

Mobile Banking & Loan Performer

The following will be discussed in this session:

- Configuring LPF for Mobile Banking
- Mobile Banking Services with LPF
- Troubleshooting Mobile Banking

Target Group:

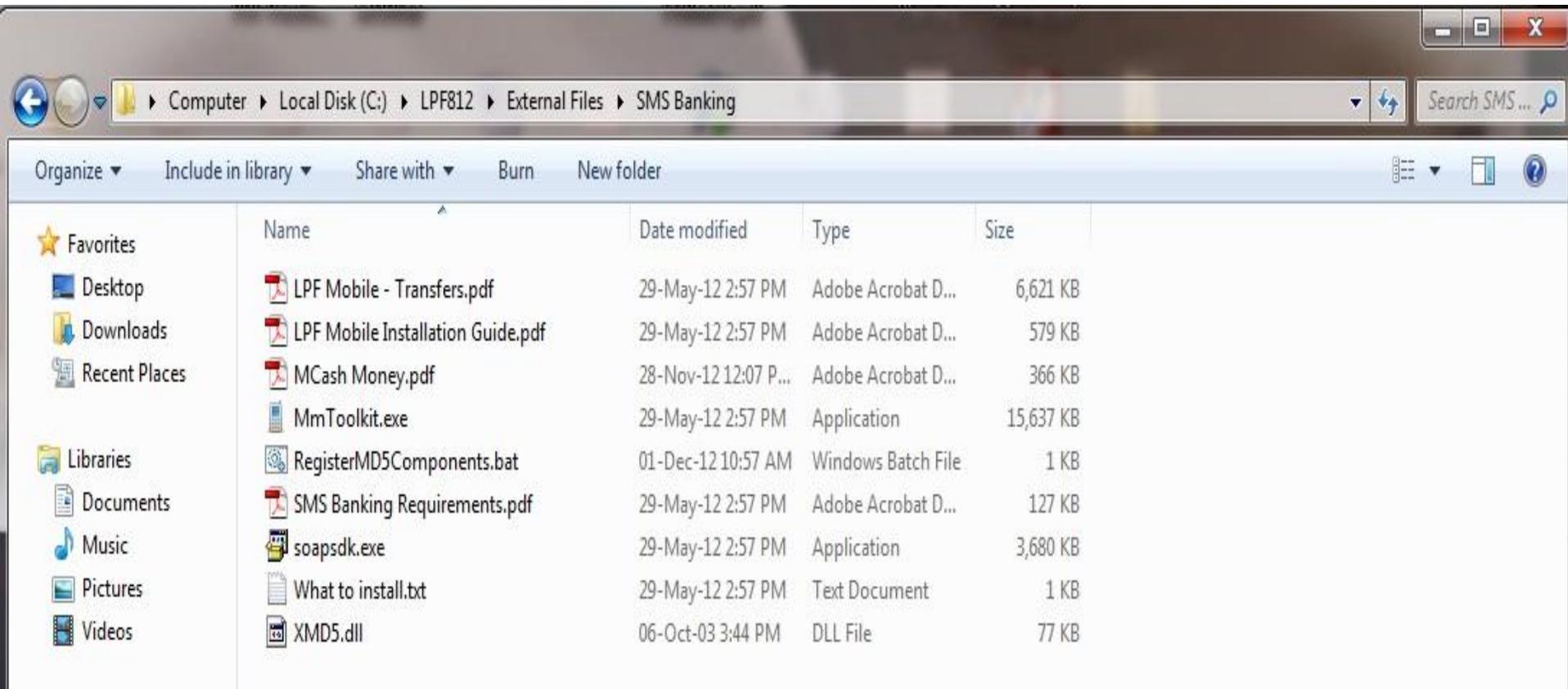
IT Administrators of Microfinance Institutions (MFIs) and Saccos using Loan Performer.

Required (Third-Party) Tools

- Loan Performer 8.13 or higher with SMS/Mobile Banking enabled (the demo version only allows 10 accounts)
- An Agent account with MCash
- Two SMS Modems (one for Pushing LPF Mobile, one for receiving and sending SMS)
- MMToolkit – This manages sending and receiving SMS Messages (included with LPF 8.13)
- MD5 Encryption Tools – Needed for MCash transactions (included with LPF8.13).

Knowledge Base

The following documents are available in External Files/SMS Banking. Before you start testing, training, or supporting a client on Mobile Banking, please read these documents.



The screenshot shows a Windows Explorer window with the address bar set to 'Computer > Local Disk (C:) > LPF812 > External Files > SMS Banking'. The window displays a list of files and folders in a table format. The left sidebar shows the 'Favorites' and 'Libraries' sections. The main pane shows a list of files with columns for Name, Date modified, Type, and Size.

Name	Date modified	Type	Size
LPF Mobile - Transfers.pdf	29-May-12 2:57 PM	Adobe Acrobat D...	6,621 KB
LPF Mobile Installation Guide.pdf	29-May-12 2:57 PM	Adobe Acrobat D...	579 KB
MCash Money.pdf	28-Nov-12 12:07 P...	Adobe Acrobat D...	366 KB
MmToolkit.exe	29-May-12 2:57 PM	Application	15,637 KB
RegisterMD5Components.bat	01-Dec-12 10:57 AM	Windows Batch File	1 KB
SMS Banking Requirements.pdf	29-May-12 2:57 PM	Adobe Acrobat D...	127 KB
soapsdk.exe	29-May-12 2:57 PM	Application	3,680 KB
What to install.txt	29-May-12 2:57 PM	Text Document	1 KB
XMD5.dll	06-Oct-03 3:44 PM	DLL File	77 KB

Configure LPF for Mobile Banking – Modem Setup

First, we register the modem and/or Http Template. The modem is used for receiving and sending SMS. The Http Template is used for sending bulk SMS. Http is recommended for SACCOs with a large number of clients who have subscribed for Mobile Banking.

The screenshot shows the 'LPF phone messaging setup' window with two tabs: 'Modem Setup' and 'Mobile Money Setup'. The 'Modem Setup' tab is active.

Modem Setup Section:

- Saved Modems:** A list with one entry: '1 EDGE MODEM +256792974050'.
- Connected Modems:** A dropdown menu showing 'EDGE MODEM' and buttons for 'Test Sending' and 'Test Receiving'.
- Tel.:** '+256792974050'
- Service Centre Tel Number:** '+256792000012'
- Swift Code:** (empty)
- Pin no:** (empty)
- Confirm Pin:** (empty)
- User profile:** 'Admin' (dropdown)
- Update the public Database for inter-MFI mobile Transfer
- Delete message from Sim Card after receiving?
- Default SMS Line?
- Buttons: Add, Update, Remove

HTTP Templates Section:

Element	Alias	Position	Value
1	SMPP server address	url	0
2	Sender's username	username	1
3	Sender's password	password	2
4	Message type	type	3
5	Delivery report	dlr	4
6	Receiver's phone number	destination	5

Additional options for HTTP Templates:

- Default SMS Line?
- User profile: 'Admin' (dropdown)
- SMS Provider: 'KenyaPoly' (dropdown)
- [Preview Template](#)

Buttons: Back, Add, Update, Remove, Next, Close

Advantages of HTTP:

- Cheaper
- LPF does not depend on telephone networks to send SMS

Disadvantages of HTTP:

- Unlike the modem, HTTP requires internet connection to send SMS. For the modem, LPF relies on the telephone network to send SMS.

Configure LPF for Mobile Banking – HTTP Template

The HTTP Template:

The bulk SMS Service Provider will provide an URL similar to the one below:

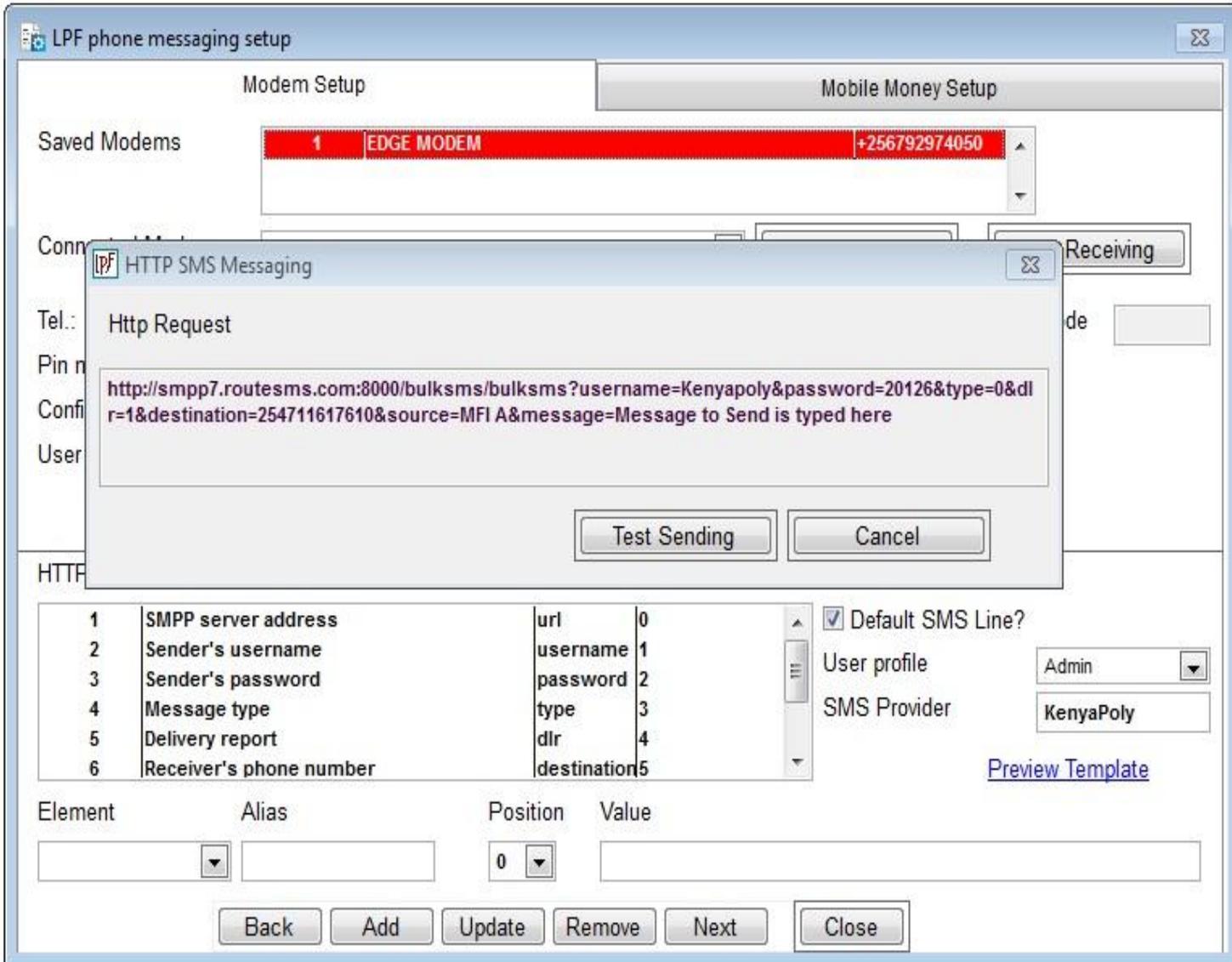
<http://smpp7.routesms.com:8000/bulksms/bulksms?username=Kenypoly&password=20126&type=0&dlr=1&destination=254711617610&source=Kenypoly&message=Message to send is typed here>

The above URL is broken down as seen below. We ignore the ampersand (&), the Equivalent operator (=), and the question mark (?) and arrange the Elements in the order presented by the URL:

Element	Alias	Position	Value
SMPP Server Address	url	0	http://smpp7.routesms.com:8000/bulksms/bulksms
Sender's username	username	1	Kenypoly
Sender's password	password	2	20126
Message type	type	3	0
Delivery report	dlr	4	1
Receiver's phone no	destination	5	254711617610
Sender's phone no	source	6	MFI A
Message Contents	message	7	Message to send is typed here

An example of a bulk SMS Service provider in Uganda is SMS Media

Configure LPF for Mobile Banking – HTTP Template



On Clicking the “**Preview Template**” button, the http request is automatically built to resemble the one provided by the bulk SMS service provider. You can test the string by clicking the “**Test Sending**” button.

Configure LPF for Mobile Banking – Mobile Money

To configure LPF for Mobile Money, select the Mobile Money Setup tab at System/Configuration/Mobile Banking Setup. Provide the required fields & save.

The screenshot shows a window titled "LPF phone messaging setup" with two tabs: "Modem Setup" and "Mobile Money Setup". The "Mobile Money Setup" tab is active. The form contains the following fields and controls:

- Service Provider: MCash (dropdown menu)
- Agent ID: 5990235176013820
- Password: [] Confirm Pin: []
- Mobile: +256792974050
- GL Account: 1000 (dropdown menu) OnlyUSD (checkbox) New GL Account (button)
- Menu Access Username: James
- Menu Access Password: [] Confirm Pin: []

At the bottom of the window, there are buttons for Back, Add, Update, Remove, Next, and Close.

