owner
		<ul style="list-style-type: none"> •
		<ul style="list-style-type: none"> •

4.2. System exceptions

System exceptions can fall in one of two categories:

1. Known system exceptions – which are known problem or risky areas in the process (e.g. to common system unreliability) that have been specifically catered for with extra retries or redundancies, or at least a specific error description.
2. Unknown system exceptions – which are unplanned errors.

Known system exceptions

System Exceptions with specific catches are marked as follows.

Scenario	Work Queue	Status	Tags	Required Action
N/A	N/A	N/A	N/A	N/A

Unknown system exceptions

Unknown System Exceptions will be represented as follows.

Scenario	Work Queue	Status	Tags	Required Action
N/A	N/A	N/A	N/A	N/A

4.4. Scheduling and manual execution

The robot will run everyday.

4.5. Optimization and scaling

To be determined.

4.6. Alerting

Any alerting built into The Solution is described below as per PDD specification.

Ref.	Scenario	Method	Recipient(s)
AL1	Bot is unable to find Approved/Failed Transaction report	Send Email	Process owner
AL2	Bot has completed its execution	Send Email	Process owner

4.7. Logging

- There is an in-built audit trail which captures actions and timelines of robot's activities

5. Data Management

5.1. Storage

The downloaded files i.e Approved/Failed Transactions report and the final report will be stored in a specified folder on the system/server running the bot

5.2. Privacy

The bot will not transmit documents/files to external locations (outside Firstbank Bank) and access will be restricted to assigned members of the E-business team

5.3. Security

At a specified date (to be determined by members of the COE), the bot will delete all downloaded reports from its download folder.

5.4. Preservation

The bot will log onto the applications using credentials supplied by Firstbank bank's IT

6. Considerations

- Stable internet connectivity will be readily available for the bot to function
- Any changes in the naming conventions of documents which are downloaded by the bot may require some updates to robot configuration/process design

i. Business Glossary

Acronyms and terms used throughout this document are described below.

Acronym or Term	Synonym(s)	Full Description
VW	PAC, Robot, Bot	Virtual Worker
HW		Human Worker
PDD		Process Design Document
SDD		Solution Design Document
VM	VM	Virtual Machine
VDI	VDI	Virtual Desktop Interface
RPA	RPA	Robotic Process Automation
SSO		Single Sign-On

ii. Attachments

The following attachments relate to this document.

Attachment	Description