**MSHWARI SET-OFF TECHNICAL REQUIREMENT SPECIFICATION**

#### DOCUMENT CONTROL

DOCUMENT HISTORY

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| --- | --- | --- | --- | --- |
| **VERSION** | **STATUS** | **DATE** | **CHANGE SUMMARY** | **OWNER/AUTHOR** |
| 1.0 | Draft | 30/12/2024 | Draft | Kenedy Manga Ogola |

**PURPOSE**

Mshwari set-off is the process of recovering the defaulted loans from other funded accounts linked to similar ID but under the same product

**OBJECTIVE**

Mshwari set-off will majorly assist the credit risk team to recover defaulted loans from similar ID and thus assist in optimization of recovery process. This process will help in mitigating strategic defaults by the customers.

**SCOPE:**

1. Loan Repayment
2. Mshwari Set-Off Report
3. SMS Notifications to the customer

**System involved:**

1. NEO Mshwari.
2. SMS
3. BI

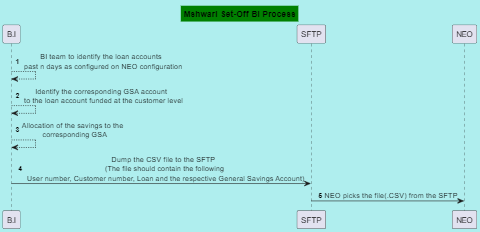
**Development Areas on BI**

* The development will encompass the BI Automation of generating customers who have overdue loans depending on the configuration set by the business.
* The BI team will also generate users who have funded the General Savings Account at the customer level but whose loans are overdue and have been generated by the BI team due to the configuration set by the business.
* The BI team will allocate the savings to the corresponding loans depending with the available amount on the General Savings Account (GSA).
* BI team will dump the file to the SFTP location to be picked by the NEO Boss system.

**Development Areas on NEO**

* Ingestion of the allocated file provided by the BI team through the SFTP by NEO.
* NEO should be able to validate the balances presented by the BI team CSV file on both the generated loan balances and the General Savings Accounts balances. If they don’t match or there is any issue NEO will provide an output report with reasons of the failure. The format of the file has been shared on this Technical Requirement Specification Document.
* NEO should be able to lock the General Savings Account balances which have overdue corresponding loans.
* NEO should send messages to the customers whose General Savings Account has been locked.
* Debiting of the General Savings Account (GSA) after n days configured on NEO Boss.
* Neo should be able to adjust the lock amount if the loan is paid earlier before the notification period elapses.
* NEO should be able to provide a Set-off report with the format has been shared.
* Loan repayment from the funded GSA.
* Neo should unlock the positively funded General Saving account thereafter.

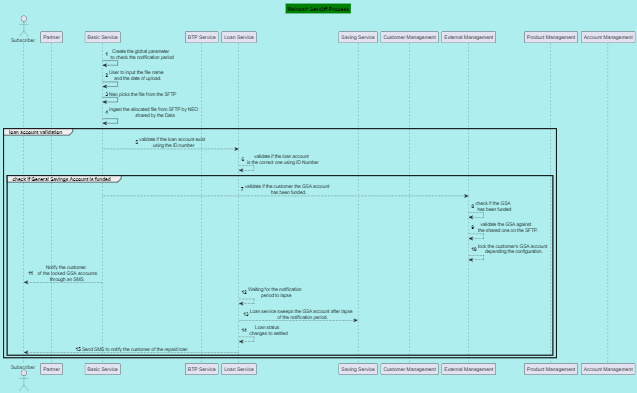
**HIGH LEVEL TECHNICAL FLOW (Mshwari Set-Off BI Process).**

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1. The BI (Data engineering) team should be able to identify and generate the loan accounts that are past n days as configured on the BI system.
2. The Data engineering team should also be able to identify and generate the corresponding GSA account at the customer level linked to the overdue loan on the file format to be shared by Murong team.
3. The BI team should allocate the loans to the corresponding GSA (General Savings Account).
4. The BI team should dump the CSV File to the SFTP which can be accessed by NEO. Murong to share the username and password to be used to drop the file.
5. Neo then picks the file(.CSV) dropped on the SFTP by the data engineering team.