-The Agent ID and Password are provided by the Service Provider (MCash).

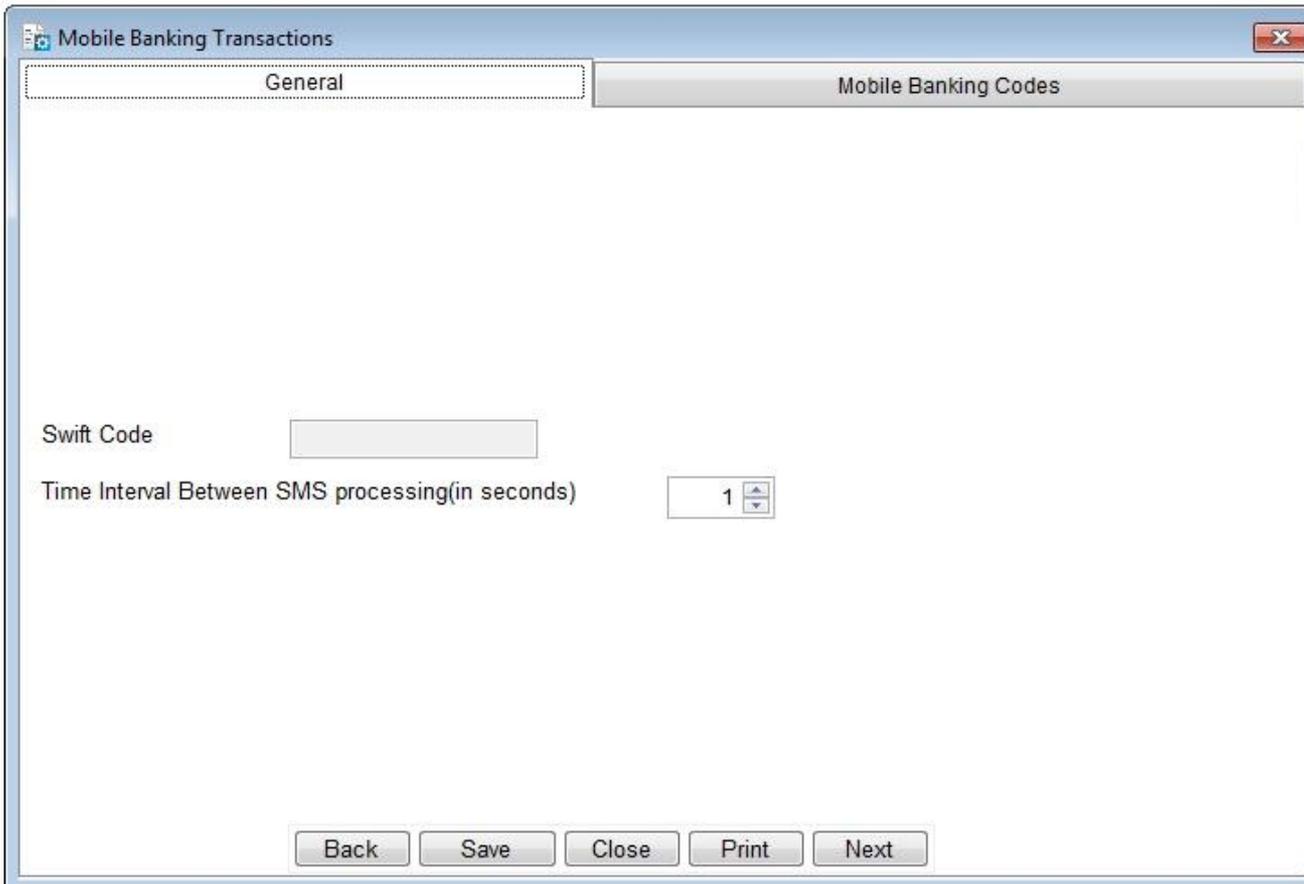
-The Mobile Number is the one the SACCO registers with MCash.

-The GL Account keeps track of transactions between LPF & MCash

Use the “Menu Access Password” to access the Mobile Money Clients’ Menu at “Clients/Mobile Banking Clients/Mobile Money Clients”. If the user does not know this password, s/he cannot enter or modify client’s phone numbers. It’s extra security.

Configure LPF for Mobile Banking – Time Interval

Configure the speed of processing at “System/Configuration/Mobile Banking Transactions” and set the time interval for SMS processing. The Mobile Banking Server will check the modem for any incoming messages after every x seconds.



The screenshot shows a software window titled "Mobile Banking Transactions" with a close button in the top right corner. The window is divided into two tabs: "General" (selected) and "Mobile Banking Codes". In the "General" tab, there are two input fields: "Swift Code" with an empty text box, and "Time Interval Between SMS processing(in seconds)" with a spinner box set to the value "1". At the bottom of the window, there are five buttons: "Back", "Save", "Close", "Print", and "Next".

A lower value of seconds indicates that the server will often update its received messages table. We recommend a value of 1 second.

Configure LPF for Mobile Banking - Charges

If the MFI/SACCO wants to charge for Mobile Banking Services, this can be done on the second tab at “System/Configuration/Mobile Banking Transactions”. Select the type of Service from “MESSAGE CODE”, provide the required data and save.

Mobile Banking Transactions

General

Mobile Banking Codes

MESSAGE CODE

Message Parameters

Customer SMS Label

To be charged? (for savings Only): Sending 0.0

To be replied?

MESSAGE CODE	Description	To be replied?	Message Parameters
DEPOSITMATURITY	Send message when Time Deposit matures?	F	
DEPOSITWITHDRAWAL	Send message after savings deposit/withdrawal?	F	
DFROMMOB	Allow Deposit from Mobile Money	T	AMOUNT,PINCODE
DISBURSEMENTTOGUARANTC	Send Message to guarantors after loan is disbursed	F	
INTERTRANSFER	Allow Inter-mfi transactions	T	RSWIFT,AMOUNT,SACC,SPRO
LOANARREARS	Check Loan Arrears	T	LNR,PINCODE
LOANBALANCE	Check Loan Balance	T	LNR,PINCODE
LOANDISBURSEMENT	Send Message after loan is disbursed?	F	
MDSBURSE	Allow Disbursement to Mobile Money	F	
PAYBILL	Make your bills payments	T	AMOUNT,ACCNB,PRODUCT,ACC

Back Save Close Print Next

For MFIs/SACCOs that don't charge for Mobile Banking Services, this configuration is ignored.

Configure LPF for Mobile Banking - Charges

An example of how to configure LPF to charge when a client pays bills. This also configures LPF for the Minimum and Maximum transaction amount.

Mobile Banking Transactions

General Mobile Banking Codes

MESSAGE CODE: Make your bills payer

Message Parameters: AMOUNT, ACCNR, PRODUCT, ACCNR, PRODUCT, REFNO, PINCODE

Customer SMS Label: PAYBILL

Transaction Amount: Minimum 0.00 Maximum 0.00

To be charged? (for savings Only): Amount to Charge 0.00

To be replied?

MESSAGE CODE	Description	To be replied?	Message Parameters
DEPOSITMATURITY	Send message when Time Deposit matures?	F	
DEPOSITWITHDRAWAL	Send message after savings deposit/withdrawal?	F	
DFROMMOB	Allow Deposit from Mobile Money	T	AMOUNT, PINCODE
DISBURSEMENTTOGUARANTOR	Send Message to guarantors after loan is disbursed	F	
INTERTRANSFER	Allow Inter-mfi transactions	T	RSWIFT, AMOUNT, SACC, SPRO
LOANARREARS	Check Loan Arrears	T	LNR, PINCODE
LOANBALANCE	Check Loan Balance	T	LNR, PINCODE
LOANDISBURSEMENT	Send Message after loan is disbursed?	F	
MDISBURSE	Allow Disbursement to Mobile Money	F	
PAYBILL	Make your bills payments	T	AMOUNT, ACCNR, PRODUCT, ACCNR, PRODUCT, REFNO, PINCODE

Back Save Close Print Next

Configure LPF for Mobile Banking - Charges

Set the Charges GL Account at System/Configuration/Savings.
This is where charges are posted.

The screenshot shows a software window titled 'Savings' with a sub-tab 'Savings GL Accounts'. The 'Savings Product' is set to 'Epargne Garantie'. The window is divided into sections for 'Individuals', 'Groups', and 'Business' settings. Below these are various charge-related fields with dropdown menus for GL accounts. At the bottom, there are navigation buttons: Back, Save, Close, Print, and Next.

	Individuals:	Groups:	Business:	
Savings:	3310	3311	3312	New GL Account
Interest Paid:	6100	6101	6102	
Accrued Interest:				Reset Fields
Accrued interest cost:	6100	6101	6102	
Negative Interest Charge:	7289	7289	7289	
Overdraft interest after expiry date:				

Penalty Fees on Savings:	7129		
Commission on Savings:	7150	Interbank Cheque Clearing Account:	
Cheques Account:		Standing Orders Bank Charges Account	
Cheque Charges Account:		Standing Orders Penalty Account	
Commission on Bounced Cheques (Sav. & Loans)		Standing Orders Holding Account	
Withholding Tax:		SMS Charge Account	
Stationery account for Savings:	7151		
Saving Account Closure:	7129		
Commission on Overdrafts:			
Inter-Mfi Savings Transfers:			

The admin should do this for each and every product.
The Server reminds the user to set this GL Account if there are charges.

Configure LPF for Mobile Banking – Loan Due Reminders

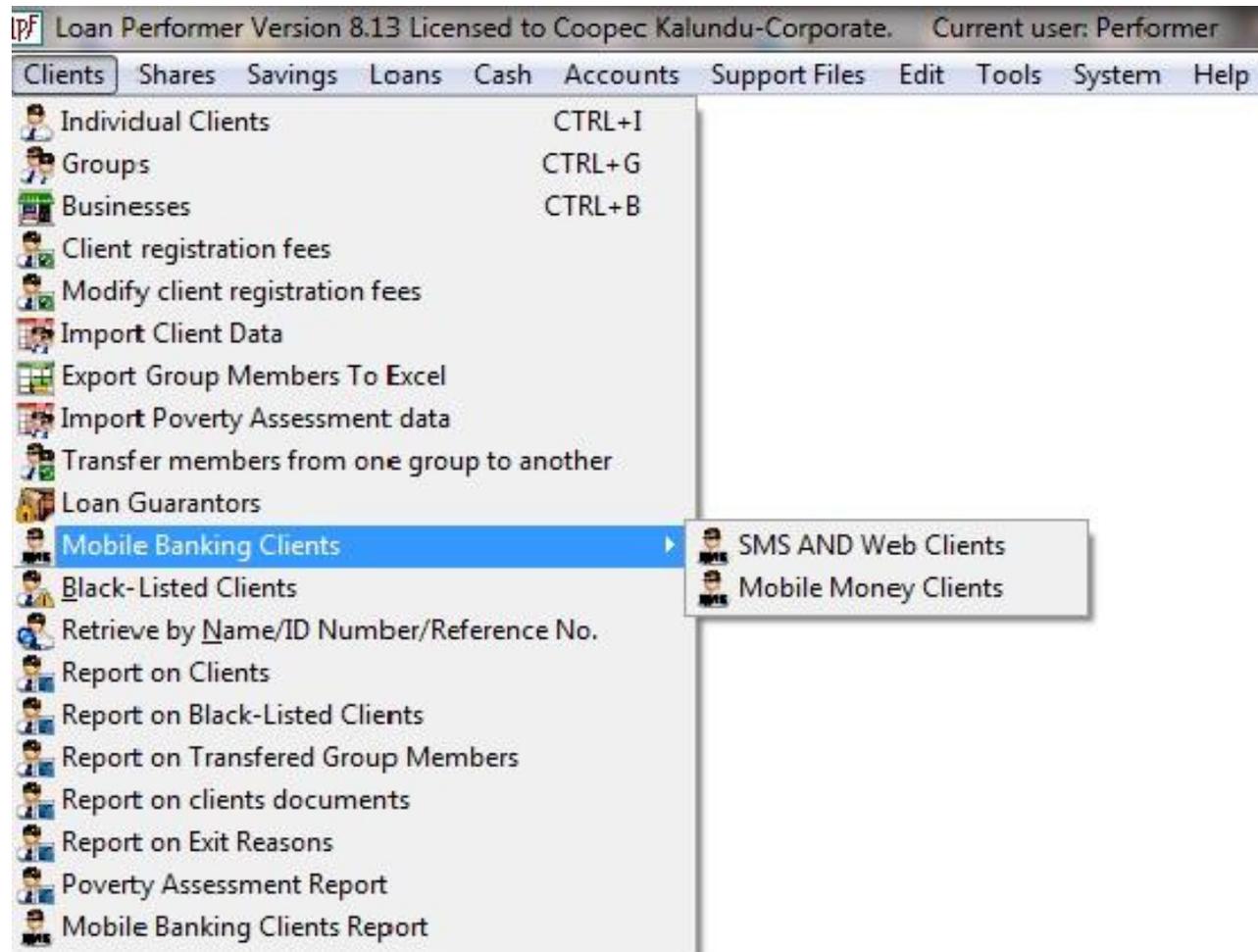
The Mobile Banking Server will send reminder messages before due dates based on the number of days set on this screen. This screen is accessed from “System/Configuration/Loan Product Settings”.

