Functional Requirements Specification
NPSB Integration

v1.2

Revision History

V.	Date	Description	Prepared By	Reviewed By
1.0	25-Jul-2019	Initial Draft	Mohammed Ziaul Hoque Zilani	
1.1	09-Sep-2019	According to NPSB Message Specification v1.06: - Added FT - MFS Wallet Account to Cards - Mandatory field for DE112 for 0110 message	Mohammed Ziaul Hoque Zilani	
1.2	16-Oct-2019	According to NPSB Message Specification v1.07: Added DE103 for transactions- FT MFS A/C to MFS A/C FT Bank A/C to MFS A/C FT Card to MFS A/C FT MFS A/C to Merchant A/C (MP)	Mohammed Ziaul Hoque Zilani	

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1. Description

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2. Benefits

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3. Requirements

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4. Technical Description

4.1. Integration Principles

Connectivity mode will be as follows:

Server : NPSB
Client : bKash

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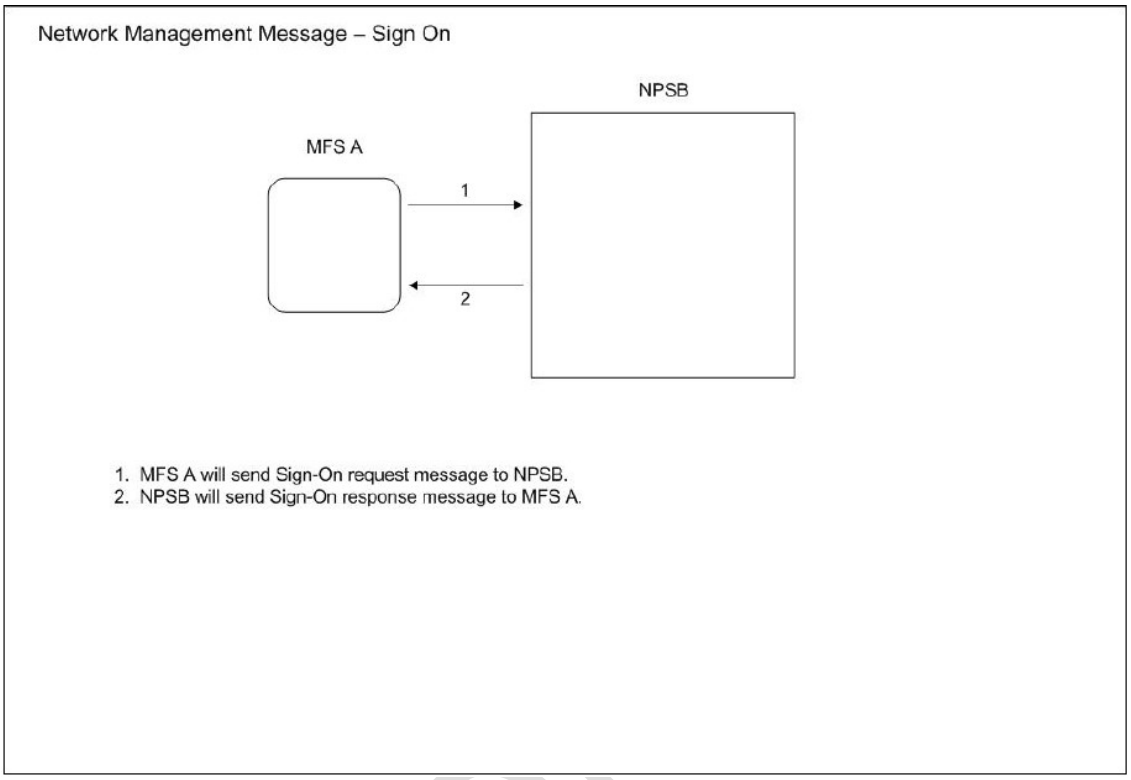
4.2. Flow: Network Management Message - Sign On