Note: The file should have the following fields outline and description.

|  |  |
| --- | --- |
| **Field Name** | **Explanation** |
| Customer number | The customer number which has the loan |
| Sender User number | The user number which has a funded GSA |
| Sender Mobile number | The phone number that has a funded GSA |
| Sender GSA number | The GSA account number that has been funded |
| Receiver User number | The user number that have the loan |
| Receiver GSA number | The GSA account number in which the loan resides |
| Receiver Mobile number | The phone number that has the loan or where the loan resides |
| Receiver Loan Account number | The loan account number that has the loan. |
| Receiver Loan Unpaid Amount | When Receiver outstanding loan amount is greater than GSA account balance then GSA account balance.  When Receiver outstanding loan amount is less than GSA account balance then Receiver outstanding loan amount.  (This will be the same amount that will be locked) |

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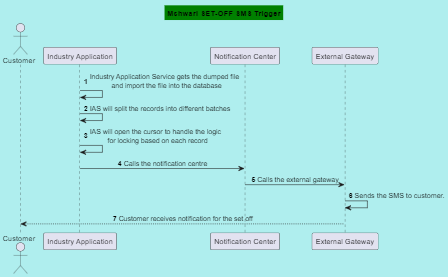
**HIGH LEVEL TECHNICAL FLOW (NEO-BOSS PROCESS)**

1. NEO creates the global parameter to allow users enter the notification period to send the notification SMS to the customers.
2. User to input the file name and the date of upload and then click on submit.
3. Neo then ingest the file from SFTP that has been shared by the Data engineering team.
4. Neo then validates if the loan account provided by the data engineering team exist and belongs to the correct ID number to avoid repaying the incorrect loan.
5. On the loan service, Neo validates if the loan account is correct and belong to the correct ID number shared by the data engineering team and also checks the loan balance and status at that time and moment.
6. Neo validates if the customer’s GSA account shared by the data engineering team has been funded and check if it matches with the ID number to avoid locking the wrong GSA account.
7. The Saving service locks the GSA account depending on the configuration set by the credit team and also check if the GSA amount is still there and proceed to lock.
8. An output report will be generated after locking the GSA account.  
   (The output report template shared below)
9. After locking the amount send the SMS notification to the customer of the locked funds.
10. NEO Boss to wait for the notification period to elapse.
11. After the lapse of the notification period, then Neo loan service again validates the loan amount and the loan status.
12. Neo saving service also again checks the GSA account and the GSA balance at that moment.
13. If the loan balance is still existing and there is GSA account is still funded then the loan service will then sweep the GSA account after the notification period elapses.
14. If the GSA amount in the account is able to re-cover the whole loan amount fully then the loan status changes to settle.

**After locking the GSAs for the customer, NEO should provide the output report with the below format:**

|  |  |
| --- | --- |
| **Field Name** | **Explanation** |
| Customer number | The customer number which has the loan |
| Sender User number | The user number which has a funded GSA |
| Sender GSA number | The GSA account number that has been funded |
| Receiver User number | The user number that have the loan |
| Receiver GSA number | The GSA account number in which the loan resides |
| Receiver Loan Account number | The loan account number that has the loan. |
| Receiver Loan Unpaid Amount | When Receiver outstanding loan amount is greater than GSA account balance then GSA account balance.  When Receiver outstanding loan amount is less than GSA account balance then Receiver outstanding loan amount.  (This will be the same amount that will be locked) |
| Status | Describe if the lock was successful or failed i.e. Success or Failed |
| Reason | Describe the error info if there is any issue during locking |
| Lock Action | The lock action that has taken place i.e. fully locked, partially locked or not locked |
| Amount Locked | The amount that has been successfully locked. |

**SMS TRIGGER TECHNICAL FLOW**

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**HIGH LEVEL TECHNICAL FLOW (NEO-BOSS PROCESS (NEO SMS TRIGGER))**

1. The IAS (Industry Application) gets the file on the SFTP and imports the data on the database.
2. The IAS will split the records on the database into different batches.
3. IAS will open the cursor to handle the logic for locking based on each individual record.
4. The IAS will send a notification to the notification center.
5. The notification will invoke the external gateway.
6. The external gateway will then send the message to the customer

**Assumptions**

* The customer should be subscriber of one of the Loop DFS products in this case is Mshwari.
* The customer should have defaulted on one of Loop DFS product i.e. Mshwari and the auto-recoveries trigger will only happen if and only if the customer has a defaulted loan account.
* The customer should have funds in one of the accounts either savings account for example savings in Mshwari account.