The screenshot shows a web application window titled "Loan Product Settings (For Ind. and Group Loans)". The "Loan Product" is set to "Agriculture". The "SMS Reminders" tab is active, showing a green message: "Please restart the SMS Server/Service for changes to take effect." Under "Send SMS", there are three checked options: "10 day(s) before due date", "5 day(s) before due date", and "2 day(s) before due date". The "Messages" section contains three text boxes for "Message 1", "Message 2", and "Message 3", each containing a reminder message: "Dear Customer, Your loan is due in 10 days", "Dear Customer, Your loan is due in 5 days", and "Dear Customer, Your loan is due in 2 days". At the bottom, there are radio buttons for "Chair Person", "Board Members", and "All Members", with "All Members" selected. Navigation buttons "Back", "Save", "Close", "Print", and "Next" are at the bottom.

The admin should do this for each and every product. If due reminder messages are not working, probably SMS reminders have not been setup for that product.

Configure LPF for Mobile Banking – Mobile Banking Clients

Clients are subscribed for Mobile Banking Services from Clients/Mobile Banking Clients.



Configure LPF for Mobile Banking – Mobile Banking Clients

Clicking on “SMS and Web Clients” loads the screen which allows you to select/or enter the client’s client code before coming to the screen below. To subscribe a client for a service, activate the checkbox. Click the Add, Update or Remove button to activate the Save button. The last one commits the changes.

The screenshot shows a software interface for configuring mobile banking clients. It is divided into two main sections: 'Setup' and 'Send Messages'.
In the 'Setup' section, the following information is entered:
- Client Code: KL/I/000004
- Name: Yorgo, Musenga
- Phone: +256782654149
- Password: xxxx
- Language: English
- Sms Connection: (empty dropdown)
Buttons for 'Add', 'Update', and 'Remove' are present. A 'Push LPF Mobile' button is at the bottom.
The 'Send Messages' section contains a list of checkboxes for various services:
- Send General messages?
- Allow checking of Savings Balances
- Send message after savings deposit/withdrawal?
- Send Message after savings interest payment?
- Send Message after loan is disbursed?
- Send Message to guarantors after loan is disbursed?
- Allow Checking of Loan Arrears
- Send message when Time Deposit matures?
- Send message when Savings are transferred?
- Allow checking of Loan Balances.
- Allow Inter-mfi transactions
- Allow bill payments
- Allow Checking of Time Deposits
- Allow Mobile Savings Transfer
- Send Repayment Due reminder message?
- Allow mobile Loan repayments
At the bottom of this section, there are two dropdown menus, both set to 'KL/V000004', with 'Optional' checkboxes next to them.
'Save' and 'Close' buttons are at the bottom right.

For MFIs/SACCOs that do not do savings, let the “Account & Product to Charge”, and “Transaction Account & Product” be optional.

In this case, there are services which won’t be available for such clients.

Configure LPF for Mobile Banking – Push LPF Mobile

The “LPF Mobile” phone application can be pushed to a client’s phone once the client’s information has been saved. So Save the client’s details, load the client’s data again and then click on the “**Push LPF Mobile**” button.

Please wait, the file is being forwarded.

SMS and web banking clients

Setup

Client Code: KL/I/000004

Name: Yorgo, Musenga

+256782654149 T.

Add Update Remove

Phone +256782654149

Password xxxx

Language English

Sms Connection EDGE MOD

Push LPF Mobile

Send Messages

- Send General messages?
- Allow checking of Savings Balances
- Send message after savings deposit/withdrawal?
- Send Message after savings interest payment?
- Send Message after loan is disbursed?
- Send Message to guarantors after loan is disbursed?
- Allow Checking of Loan Arrears
- Send message when Time Deposit matures?
- Send message when Savings are transferred?
- Allow checking of Loan Balances.
- Allow Inter-mfi transactions
- Allow bill payments
- Allow Checking of Time Deposits
- Allow Mobile Savings Transfer
- Send Repayment Due reminder message?
- Allow mobile Loan repayments

Account and Product to charge? KL/I/000004 Optional

Transaction Account and Product KL/I/000004 Optional

Save Close



Configure LPF for Mobile Banking – Push LPF Mobile

The file has been forwarded.
If your handset does not enable WAP Push messages, the file will not be received.
The SMS Server must be started to complete the transaction.

SMS and web banking clients

Setup

Client Code: KL/I/000004

Name: Yorgo, Musenga

+256782654149 T

Add Update Remove

Phone: +256782654149

Password: xxxx

Language: English

Sms Connection: EDGE MOD

Push LPF Mobile

Send Messages

- Send General messages?
- Allow checking of Savings Balances
- Send message after savings deposit/withdrawal?
- Send Message after savings interest payment?
- Send Message after loan is disbursed?
- Send Message to guarantors after loan is disbursed?
- Allow Checking of Loan Arrears
- Send message when Time Deposit matures?
- Send message when Savings are transferred?
- Allow checking of Loan Balances.
- Allow Inter-mfi transactions
- Allow bill payments
- Allow Checking of Time Deposits
- Allow Mobile Savings Transfer
- Send Repayment Due reminder message?
- Allow mobile Loan repayments

Account and Product to charge? KL/I/000004 Optional

Transaction Account and Product KL/I/000004 Optional

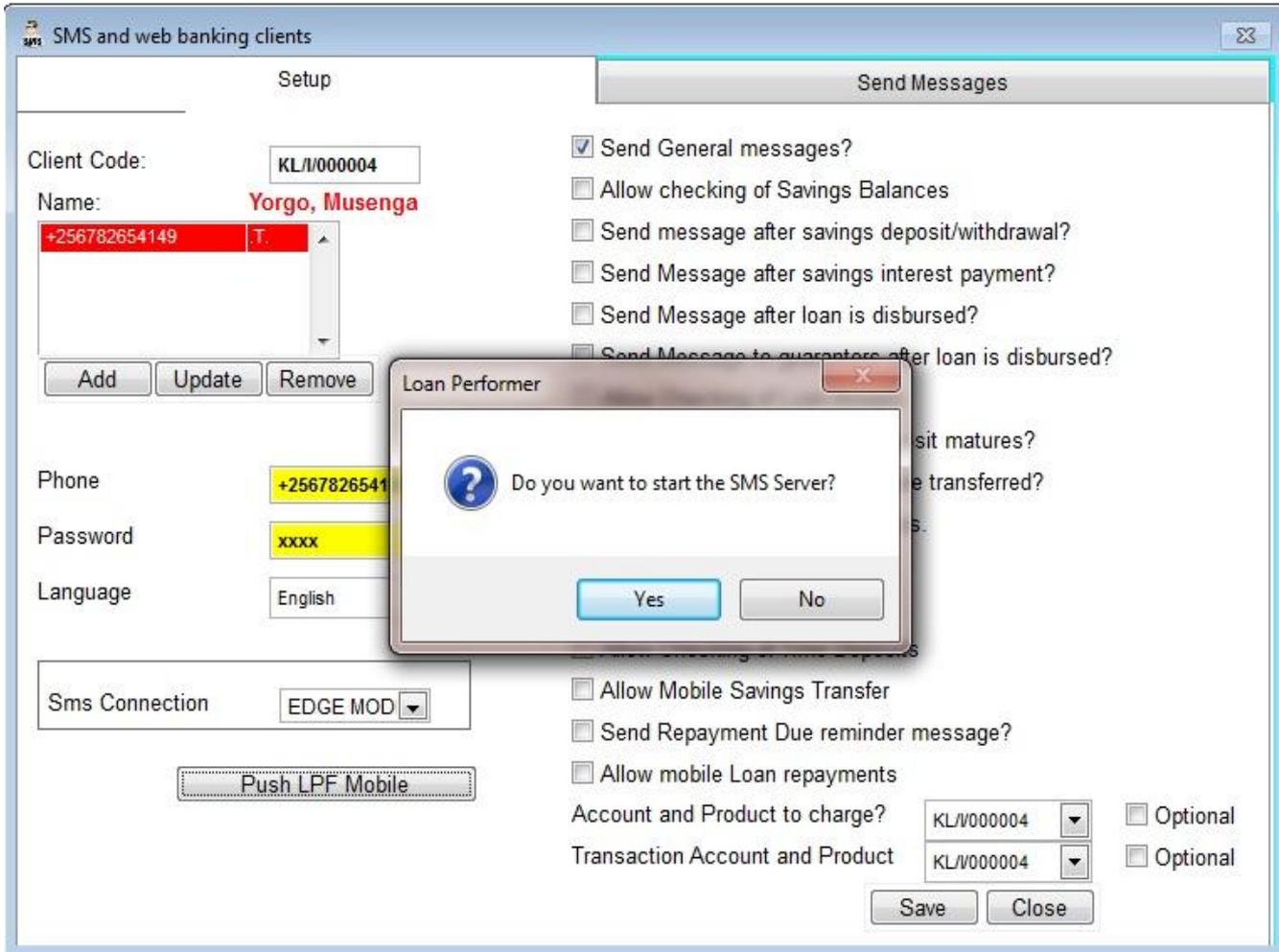
Save Close

If the Push message is forwarded, the message above will be displayed.



Configure LPF for Mobile Banking – Push LPF Mobile

To complete the push process, the Mobile Banking Server must be started. Normally, if the server is not started, LPF will prompt the user to start the server.

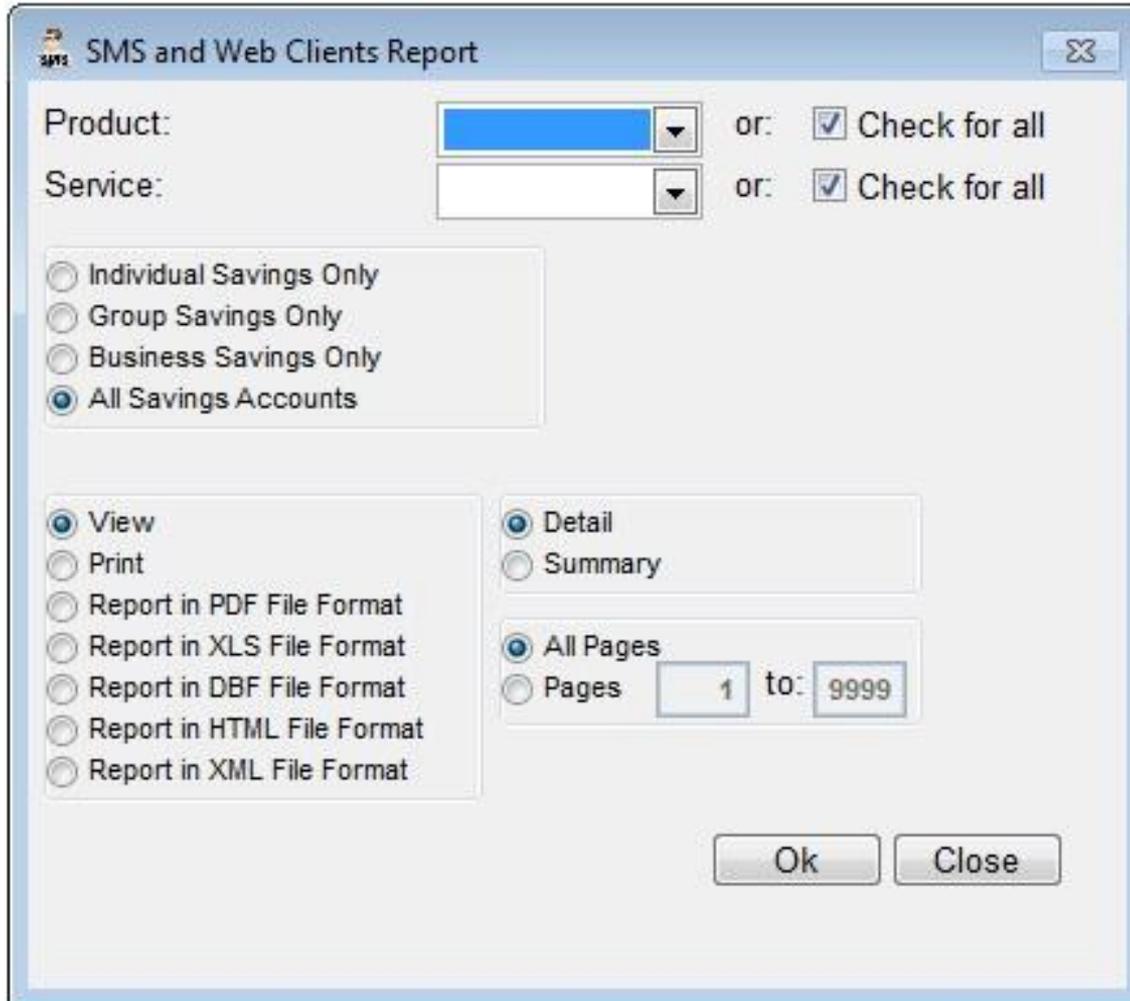


If the server is not started and if there are charges set for push messages, they will not be posted immediately.