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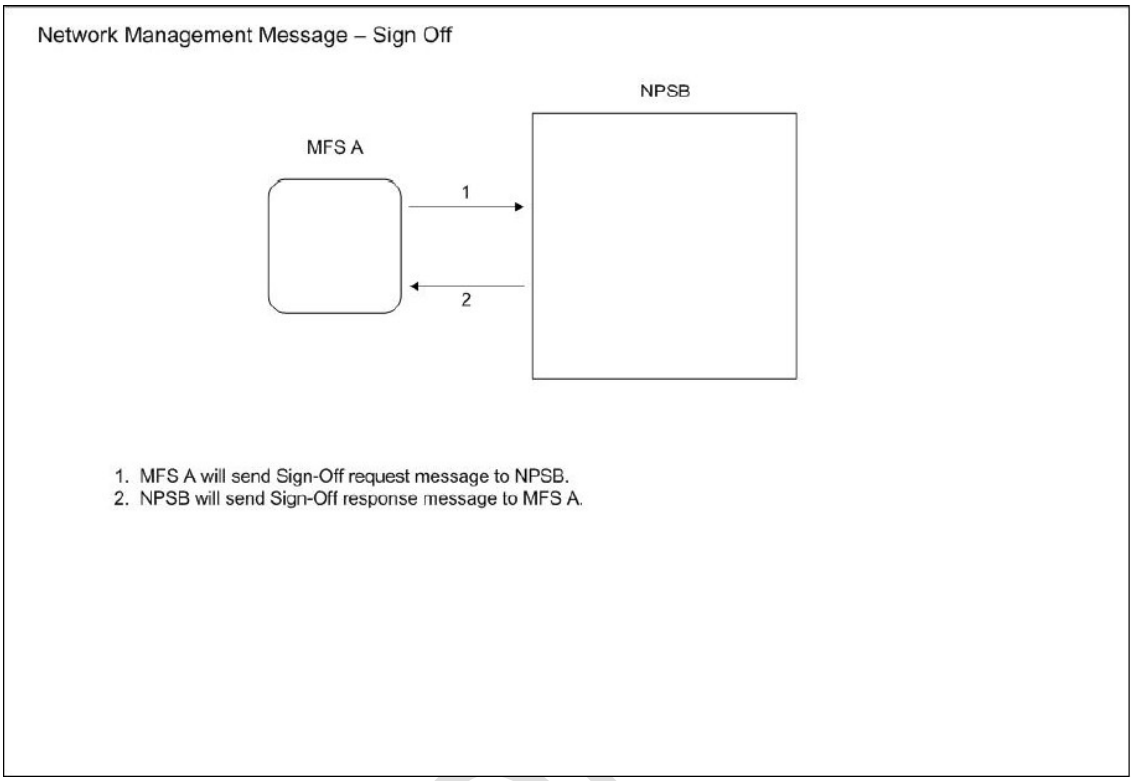
4.3. Flow: Network Management Message - Sign Off



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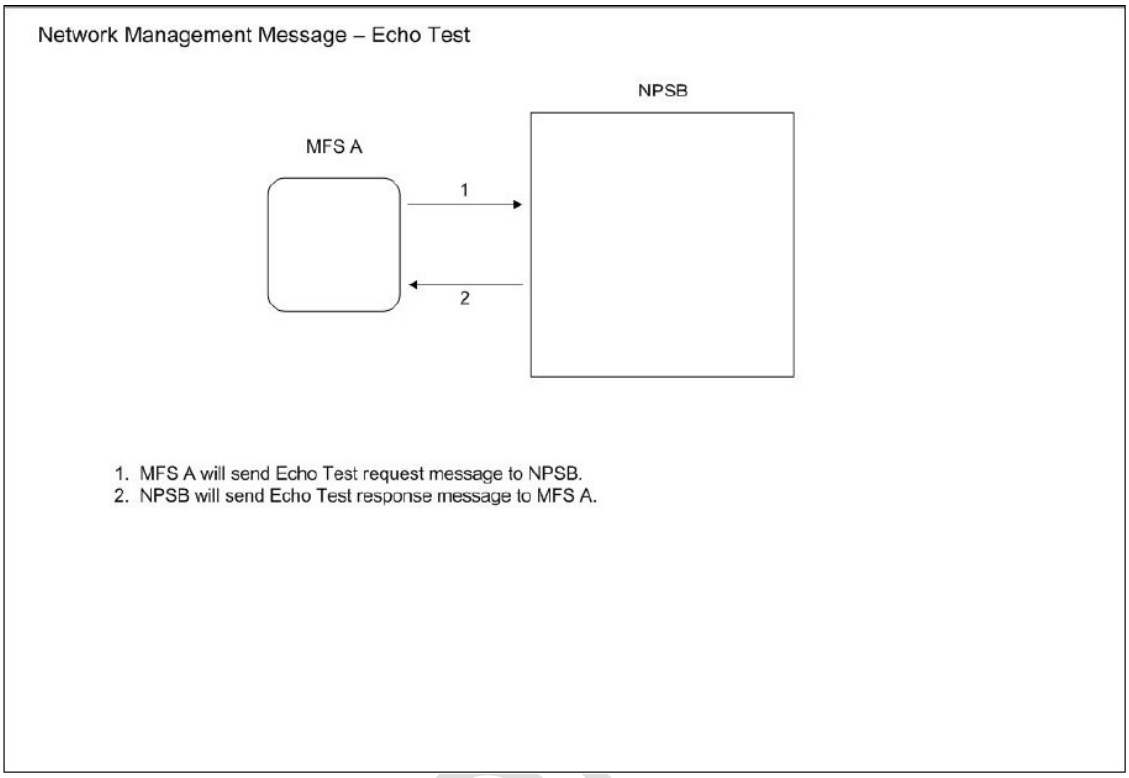
4.4. Flow: Network Management Message - Echo Test