**Note**: Please avoid overdrawing the customer’s account. Only draw the money from funded savings customer accounts.

**BI System Capabilities**

* The BI set-off day (loan age) should be configurable on the system for example (Set-off should happen on day 121).

**NEO System Capabilities**

* The system should extend the loan repayment capabilities from the user level to the customer level where the system should be able to recover money from savings based on the ID phone number on the customer level.
* The system should have the ability to move funds with narration. This will be used for audit purpose. Example **‘setoff#25472\*\*\*\*10’ for beneficiary account and ‘setoff#25471\*\*\*\*06’ for sending account.**
* Once the funds are recovered and debited on the customer’s savings account to the savings account with the loan, the loan should be settled on the same day after the Close of Business. An automatic real time recovery capability.
* The system should provide shall require narrations for amounts debited & credit via setoff. The format should read as below
  + 1. **For debited Account Setoff\_{TargetMSISDN}**
    2. **Ii. For Credit Account Setoff\_{SourceMSISDN}**
* The system should have a check to turn on/off to allow for lock of General Savings Account. If the configuration is checked on, the system should allow users to upload specific customers to be locked.

**Repayment Order**

The repayment order should be configurable and follow the below order

* The repayment should prioritize the loan with first Days Past Due (DPD) ascending.
* The repayment should also prioritize based on loan amount (large loan amount first and then smallest).

**Auto-recoveries Prioritization**

The system should have capacity to prioritize and recover from multiple accounts to clear outstanding loans based on configurable parameters Including:

Funds Apportioning/ Allocation/ prioritization order for the scenarios below:

1. **One Savings, Multiple Loans**: Prioritization to be based on DPDs -where the highest DPD takes priority.
2. **One Loan, Multiple Funded Savings**: Prioritize the savings amount, descending - from the high value GSAs to the low values.
3. **Multiple loans and savings**: Prioritize highest DPD loan, and highest GSA savings amount.
4. **Recycling Status**: Prioritize Recycled, then active.

**Real Time Lock Amount Adjustments**

The system should have functionality to recalculate in real time and adjust ‘sniffed / locked’ amounts required once the auto-recovery is completed.

**Lock Adjustments**

Neo should create a lock type called Set-off that will be used to lock these transactions. The system should be able to adjust GSA locks, in instances whether the customer pays the loans during the notice period. At all times, GSA locks <= Loan amount(s).

1. Adjusting the lock - for partial repayment, or full repayment where the GSA corresponds multiple loans
2. Lifting the lock - where all loans related to the customer are settled.

Adjust locks appropriately at EOD according to the loan balance movements:

* 1. Settled Loan: Release the lock amount component that was held against the loan
  2. Loan Partial Repayment: Adjust the lock to the extent of the repayment received.

Lock Releases Scenarios: Enable operator to **manually** release locks for records where:

* 1. Confirmed Disputes by partner
  2. Any change in the funded GSA that places the account under any of the exclusion rules.

The lock adjustment in case of early repayment should be as following:

**If (locked amount > new balance after Repayment adjust the lock amount to accommodate the new loan balance else retain the locked amount).**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Locked Amount** | **Loan Balance at Locking** | **Early Repayment** | **New Loan Balance after repayment** | **Resultant Lock** | **Logic** |
| Scenario 1 | 3,000.00 | 10,000.00 | 3,000.00 | 7,000.00 | 3,000 | if locked amount > new balance after early repayment, adjust to new balance, else retain the locked amount |
| Scenario 2 | 3,000.00 | 10,000.00 | 10,000.00 | - | - |
| Scenario 3 | 3,000.00 | 10,000.00 | 9,000.00 | 1,000.00 | 1,000.00 |

**Auto-reconciliation**

The system should have Auto reconciliation capability for the auto-recovered funds and accounts and provide reports.

**Configurable Parameters on BI**

1. To determined setoff date
2. Duration whether it’s a daily activity or one off
3. Switching on or off the set-off capability
4. Ability to reference internal repository for exclusion.