In such cases, the push message will be sent and charges processed as soon as the server is started.

Configure LPF for Mobile Banking –

SMS and Web Clients Report



The screenshot shows a dialog box titled "SMS and Web Clients Report" with a close button in the top right corner. The dialog contains the following fields and options:

- Product:** A dropdown menu with a blue highlight and a downward arrow.
- Service:** A dropdown menu with a white highlight and a downward arrow.
- Filters:** Two "or:" labels, each followed by a checked checkbox and the text "Check for all".
- Account Types:** A group box containing four radio buttons: "Individual Savings Only", "Group Savings Only", "Business Savings Only", and "All Savings Accounts" (which is selected).
- View Options:** A group box containing eight radio buttons: "View" (selected), "Print", "Report in PDF File Format", "Report in XLS File Format", "Report in DBF File Format", "Report in HTML File Format", and "Report in XML File Format".
- Detail Options:** A group box containing two radio buttons: "Detail" (selected) and "Summary".
- Page Range:** A group box containing two radio buttons: "All Pages" (selected) and "Pages". The "Pages" option has two input boxes: the first contains "1" and the second contains "9999", with "to:" between them.
- Buttons:** "Ok" and "Close" buttons at the bottom center.

This report displays clients who have been subscribed for Mobile Banking Services.

Configure LPF for Mobile Banking –

SMS and Web Clients Report

Sample Report

Clients Shares Savings Loans Cash Accounts Support Files Edit Tools System Help

Print Preview

100%

Printed on: 11/12/2012
Printed by: Performer

All SMS and Web Clients Report

Savings Product : All Products

Client Code	KL/I/000004	Phone	+256782654149	Loan Disbursement	.F.	Time Deposit Maturity	.F.
Name	Musenga Yorgo	General Messages	.T.	Disbursement to Guarantors	.F.	Savings Transfer	.F.
Trans Acc	KL/I/000004	Savings Balance	.F.	Bill Payment	.F.	Loan Balance	.F.
Trans Prod	S000	Savings Withdrawal/Deposit	.F.	Loan Arrears	.F.	Inter-Mfi Transfers	.F.
Member ID		Interest Payment	.F.	Check Time Deposits	.F.	Repay Due	.F.
		Mobile Savings Transfer		.F.	Allow mobile Loan repayments		.F.

Configure LPF for Mobile Banking – Guarantor’s Phone No

If messages have to be sent to guarantors after a disbursement, the phone number of the guarantor must be set. It should appear in the international format.

The screenshot shows the 'Loan Guarantors' application window. The 'Address' tab is selected. The 'Tel.' field is highlighted with an orange box. The '2nd phone' field is also visible. The 'Area Name/Code' field shows 'INCONNUE' and '000000000000'. The 'Distance to the branch' field shows '0 Km'. The 'Guarantor is also a client' checkbox is unchecked. The 'Retrieve', 'Save', 'Delete', and 'Cancel' buttons are visible.

No message will be delivered to a guarantor whose phone number has not been saved in the international format.

To edit a guarantor’s information, Click on the Clients’ menu and then click on Guarantors.

Configure LPF for Mobile Banking – Send Messages

To send messages customized for clients based on Mobile Banking services, on the SMS and Web Clients window, select the second tab. From the Message Type drop down, select the type of Service. All clients subscribed for that service will be loaded on the grid.

SMS and web banking clients

Setup Send Messages

Subscription Based Message
 Non-Subscription

Message Type: Send General messages?

You are invited for the end of year general meeting

Check/Uncheck all

Name	Phone	Send
Yorgo Musenga	+256782654149	<input checked="" type="checkbox"/>

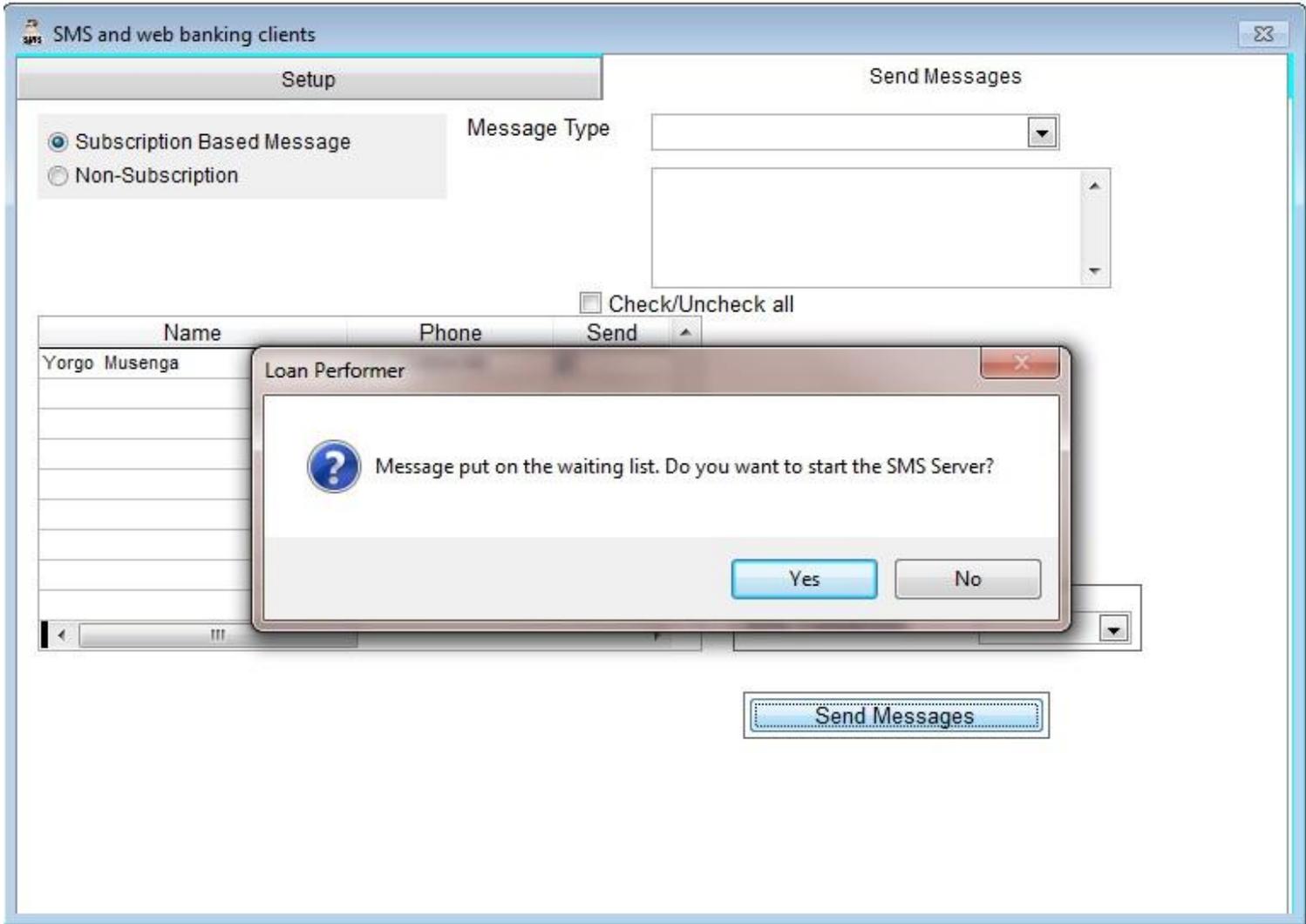
Sms Connection: EDGE MOD

Send Messages

1. Check all clients who will receive this message.
2. Type the message and select the SMS Connection i.e. Modem or HTTP.
3. Click the “**Send Message**” button to send the message to the queue.

Configure LPF for Mobile Banking – Send Messages

LPF will prompt the user to start the server if it is not started yet.



Configure LPF for Mobile Banking – Mobile Money Clients

To subscribe clients for the MCash services click on Clients/Mobile Banking Clients/Mobile Money Clients. This menu is password protected.



Loan Performer - Mobile Money Clients

Password to access this menu

OK Cancel

Configure LPF for Mobile Banking – Mobile Money Clients

To subscribe a client for a service, activate the appropriate checkboxes.
Click the Add, Update or Remove button to activate the Save button.
Click the Save button to commit the changes.

Mobile Money Clients

Client Code: KL/I/000004

Name: Yorgo, Musenga

+256782654149 .T.

Add Update Remove

Phone +256782654149

Transaction Account and Product KL/I/000004

Save Close

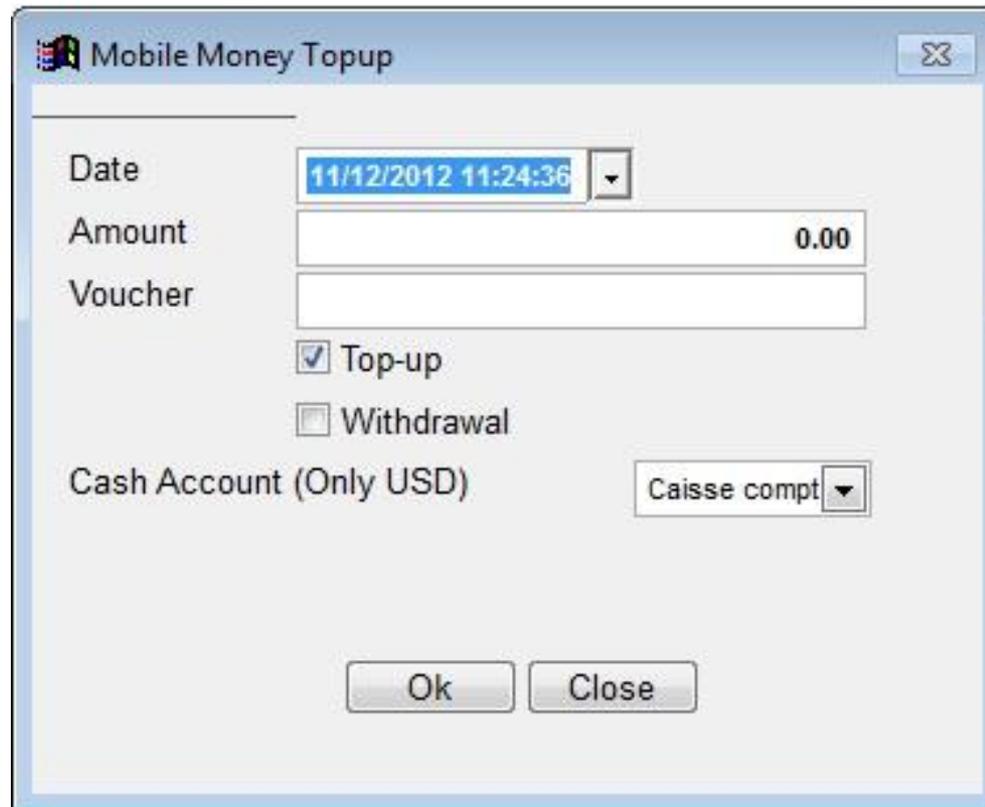
- Allow Disbursement to Mobile Money
- Allow Savings Deposit
- Allow Loan Repayment
- Allow Transfer to Mobile Money
- Suspend this client

For SACCOs which do not do savings, the “Transaction Account & Product” is optional.

In this case, there are services which won't be available for such clients.

Mobile Banking Services - Using MCash

1. Mobile Money Top-Up
2. Savings Deposit
3. Loan Disbursement
4. Loan Repayment



The image shows a screenshot of a software dialog box titled "Mobile Money Topup". The dialog box has a standard Windows-style title bar with a close button in the top right corner. The main content area contains the following fields and controls:

- Date:** A date and time selection field showing "11/12/2012 11:24:36".
- Amount:** A text input field with the value "0.00" displayed on the right side.
- Voucher:** An empty text input field.
- Transaction Type:** Two radio buttons are present: "Top-up" (which is selected) and "Withdrawal".
- Cash Account (Only USD):** A label followed by a dropdown menu currently showing "Caisse compt".

At the bottom of the dialog box, there are two buttons: "Ok" and "Close".