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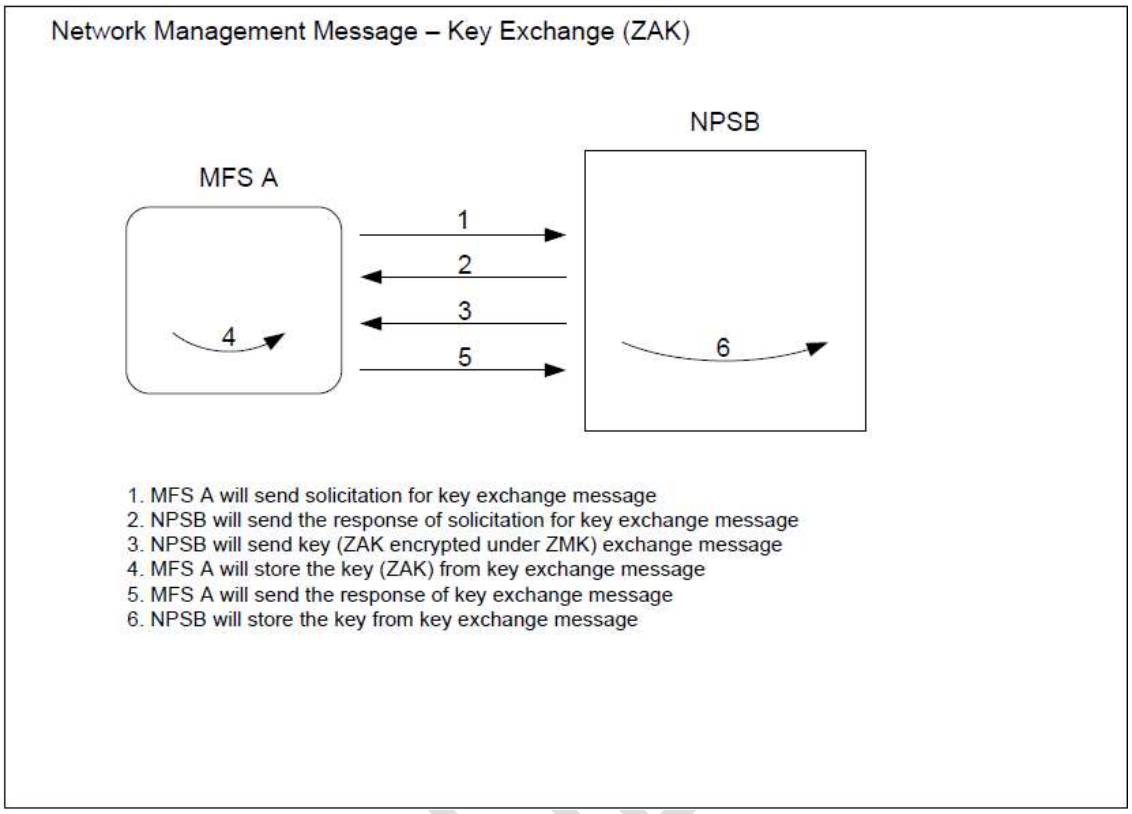
4.5. Flow: Network Management Message - Key Exchange (ZAK)