**Configurable Parameters on NEO**

The system should have capabilities for the user to configure the below parameters:

1. Ability to allow the system to allow global lock of customer General Saving Accounts during the set-off period - It should be a turn on/off.
2. The ability to configure the notification period on NEO to allow for sweeping the accounts

**Auto-recoveries Exclusion Rules to be done by the BI team**

The system should have capabilities to configure exclusion rules including accounts:

1. ID level matching between the loan account and the customer record via user number.
2. Under Deceased
3. Under Post no Debit restrictions
4. With VAR Locks v. marked as Fraudulent
5. Disputed & under investigation (This is a scenario where the customer is claiming that the he is not aware of the phone number that has the loan and doesn’t belong to him).
6. Loans without any linked positive saving balances at ID level Blacklisted
7. Failed KYC
8. Negative Savings balances
9. Operator should be able to manually add, to the exclusion list, customers, at ID level, that should be exempted from the activity.
10. Savings that has PMP Lock.
11. Other (defined by user)

**Notifications and Placeholders**

The system should be able to send the below notifications with configurable placeholders indicated below after locking the General Saving Account:

1. **Active line with defaulted loan:**

Dear Customer, please settle your defaulted M-Shwari loan of Kes. {Loan\_Balance}, by {Notice\_Lapse\_Date}, else, we shall utilize the funds on your other Savings Accounts to repay the loan.

1. **Line with Funded savings for Active Loan:**

Dear Customer, there is a defaulted M-Shwari loan of Kes. {Loan\_Balance} which was accessed on {Disbursement\_Date} from your other line {Defaulted\_MSISDN}. We wish to issue you a {notice\_period} notice to settle the loan, else we shall utilize the funds in your other Savings Accounts to repay the loan.

1. **Line with Funded savings for Recycled Loan:**

Dear Customer, there is a defaulted M-Shwari loan of Kes. {Loan\_Balance} which was accessed on {Disbursement\_Date} from your old line {Defaulted\_MSISDN}. We wish to issue you a {notice\_period} notice to settle the loan, else we shall utilize the funds in your other Savings Accounts to repay the loan.

1. **After Recovery to the user with the GSA – For Active Loan MSISDN:**

Dear Customer, Kes. {Swept\_Amount} has been utilized from your savings account to pay your other loan on {Defaulted\_MSISDN} thank you. The new loan balance is Kes. {Loan\_Balance}.

1. **After Recovery to the user with the GSA– For Recycled Loan MSISDN:**

Dear Customer, Kes. {Swept\_Amount} has been utilized from your savings account to pay your other loan on your old line {Defaulted\_MSISDN} thank you. The new loan balance is Kes. {Loan\_Balance}.

Place holders expected:

1. {Notice\_Lapse\_Date}
2. {notice\_period}
3. {Loan\_Balance}
4. {Disbursement\_Date}
5. {Defaulted\_MSISDN}
6. {Swept\_Amount}
7. {Lock\_value}

Note: For instances of many savings under a loan, or many loans under a savings, multiple messages will be released for all instances of set-off (partial or otherwise).

This is only applicable where the global parameter for locking is checked on by the business. The after recovery SMS should be sent when both global parameter is checked on or off by the business.

**Financial Requirement**

The system should have the following capabilities:

1. The transaction reference should be unique and identifiable to the set off service

2. A priority matrix which is configurable by users to enable optimal recovery modes.

3. A set off report that is generated daily, weekly and monthly

4. We should maintain the order of repayment where fees are paid first

5. Map staging GL for a two-leg entry which is a best practice. The GL Account number to be used is **1004027**

**Customer consent**

1. Ability to inform customer before and after recovery for all the affected lines via SMS Notification.

**Automated Reporting.**

The system should generate reports on recoveries via set-off (duration to be configurable).

The system should provide a set off report that is generated at a configurable frequency e.g. daily, weekly and monthly.

The report will be called Set-off report. These are the fields that should be displayed.

|  |  |
| --- | --- |
| **Name** | **Description** |
| Date | The sweeping date |
| Transaction Type | The transaction type e.g. set-off |
| Customer Number | The customer number who the loan had the loan |
| ID Number | The ID number of the customer |
| Debited savings account | The savings account that has been debited |
| Debit\_Amount | The amount that has been debited from the savings |
| Transaction Reference | The Transaction reference in which was used to sweep the account e.g. NEO Reference number SAA5020241219000000007707827516 |
| Credit savings account | The credit savings account |
| Credit Amount | The amount that has been credited on the savings account |
| Sweep Amount | The sweep amount that was used to repay the loan |
| Loan account | The loan account that was repaid. |
| Loan repaid amount | The loan amount that has been repaid |
| Laon account balance | The loan account balance that is remaining after the sweep. |

**Notification SMS**

Customer should be able to receive an SMS indicating the amounts auto-recovered, the accounts funds are collected from and the loan paid by the auto-recovery including loan balance.