Mobile Banking Services – MCash Services

The Loan Performer Mobile Banking Application sits on the mobile phone of the client. Version 8.13 has been modified to include a menu for MCash Money. The Application communicates to the Mobile Banking Server (MBS) of Loan Performer.



Using the Mobile Application, the client sends a request to the MBS. The MBS validates the client before forwarding the transaction to the MCash Server. If the MCash server confirms, the MBS completes the transaction. If not a response from the MCash Server is forwarded to the client.

Mobile Banking Services – M-Cash Services

M-Cash Money menus on the Loan Performer Mobile Banking Application.



Mobile Banking Services – MCash Services

Transfer of funds from a client's savings account with the MFI/Sacco to his/her mobile money account with MCash.



The image shows a mobile banking interface with a blue background. At the top, there is a blue header bar with the text "Transfer to Mobile" in white. Below the header, there are three input fields. The first is labeled "Amount:" and contains the value "45000". The second is labeled "Bank Contact No:" and contains the value "079 297 4050". The third is labeled "Pin Code:" and contains six asterisks "*****". To the right of the Pin Code field, there is a small blue button with the text "Qwerty". At the bottom of the screen, there are two blue buttons: "Back" on the left and "Menu" on the right.

Mobile Banking Services – MCash Services

Transfer of funds from a client's Mobile Money account with MCash to his/her Loan Performer savings account with the MFI/Sacco.

The image shows a mobile banking interface for a 'Deposit from Mobile' transaction. The screen has a blue background with white text and input fields. At the top, there is a blue header bar with the text 'Deposit from Mobile'. Below this, there are three input fields: 'Amount:' with the value '89000', 'Bank Contact No:' with the value '079 297 4050', and 'Pin Code:' with the value '*****'. A 'Qwerty' keyboard is visible below the Pin Code field. At the bottom of the screen, there are two buttons: 'Back' on the left and 'Menu' on the right.

Note: A pin verification message/call is sent to the client by the MCash Server before the transaction is completed.

Mobile Banking Services – M-Cash Services

Transfer of funds from a client's M-Cash account for repayment of a loan.



The screenshot shows a mobile banking interface with a blue background. At the top, there is a title bar that reads "Repay from Mobile". Below this, there are four input fields, each with a label above it: "Amount:" with the value "65000", "Loan No:" with the value "Db00556", "Bank Contact No:" with the value "079 297 4050", and "Pin Code:" with the value "*****". To the right of the Pin Code field is a small button labeled "Qwerty". At the bottom of the screen, there are two buttons: "Back" on the left and "Menu" on the right.

Note: A pin verification message/call is sent to the client by the M-Cash Server before the transaction is completed.

Mobile Banking Services – MCash Services

It is now possible to disburse a loan from Loan Performer to the client's MCash account. An option ("Disburse to Mobile Money") has been added to the disbursement screen

The screenshot shows a software window titled "Disburse Loan: KL/004037 Client Name - Yorgo, Musenga". The window contains several input fields and checkboxes. The "Disburse to Mobile Money" checkbox is selected and highlighted with a red rectangle. An error message dialog box is overlaid on the window, displaying a red 'X' icon and the text: "The Mobile Money Server returned the following message: Agent Deposit Amount is out of limits".

Loan Amount to Disburse:	536,200.00	USD
Disbursement Date:	28/11/2012 10:34	-
Last Voucher:	0000294094	
Stationery Fee:	0.00	
Loan Commission:	0.00	
Development Fee:	0.00	
Balance Disbursed:	536,200.00	
Loan Cycle:	2	
Number of jobs expected:	0	

Cash
 Cheque
 Transfer to Clients Bank A/C
 Savings Transfer
 Disbursement to supplier
 Disburse to Mobile Money

Print Receipt
 Print Loan Contract

Simulation Save Close

Loan Performer contacts the MCash server after the user clicks on the Save button.

A successful transaction ends with confirmation messages from MCash and Loan Performer to the client's phone.

Mobile Banking Services – MCash Services

Besides the Mobile Money menus, LPF Mobile provides the menus below:



Clicking on any of the menus, loads a screen which allows the user to enter details such as loan number, savings account, product, etc as seen on the next slide.

Mobile Banking Services – Savings Balance

To check for savings balance, the client provides his/her pin code and the Bank contact telephone number. The bank contact number is the one loaded in the modem.

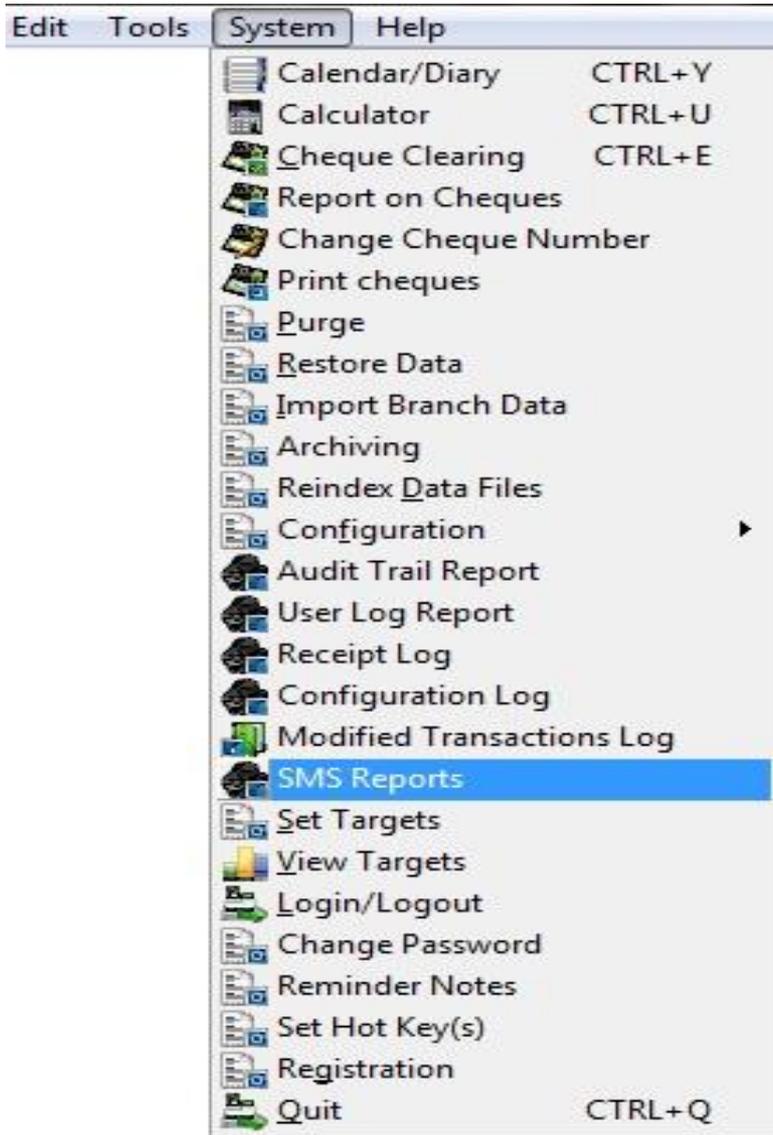


The screenshot shows a mobile banking interface with a blue background. At the top, there is a title bar with the text "Savings Balance". Below the title bar, there are two input fields. The first field is labeled "Bank Contact No:" and contains a single vertical bar. To the right of this field is a small blue box containing the number "123". The second field is labeled "Pin Code:" and is empty. At the bottom of the screen, there are two buttons: "Back" on the left and "Menu" on the right.

When the client selects the finish command, LPF mobile validates the details and then sends an SMS.

If the details are invalid or some have not been provided, the client is asked to correct or enter more details.

SMS Reports – SMS Reports



Messages sent from the client are received on the modem of the Mobile Banking Server.

The server processes these messages and then provides feedback to the client.

A report that displays Received, Unsent, Sent and Error messages is available at System/SMS Reports.

SMS Reports – Received Messages

The Received Messages report shows all received messages and those that are still in the queue waiting to be processed by the Mobile Banking Server.

The screenshot shows a software window titled "SMS Reports" with a close button in the top right corner. The window contains a tabbed interface with four tabs: "Received Messages" (selected), "Unsent Messages", "Sent Messages", and "Error Messages". Below the tabs is a table with the following columns: "Message#", "Reccdate", "Cellphone", and "Message". The table contains four rows of data, all highlighted in light blue. Below the table is a date range selector with "Enter dates" followed by two date pickers: "07/07/2003" and "11/12/2012", separated by "and:". To the right of the date pickers are "Refresh" and "Start Server" buttons. At the bottom left, there are radio buttons for "View", "Print", "Report in PDF File Format", "Report in XLS File Format", "Report in DBF File Format", "Report in HTML File Format", and "Report in XML File Format". To the right of these are radio buttons for "Detail" and "Summary", and a "Pages" section with "All Pages" selected and "1 to: 9999" displayed. An "OK" button is located at the bottom right of the window.

Message#	Reccdate	Cellphone	Message
3	08/12/2012 17:10:14	+256782654149	TOMOB 160 049048048050
4	08/12/2012 17:08:57	+256782654149	RFROMMOB KL004037 200 049048048050
2	08/12/2012 16:54:52	+256782654149	DFROMMOB 1200 049048048050
1	08/12/2012 16:05:25	+256782654149	DFROMMOB 500 049048048050

The feedback message is put in the unsent messages queue after the server has processed the received message.

This queue also contains any other message waiting to be sent.

SMS Reports– Unsent Messages

The Unsent Messages report contains messages waiting to be sent to the client. The Mobile Banking server uses the modem or Http connection (which ever is set default SMS Connection) to send messages.

If a modem does not have enough credit and it has been set as the default SMS Connection, messages will remain in the unsent queue until the modem is loaded.

A sent message appears in the Sent Messages report.

The screenshot shows the 'SMS Reports' application window. The 'Unsent Messages' tab is selected, displaying a table with the following data:

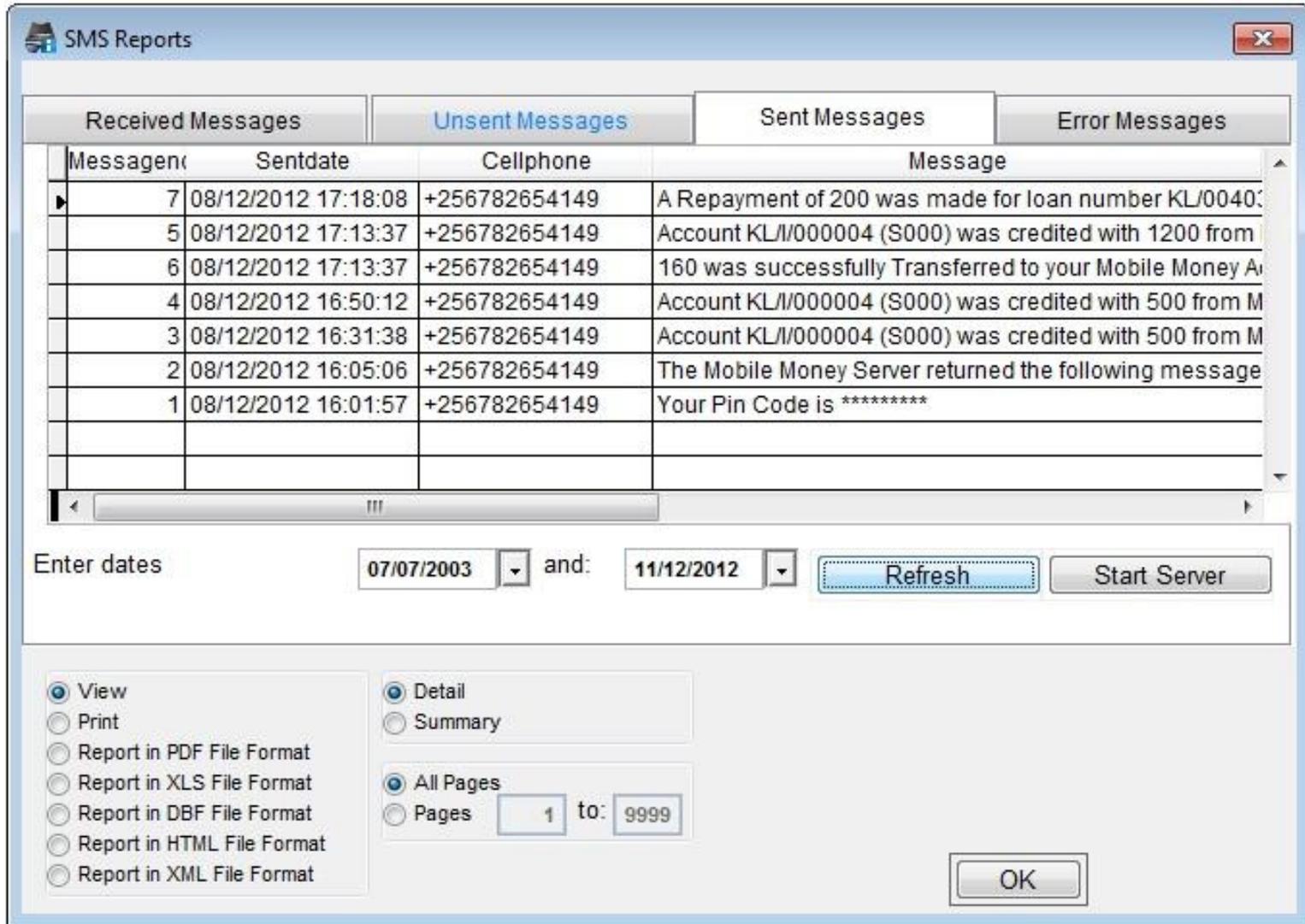
MessageID	Postdate	Cellphone	Message
8	11/12/2012 11:20:10	+256782654149	You are invited for the end of year general meeting

Below the table, there are date selection fields: 'Enter dates' with a dropdown for '07/07/2003' and 'and:' with a dropdown for '11/12/2012'. There are also 'Refresh' and 'Start Server' buttons.