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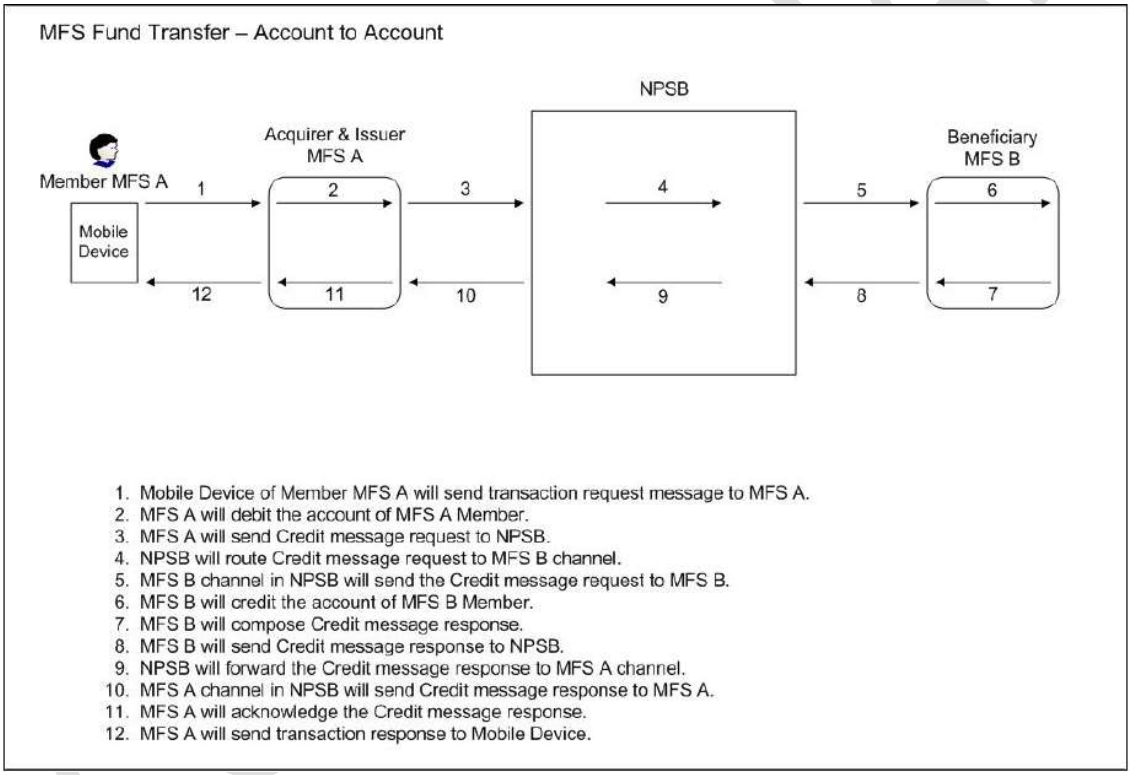
4.6. Flow: Funds Transfer - MFS Account to MFS Account/Wallet to Wallet (Credit Message Only)

There is no Agent involved in this transaction.

Member MFS A can do Funds Transfer to member of different MFS as follows:

1. On Mobile Device of Member MFS A, open the Application of MFS A and select the transaction that the customer would like to do. In this case, Funds Transfer to MFS Account.
2. First alternatives:
    a. On the Application of MFS A, select the destination MFS as the beneficiary. In this example, MFS B.
    b. On the Application of MFS A, enter the Destination Account Number.
3. Second alternatives (replaces point number 2). On the Application of MFS A, enter destination MFS member ID and Destination Account Number. For example, 0008881912109099 (000888 + 1912109099, member ID of MFS B + Destination Account Number).
4. The transaction flow is being described in the picture below:



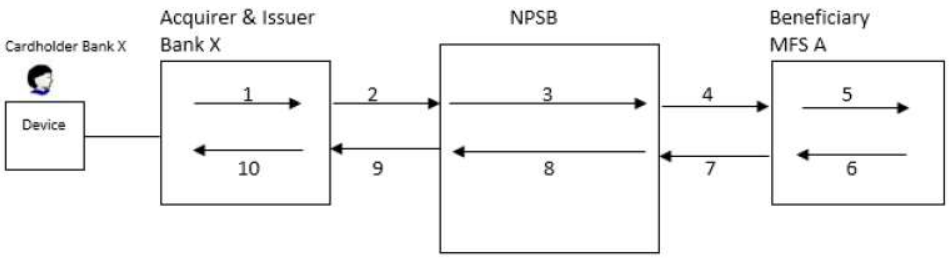
4.7. Flow: Funds Transfer - Cards to MFS Account (Credit Message Only)

There is no Agent involved in this transaction.