At the bottom, there are options for 'View' (radio buttons for View, Print, Report in PDF File Format, Report in XLS File Format, Report in DBF File Format, Report in HTML File Format, Report in XML File Format) and 'Detail' (radio buttons for Detail, Summary). There is also a 'Pages' section with 'All Pages' selected and a range of '1' to '9999'. An 'OK' button is at the bottom right.

SMS Reports – Sent Messages

Messages appear in the Sent Messages report only if they have been sent. When the telephone network is slow, messages may take a while to reach the receivers.



The screenshot shows the 'SMS Reports' application window. At the top, there are four tabs: 'Received Messages', 'Unsent Messages', 'Sent Messages', and 'Error Messages'. The 'Sent Messages' tab is selected. Below the tabs is a table with the following columns: 'Messageid', 'Sentdate', 'Cellphone', and 'Message'. The table contains seven rows of data, with the first row selected. Below the table, there are date selection fields for 'Enter dates' (07/07/2003 and 11/12/2012), a 'Refresh' button, and a 'Start Server' button. At the bottom, there are options for 'View' (radio buttons for View, Print, Report in PDF File Format, Report in XLS File Format, Report in DBF File Format, Report in HTML File Format, Report in XML File Format) and 'Detail' (radio buttons for Detail, Summary). There is also a 'Pages' section with 'All Pages' selected and a range of '1 to 9999'. An 'OK' button is located at the bottom right.

Messageid	Sentdate	Cellphone	Message
7	08/12/2012 17:18:08	+256782654149	A Repayment of 200 was made for loan number KL/0040:
5	08/12/2012 17:13:37	+256782654149	Account KL/000004 (S000) was credited with 1200 from
6	08/12/2012 17:13:37	+256782654149	160 was successfully Transferred to your Mobile Money A
4	08/12/2012 16:50:12	+256782654149	Account KL/000004 (S000) was credited with 500 from M
3	08/12/2012 16:31:38	+256782654149	Account KL/000004 (S000) was credited with 500 from M
2	08/12/2012 16:05:06	+256782654149	The Mobile Money Server returned the following message
1	08/12/2012 16:01:57	+256782654149	Your Pin Code is *****

SMS Reports – Error Messages

The “Error Messages” report displays errors which occur when the server is processing transactions.

The screenshot shows the 'SMS Reports' application window. The 'Error Messages' tab is selected. The report table has the following data:

Logno	Tday	Sending	Message	Errmessage
1	08/12/2011	F	0	Wrong message. This message was dropped: get a calling tune f
				Wrong message. This message was dropped: get a calling tune from Orange this Christmas seas

Below the table, there are date selection fields: 'Enter dates' with '07/07/2003' and '11/12/2012', a 'Refresh' button, and a 'Start Server' button. At the bottom, there are view options: 'View' (selected), 'Print', 'Report in PDF File Format', 'Report in XLS File Format', 'Report in DBF File Format', 'Report in HTML File Format', and 'Report in XML File Format'. There are also options for 'Detail' (selected) and 'Summary', and a page range selector set to 'All Pages' from '1' to '9999'. An 'OK' button is at the bottom right.

Other messages which appear in this report include adverts received on the modem from the network service provider. Such invalid messages are dropped but logged in this report.

Starting the Server

The Mobile Banking Server can be started in three major ways:

1. Click on the “Start Server” button on the “SMS Reports” form.
2. Open the LPF working folder and double click on lpfsmserver.exe

The screenshot shows the 'SMS Reports' application window. It features a table with columns for Message#, Recdate, Cellphone, and Message. Below the table, there are date selection fields (07/07/2003 and 11/12/2012), a Refresh button, and a Start Server button which is highlighted with an orange border. At the bottom, there are options for View (Detail, Summary), Print, and Report in various file formats (PDF, XLS, DBF, HTML, XML). An OK button is also present.

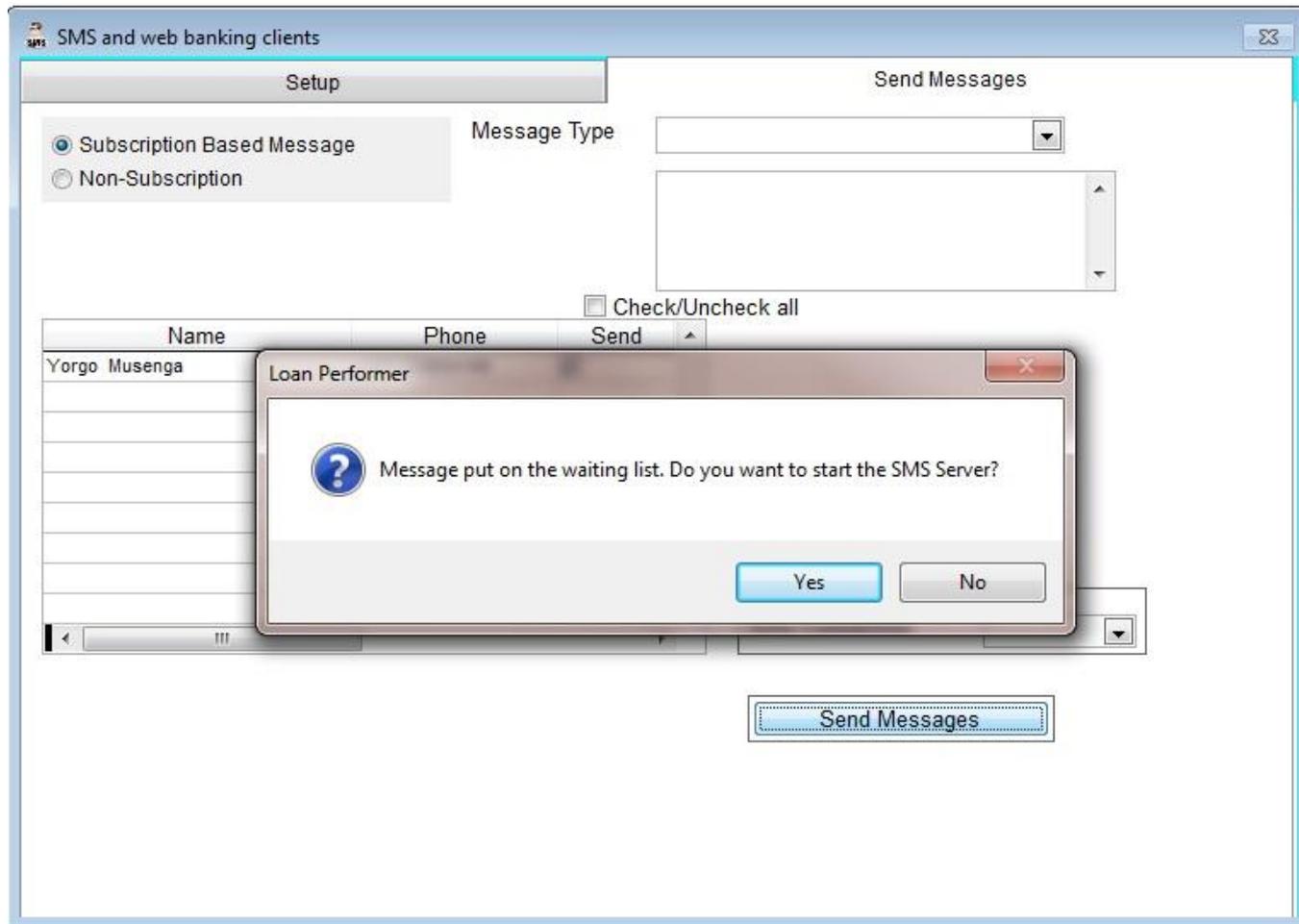
Message#	Recdate	Cellphone	Message
3	08/12/2012 17:10:14	+256782654149	TOMOB 160 049048048050
4	08/12/2012 17:08:57	+256782654149	RFROMMOB KL004037 200 049048048050
2	08/12/2012 16:54:52	+256782654149	DFROMMOB 1200 049048048050
1	08/12/2012 16:05:25	+256782654149	DFROMMOB 500 049048048050

3. For every transaction which requires the Mobile Banking Server started, the user is prompted to start the server. This happens only when the server is not running. Please refer to the next slide for an example.

Starting the Server

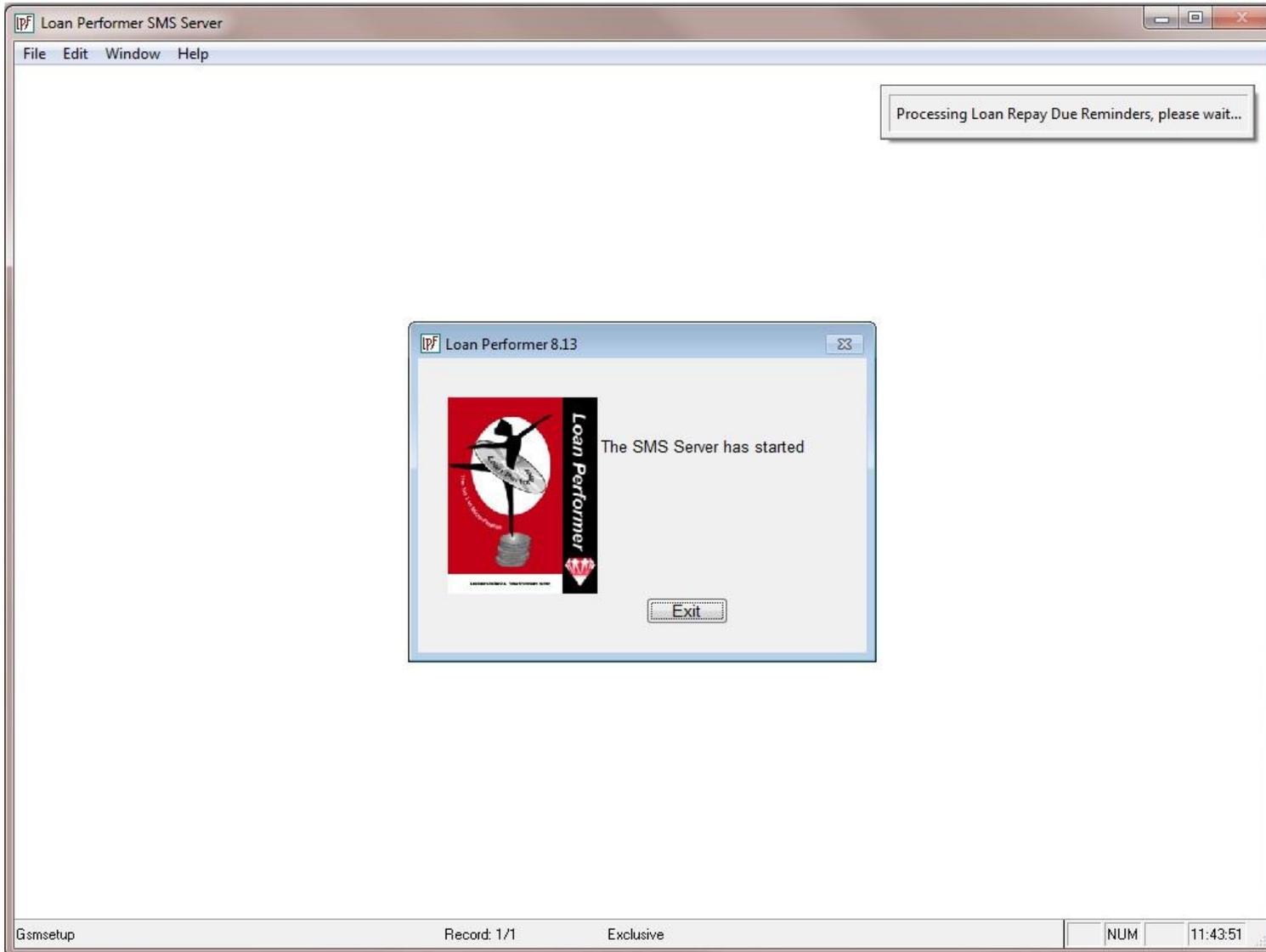
The user is prompted to start the Mobile Banking Server after sending a message from the second tab of the LPF menu “System/Mobile Banking Clients/SMS and Web Clients”.