Cardholder of bank can do Funds Transfer to Member MFS as follows:

1. Cardholder of Bank X perform a Fund Transfer transaction
2. On the Bank X device, cardholder enter the Destination account number of MFS A. For example, 0008881912109099 (000888 + 1912109099, member ID of MFS A + Destination Account Number)
3. The transaction flow is being described in the picture below:

MFS Fund Transfer – Cards to Account



Cardholder of Bank X perform FT to MFS account at Bank X device

1. Bank X will debit the account of bank X cardholder
2. Bank X will send credit message request to NPSB
3. NPSB will route Credit message request to MFS A channel
4. MFS A channel in NPSB will send the Credit message request to MFS A
5. MFS A will credit the account of MFS A member
6. MFS A will compose Credit message response
7. MFS A will send Credit message response to NPSB
8. NPSB will forward the Credit message response to Bank X channel
9. Bank X channel in NPSB will send Credit message response to Bank X
10. Bank X will acknowledge the Credit message response

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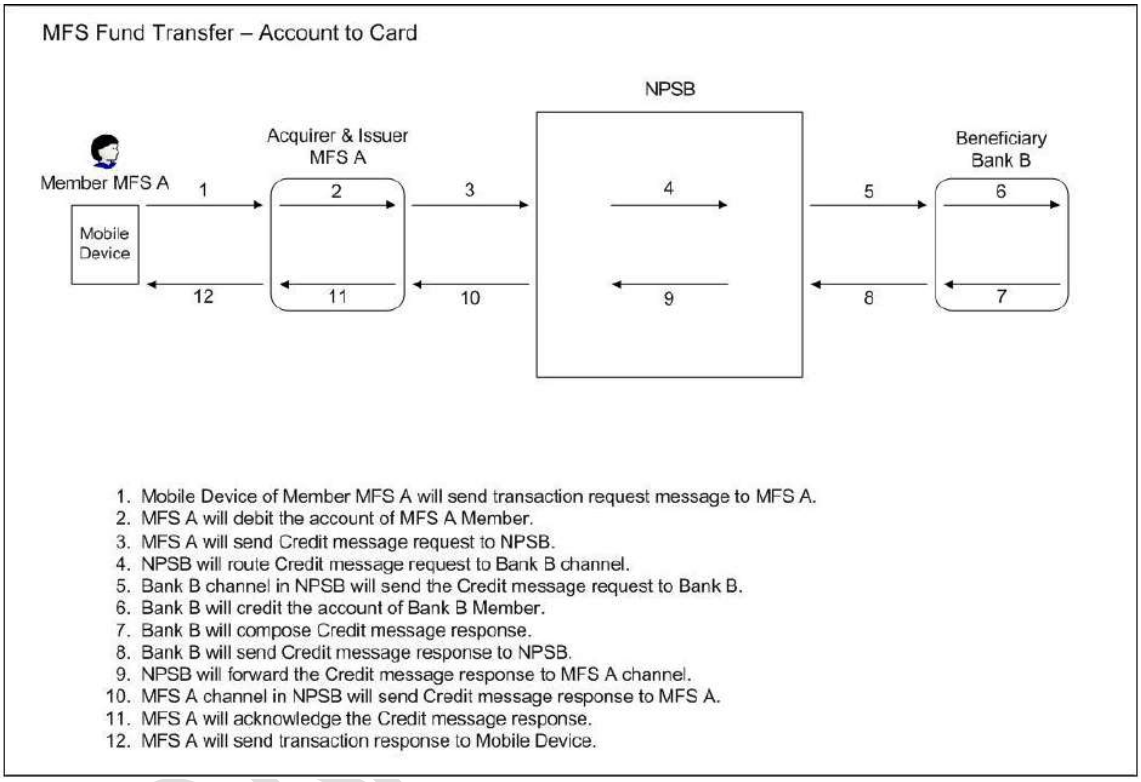
4.8. Flow: Funds Transfer - MFS Wallet Account to Cards (Credit Message Only)

There is no Agent involved in this transaction.

Member MFS A can do Funds Transfer to cardholder of bank as follows:

1. On Mobile Device of Member MFS A, open the Application of MFS A and select the transaction that the customer would like to do. In this case, Funds Transfer to Card.
2. On the Application of MFS A, enter the Destination Card Number.
3. The transaction flow is being described in the picture below:

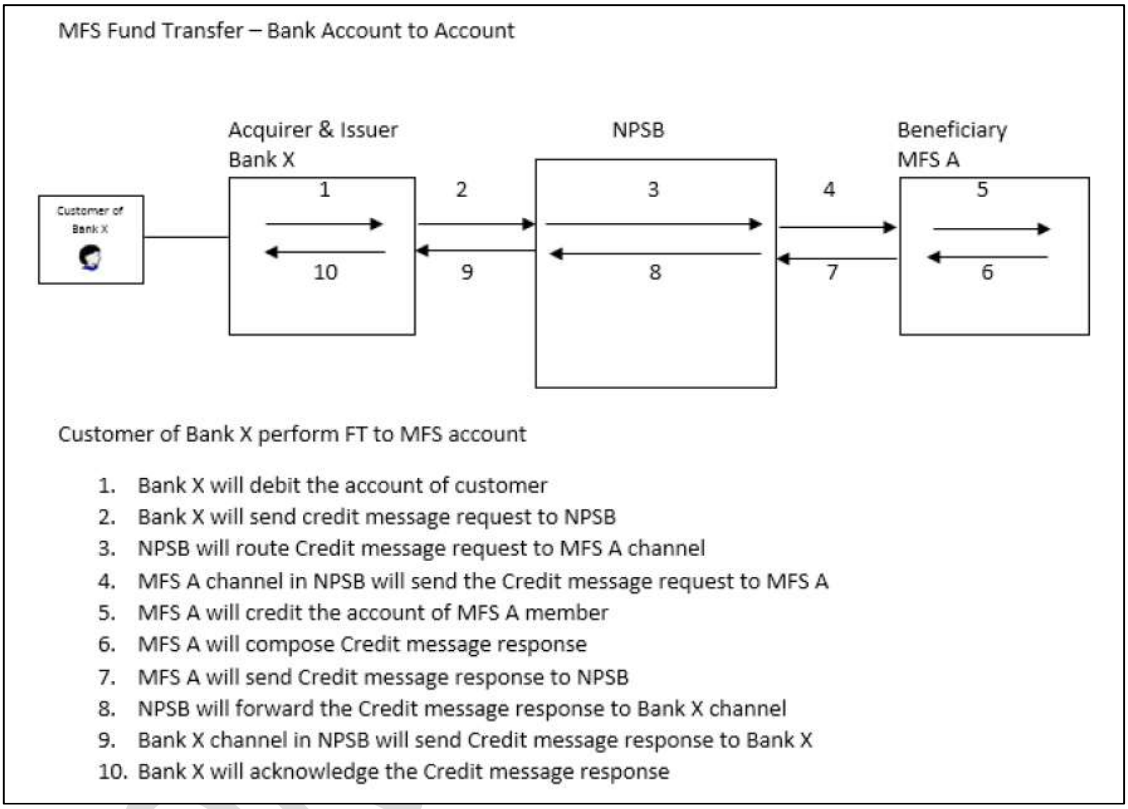


4.9. Flow: Funds Transfer - Bank Account to MFS Account (Credit Message Only)

There is no Agent involved in this transaction.

Customer of bank can do Funds Transfer to Member MFS as follows:

1. Customer of Bank X perform a Fund Transfer transaction to MFS A Account
2. Customer Bank X, enter the Destination account number of MFS A. For example, 0008881912109099 (000888 + 1912109099, member ID of MFS A + Destination Account Number)
3. The transaction flow is being described in the picture below:



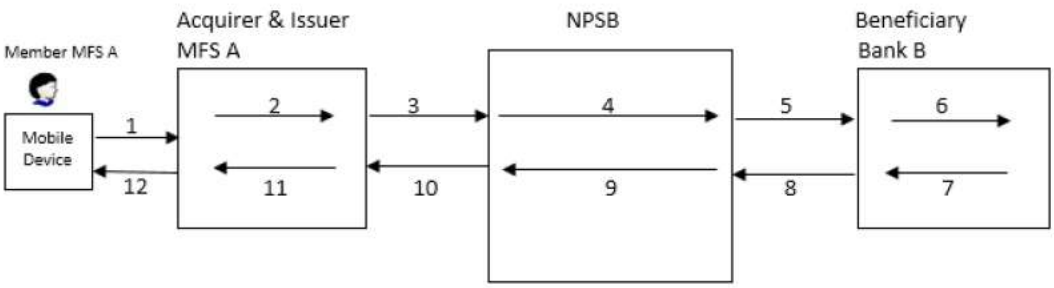
4.10. Flow: Funds Transfer - MFS Account to Bank Account (Credit Message Only)

There is no Agent involved in this transaction.