If the user selects “No”, the message will remain in the queue until the server is started.



Starting the Server

When the Mobile Banking Server is successfully started, the following screen is displayed:



The Server displays its activity in the top right corner.

When the user clicks Exit, the Server will not stop until it has finished processing the current transaction.

The user has to wait.

Other Transactions

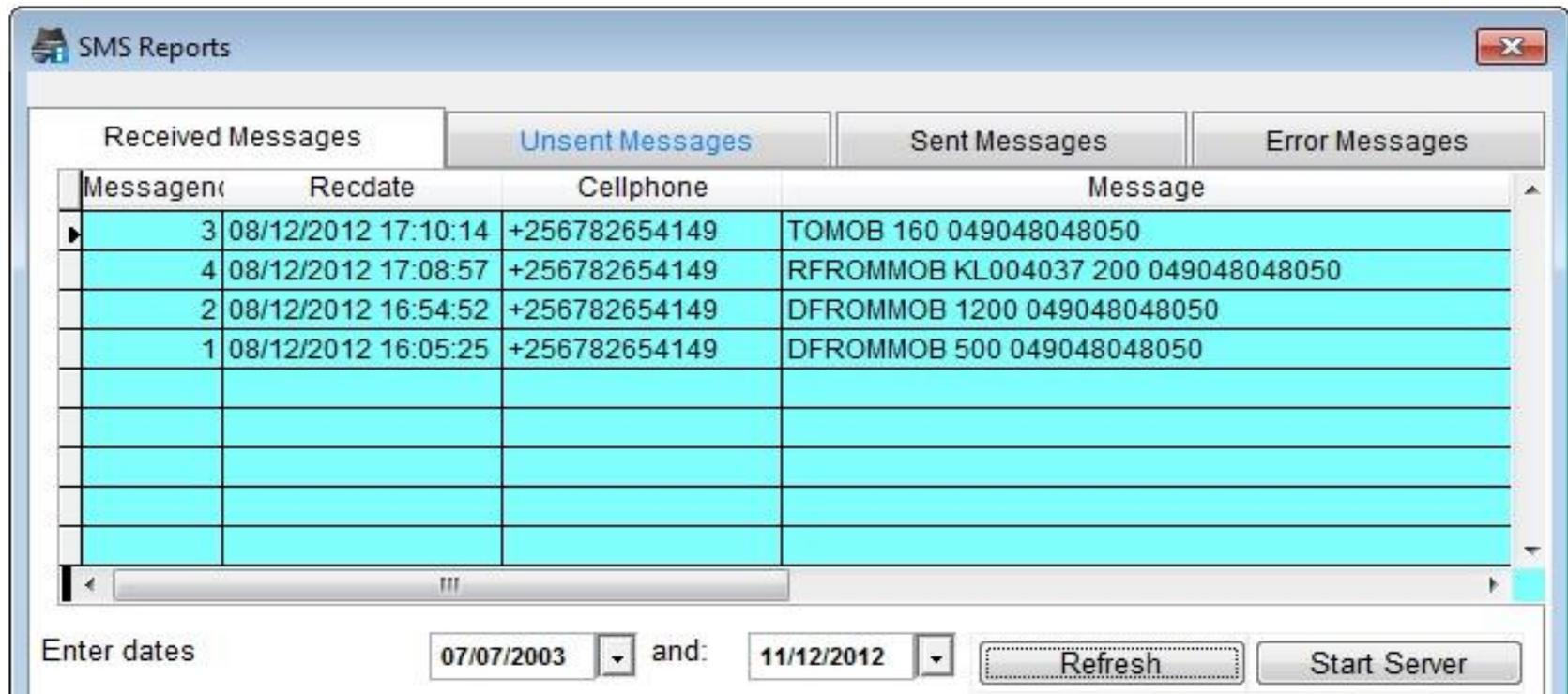
- Message after savings Deposit/Withdrawal
- Message after savings interest payment
- Message after disbursement
- Message to guarantors after disbursement
- Message after Time Deposit Matures
- Message after Savings are transferred

Note: If the Mobile Banking Server is not running, these messages will be queued and sent as soon as the Server is started. That means that messages will NOT be sent immediately after the transaction is done.

Troubleshooting Mobile Banking

A message is sent from the phone but not received by LPF (1/5).

The Mobile Telephone network is slow. In most cases the message will take longer to reach the modem in case the network is slow. Confirm that the message has reached by loading the “Received Messages” report



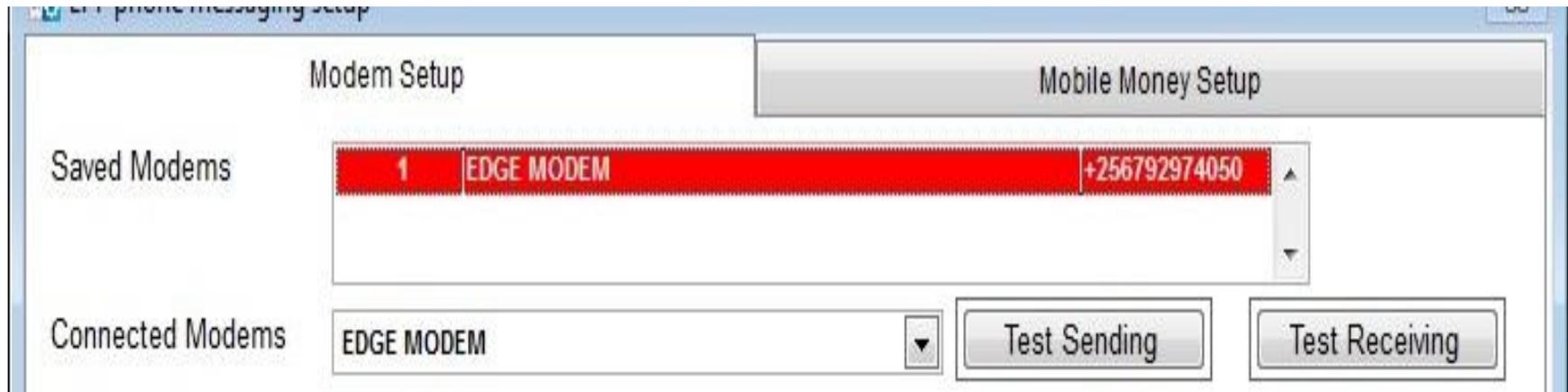
The screenshot shows a window titled "SMS Reports" with a close button in the top right corner. Below the title bar, there are four tabs: "Received Messages" (selected), "Unsent Messages", "Sent Messages", and "Error Messages". The main area contains a table with the following columns: "Message#", "Reccdate", "Cellphone", and "Message". The table has four rows of data, with the first row selected. Below the table is a scroll bar. At the bottom of the window, there is a date filter section with the text "Enter dates", two date input fields (07/07/2003 and 11/12/2012), and the text "and:". To the right of the date fields are two buttons: "Refresh" and "Start Server".

Message#	Reccdate	Cellphone	Message
3	08/12/2012 17:10:14	+256782654149	TOMOB 160 049048048050
4	08/12/2012 17:08:57	+256782654149	RFROMMOB KL004037 200 049048048050
2	08/12/2012 16:54:52	+256782654149	DFROMMOB 1200 049048048050
1	08/12/2012 16:05:25	+256782654149	DFROMMOB 500 049048048050

Enter dates and:

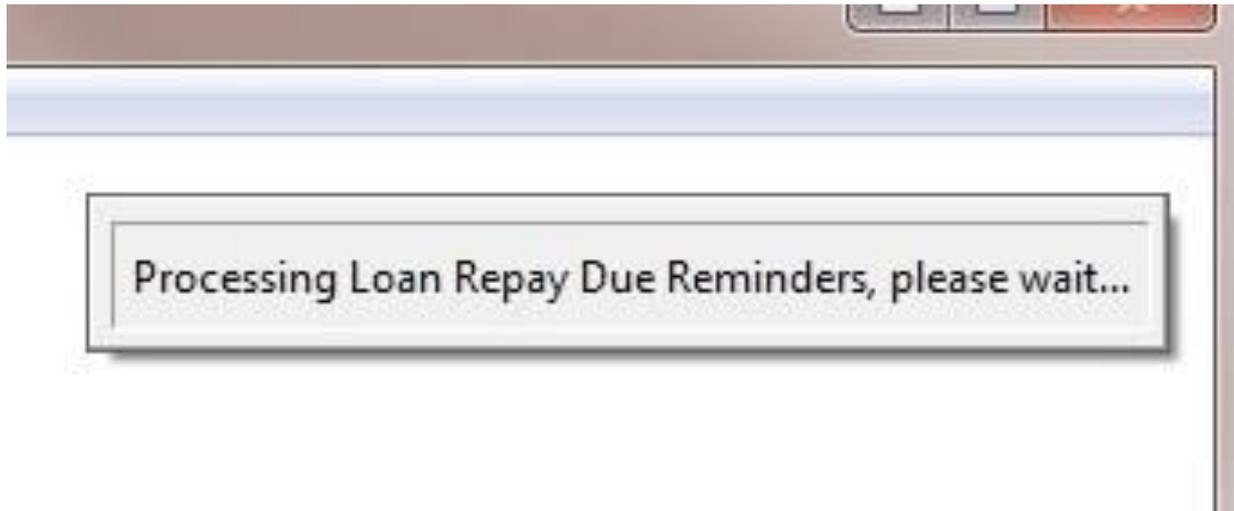
A message is sent from the phone but not received by LPF (2/5).

The modem does not support receiving of SMS. Test the modem at “System/Configuration/Mobile Banking Setup”.



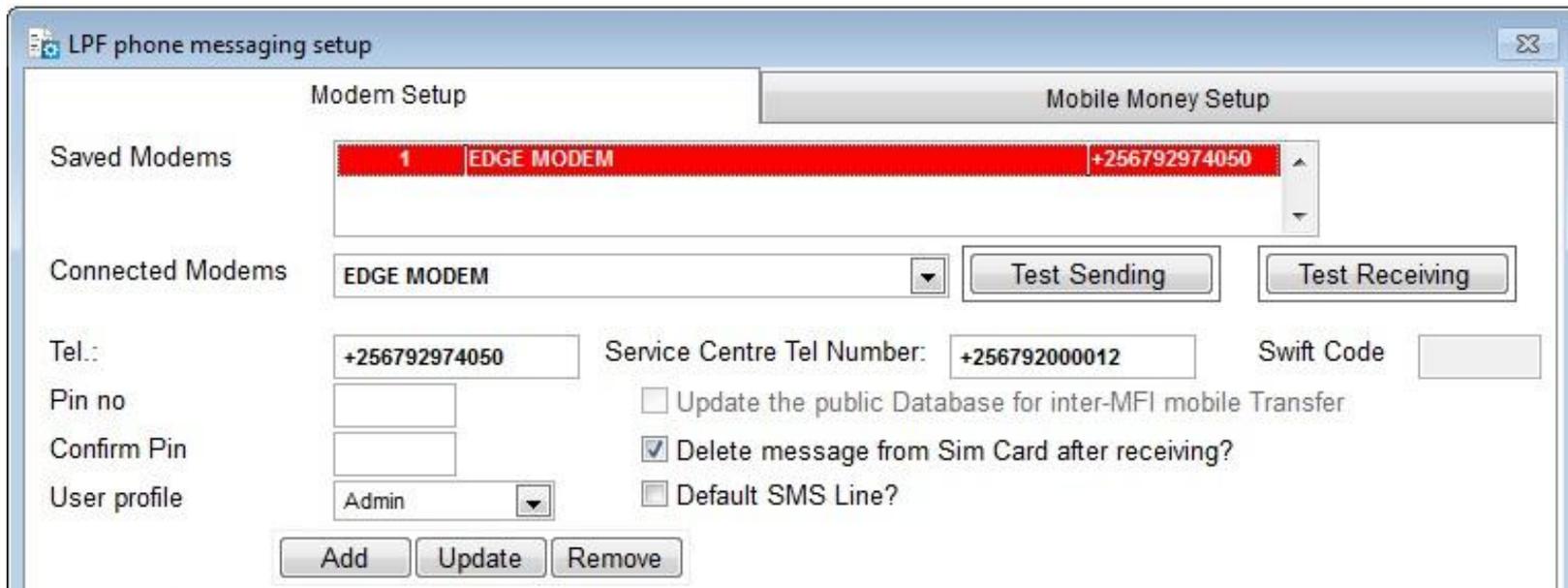
A message is sent from the phone but not received by LPF (3/5).

The Mobile Banking server might be still busy processing other transactions. The Server displays a message that the transaction being processed.



A message is sent from the phone but not received by LPF (4/5).

Does the Sim Card of the Modem require a pin number? If a pin number is required and an invalid number has been entered at the time of registering the modem, LPF will not be able to open the modem.



The screenshot shows the 'LPF phone messaging setup' window. It has two tabs: 'Modem Setup' (active) and 'Mobile Money Setup'. Under 'Modem Setup', there is a list of 'Saved Modems' with one entry: '1 EDGE MODEM +256792974050'. Below this is a 'Connected Modems' section with a dropdown menu showing 'EDGE MODEM' and two buttons: 'Test Sending' and 'Test Receiving'. The 'Tel.:' field contains '+256792974050', 'Service Centre Tel Number:' contains '+256792000012', and 'Swift Code' is empty. There are three checkboxes: 'Update the public Database for inter-MFI mobile Transfer' (unchecked), 'Delete message from Sim Card after receiving?' (checked), and 'Default SMS Line?' (unchecked). There are also input fields for 'Pin no' and 'Confirm Pin', and a 'User profile' dropdown set to 'Admin'. At the bottom are 'Add', 'Update', and 'Remove' buttons.

A message is sent from the phone but not received by LPF (5/5).

If the user enters a wrong Bank Contact Number, that message will not be received on the modem.

Messages are not sent by the MFI/Sacco (1/7)

- Has the Mobile Banking server been started?
Messages will not be processed if the Server is not running.



Messages are not sent by the MFI/Sacco (2/7)

- Does the Modem have enough credit? The Mobile Banking Server informs the user when there is no credit. i.e. **“The Modem has not responded, make sure there is enough credit”**.
- If http is set as the default SMS Line, an internet connection is required for messages to be sent. The Mobile Banking Server informs the user when the internet connection is lost.

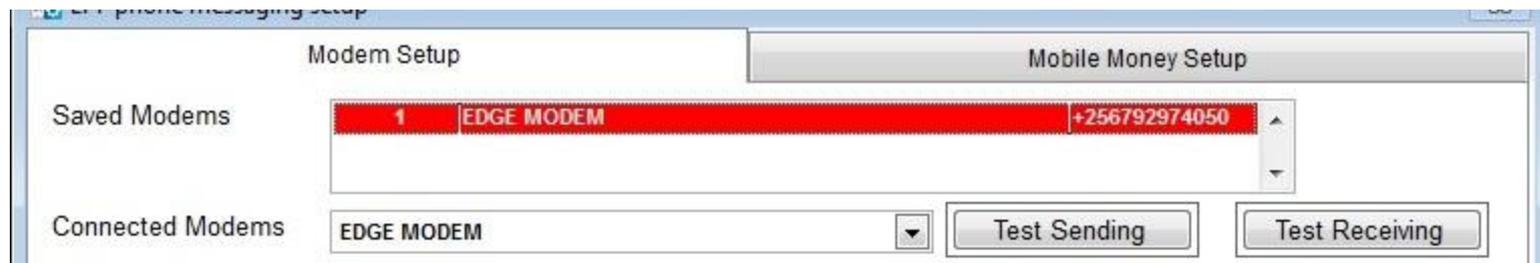
Messages are not sent by the MFI/Sacco (3/7)

Does the Sim Card in the Modem require a pin number? If a pin number is required and an invalid number has been entered at the time of registering the modem, LPF will not be able to open the modem.

The screenshot shows the 'LPF phone messaging setup' window. It has two tabs: 'Modem Setup' (active) and 'Mobile Money Setup'. Under 'Modem Setup', there is a 'Saved Modems' list with one entry: '1 EDGE MODEM +256792974050'. Below this is a 'Connected Modems' section with a dropdown menu showing 'EDGE MODEM' and two buttons: 'Test Sending' and 'Test Receiving'. The 'Tel.:' field contains '+256792974050'. The 'Service Centre Tel Number:' field contains '+256792000012'. The 'Swift Code' field is empty. There are three input fields for 'Pin no', 'Confirm Pin', and 'User profile' (set to 'Admin'). There are three checkboxes: 'Update the public Database for inter-MFI mobile Transfer' (unchecked), 'Delete message from Sim Card after receiving?' (checked), and 'Default SMS Line?' (unchecked). At the bottom are three buttons: 'Add', 'Update', and 'Remove'.

Messages are not sent by the MFI/Sacco (4/7)

Does the modem support sending of SMS. Test the modem System/Configuration/Mobile Banking Setup



Messages are not sent by the MFI/Sacco (5/7)

If a wrong telephone number is used at the time of subscribing a client for Mobile Banking Services, messages will always be sent to a wrong person.

SMS and web banking clients

Setup

Client Code: KL/000004

Name: Yorgo, Musenga

+256782654149 T

Add Update Remove

Phone: +256782654149

Password: xxxx

Language: English

Sms Connection: EDGE MOD

Push LPF Mobile

Send Messages

- Send General messages?
- Allow checking of Savings Balances
- Send message after savings deposit/withdrawal?
- Send Message after savings interest payment?
- Send Message after loan is disbursed?
- Send Message to guarantors after loan is disbursed?
- Allow Checking of Loan Arrears
- Send message when Time Deposit matures?
- Send message when Savings are transferred?
- Allow checking of Loan Balances.
- Allow Inter-mfi transactions
- Allow bill payments
- Allow Checking of Time Deposits
- Allow Mobile Savings Transfer
- Send Repayment Due reminder message?
- Allow mobile Loan repayments

Account and Product to charge? KL/000004 Optional

Transaction Account and Product KL/000004 Optional

Save Close

Messages are not sent by the MFI/Sacco (6/7)

Is the client subscribed for this service at the SMS and Web/ Mobile money clients pages? If the client is not subscribed for the service, messages will not be sent to the queue. Therefore no message will be delivered to the client.

The screenshot shows a software window titled "Disburse Loan: KL/004037 Client Name - Yorgo, Musenga". The form contains the following fields and options:

- Loan Amount to Disburse: 500.00 USD
- Disbursement Date: 11/12/2012 13:41
- Last Voucher: 0000294091
- Stationery Fee: 0.00
- Loan Commission: 0.00
- Development Fee: 0.00
- Balance Disbursed: 0.00
- Loan Cycle: [blank]
- Number of jobs expected: [blank]
- Fingerprint: [blank]
- Disbursement Method (checkboxes):
 - Cash
 - Cheque
 - Transfer to Clients Bank A/C
 - Savings Transfer
 - Disbursement to supplier
 - Disburse to Mobile Money
- Print Receipt:
- Print Loan Contract:
- Buttons: Simulation, Save, Close

An error dialog box titled "Loan Performer" is overlaid on the form. It contains a red 'X' icon and the following text:

Client does not subscribe for the service(s) below:
Send Message after loan is disbursed?
Send Message to guarantors after loan is disbursed?

The dialog box has an "OK" button.

This applies to all services below:

- Send General messages?
- Allow checking of Savings Balances
- Send message after savings deposit/withdrawal?
- Send Message after savings interest payment?
- Send Message after loan is disbursed?
- Send Message to guarantors after loan is disbursed?
- Allow Checking of Loan Arrears
- Send message when Time Deposit matures?
- Send message when Savings are transferred?
- Allow checking of Loan Balances.
- Allow Inter-mfi transactions
- Allow bill payments
- Allow Checking of Time Deposits
- Allow Mobile Savings Transfer
- Send Repayment Due reminder message?
- Allow mobile Loan repayments

Messages are not sent by the MFI/Sacco (7/7)

Is the product the same as the one configured at the SMS and Web/ Mobile money clients page? If the product configured is different, messages will not be sent to the queue. Therefore no message will be delivered to the client.

Account and Product to charge? KL/V000004 Optional
Transaction Account and Product KL/V000004 Optional

The screenshot shows a 'Deposit' transaction form. The 'Transaction Information' tab is active, displaying the following details:

- Account No.: KL/V000004
- Name: Yorgo, Musenga
- Product: Epargne Garantie
- Currency: USD
- Date and Time: 11/12/2012 13:46:08
- Max Neg Balance: 0.00
- Stationery: Caisse comptoir

An error dialog box titled 'Loan Performer' is overlaid on the form. It contains the following message:

X This client subscribes for mobile transactions. SMS will not be sent because this product is different.

The dialog box has an 'OK' button.

At the bottom of the form, there is a table with the following data:

T-Code	Day/Time	Type	Mode	Clear	Amount	Balance	Penalty	Commission	Station
1202000107	11/12/2012	SD	1	0	5,000.00	5,000.00	0.00	0.00	0.00

This applies to Send Message after:

1. Disbursement
2. Interest payment
3. Deposits/Withdraw
4. TD Matures
5. Savings Transfer
6. General Messages

LPF Mobile is not delivered to the Clients' Phone

The file has been forwarded.
If your handset does not enable WAP Push messages, the file will not be received.
The SMS Server must be started to complete the transaction.

SMS and web banking clients

Setup

Client Code: KL/I/000004

Name: Yorgo, Musenga

+256782654149 T.

Add Update Remove

Phone: +256782654149

Password: xxxx

Language: English

Sms Connection: EDGE MOD

Push LPF Mobile

Send Messages

- Send General messages?
- Allow checking of Savings Balances
- Send message after savings deposit/withdrawal?
- Send Message after savings interest payment?
- Send Message after loan is disbursed?
- Send Message to guarantors after loan is disbursed?
- Allow Checking of Loan Arrears
- Send message when Time Deposit matures?
- Send message when Savings are transferred?
- Allow checking of Loan Balances.
- Allow Inter-mfi transactions
- Allow bill payments
- Allow Checking of Time Deposits
- Allow Mobile Savings Transfer
- Send Repayment Due reminder message?
- Allow mobile Loan repayments

Account and Product to charge? KL/I/000004 Optional

Transaction Account and Product KL/I/000004 Optional

Save Close

Causes include:

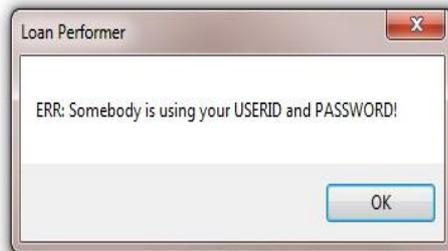
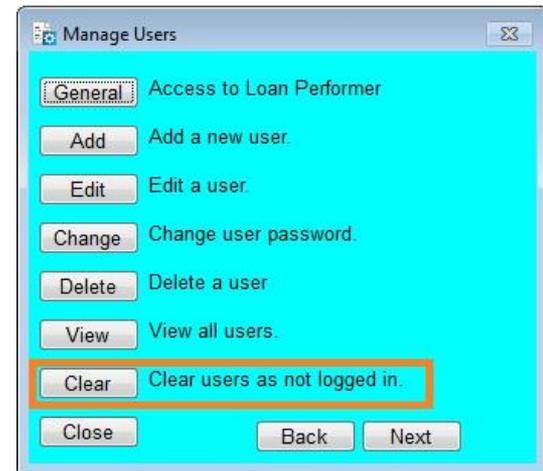
- Telephone network failure
- Receiver's phone rejects Wap Push Messages. Configure the phone to accept Wap Push Messages

“ERR: Somebody is using your USERID and PASSWORD!” (when starting the Server).

Possible Causes:

- Improper Shut down of the Mobile Banking Server leaves the Mobile Banking Server user appear to be logged in.

Solution:



Loading the language file...-100%

“The user name provided is reserved for SMS Server.”
(when logging into LPF).

When registering the Modem and Http Connections, the User (profile) selected can not be used for logging into LPF using the LPF login screen. This is because the Mobile Banking Server posts transactions in names of the user configured at this screen. If anyone is able to access LPF using this profile, they can make transactions. It is hard to know which transactions are for the server and which ones are not.

The screenshot shows a window titled "LPF phone messaging setup" with two tabs: "Modem Setup" (active) and "Mobile Money Setup".

Modem Setup:

- Saved Modems:** A list with one entry: "1 EDGE MODEM +256792974050".
- Connected Modems:** A dropdown menu showing "EDGE MODEM".
- Tel.:** Input field with "+256792974050".
- Service Centre Tel Number:** Input field with "+256792000012".
- Swift Code:** Empty input field.
- Pin no:** Empty input field.
- Confirm Pin:** Empty input field.
- User profile:** Dropdown menu showing "Admin".
- Buttons:** "Add", "Update", "Remove".

Mobile Money Setup:

- Buttons:** "Test Sending", "Test Receiving".
- Checkboxes:**
 - Update the public Database for inter-MFI mobile Transfer
 - Delete message from Sim Card after receiving?
 - Default SMS Line?

Mobile Banking & Loan Performer

The following topics were discussed:

- Configuring LPF for Mobile Banking
- Mobile Banking Services of LPF
- Troubleshooting Mobile Banking

More information:

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