Member MFS A can do Funds Transfer to bank account as follows:

1. On Mobile Device of Member MFS A, open the Application of MFS A and select the transaction that the customer would like to do. In this case, Funds Transfer to Bank B Account.
2. On the Application of MFS A, enter the Destination Account Number of Bank B. For example, 0000901912109099 (000090 + 1912109099, member ID of Bank B + Destination Account Number)
3. The transaction flow is being described in the picture below:

MFS Fund Transfer – Account to Bank Account

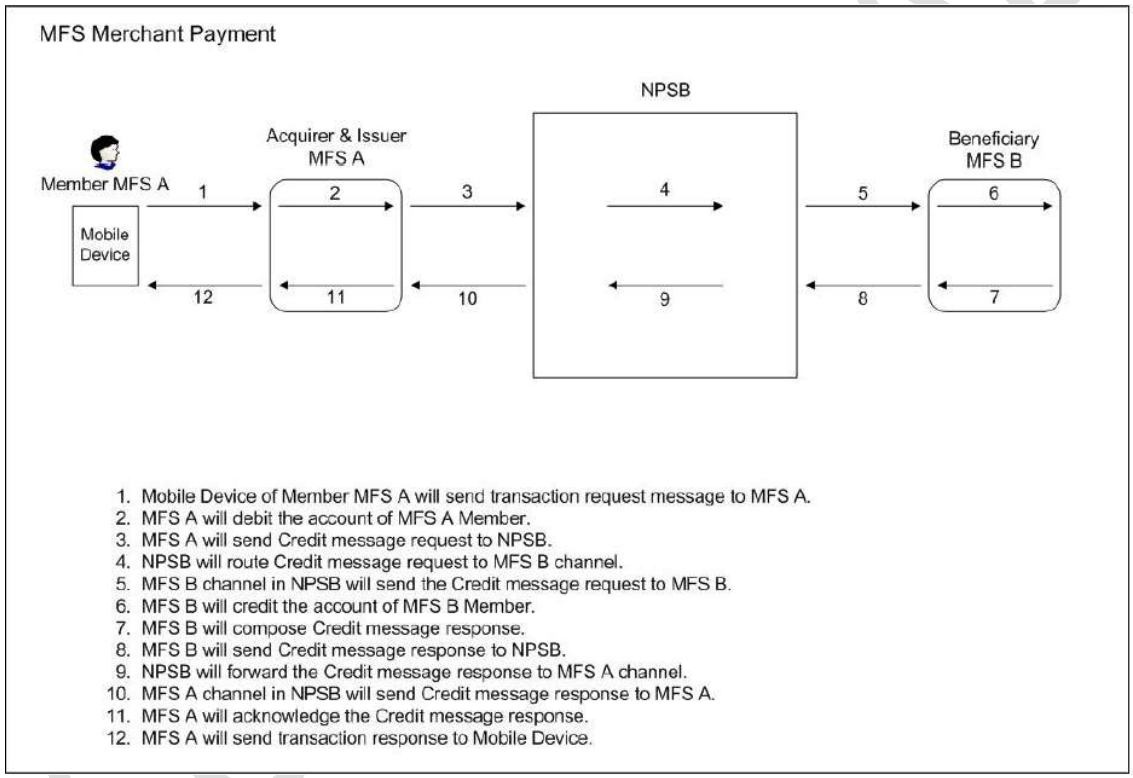


1. Mobile device of member MFS A will send transaction request message to MFS A
2. MFS A will debit the account of MFS A Member
3. MFS A will send credit message request to NPSB
4. NPSB will route credit message request to Bank B channel
5. Bank B channel in NPSB will send the credit message request to Bank B
6. Bank B will credit the account of Bank B Member
7. Bank B will compose credit message response
8. Bank B will send credit message response to NPSB
9. NPSB will forward the credit message response to MFS A channel
10. MFS A channel in NPSB will send credit message response to MFS A
11. MFS A will acknowledge the credit message response
12. MFS A will send transaction response to mobile device

4.11. Flow: Merchant Payment (Credit Message Only)

Member MFS A can do Payment to Merchant that is a member of different MFS as follows:

1. On Mobile Device of Member MFS A, open the Application of MFS A and select the transaction that the customer would like to do. In this case, Merchant Payment.
2. First alternatives:
    a. On the Application of MFS A, select the destination MFS (MFS of Merchant) as the beneficiary. In this example, MFS B.
    b. On the Application of MFS A, enter the Destination Merchant Account Number.
3. Second alternatives (replaces point number 2). On the Application of MFS A, enter destination Merchant MFS member ID and Destination Merchant Account Number. For example, 0008881912109099 (000888 + 1912109099, member ID of MFS B + Destination Merchant Account Number).
4. The transaction flow is being described in the picture below:



5. Technical Specifications

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6. Operation Logs and Error Code

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7. Interface Specification

Protocol: ISO8583 version 1987

Reference documents (shared by NPSB):

- WAY4™ Basic Host-to-Host Protocol (*R/N:01.15-00000-20.06.2012*)
- Detailed ISO8583 Message Specifications For Mobile Financial Services In NPSB (*v1.07*)
- Dynamic Key Exchange ISO8583 Message Specification For NPSB (*v1.00*)

Message Format:

Item	Description
Message length header size	Two bytes, high byte first
Length of "message length header"	Not included in calculation for "message length header"
MTID coding	ASCII-coded
Bitmap coding	Binary-coded

Field Presentation Options:

Field Presentation	Description
C	The field is conditional (may or may not be present).
CR	The field should present with the value inherited from Request message if the field is present in Request message.
M	The field must be present.
MR	The field must be present with the value inherited from Request message.

Field Format: [for details, please refer *WAY4™ Basic Host-to-Host Protocol*]

Field	Name of the Field	Format	Chars	Length	Coding
2	Primary Account Number	HLVAR	n	16..19	BCD
3	Processing Code	FIXED	n	6	BCD
4	Amount Transaction	FIXED	n	12	BCD
6	Amount, Cardholder Billing	FIXED	n	12	BCD
7	Transmission Date & Time	FIXED	n	10	BCD
10	Conversion Rate, Cardholder Billing	FIXED	n	8	BCD
11	System Trace Audit Number	FIXED	n	6	BCD
12	Local Transaction Time	FIXED	n	6	BCD
13	Local Transaction Date	FIXED	n	4	BCD
18	Merchant's Type	FIXED	n	4	BCD
22	Point of Service Entry Mode	FIXED	n	3	BCD
32	Acquiring Institution ID, Code	HLVAR	n	5..11	BCD
37	Retrieval Reference Number	FIXED	an	12	BCD
39	Response Code	FIXED	an	2	ASCII
41	Card Acceptor Terminal Id.	FIXED	ans	8	ASCII
42	Card Acceptor Identification Code	FIXED	ans	15	ASCII
43	Card Acceptor Name/Location	FIXED	ans	40	ASCII
46	Proprietary Field 46	LLLVAR	ans	99	BIN
47	Proprietary Field 47	LLLVAR	ans	99	ASCII
49	Transaction Currency Code	FIXED	n	3	BCD
51	Cardholder Billing Currency Code	FIXED	n	3	BCD
70	Network Management Information Code	FIXED	n	3	BCD
103	Account Identification	HLVAR	ans	99	ASCII
112	Additional Info	HLLVAR	an	999	BIN
128	Message Authentication Code	FIXED	an	64	BIT

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Coding information:

Coding	Description
BCD	Binary Coded Decimals, left padding for odd length data [Zero (0) will be used for BCD padding]
ASCII	ASCII coded data
BIN	Binary data, length specified in bytes
BIT	Binary data, length specified in bits

Important notes about some fields:

Field	Name of the Field	Note
2 32	Primary Account Number Acquiring Institution ID, Code	Member ID in DE2 or Acquiring Institute ID in DE32 will be 6 digits numeric data. The list of NPSB member banks is given in Appendix-A. List of MSF operators with ID will be shared by NPSB shortly.
6 10 51	Amount, Cardholder Billing Conversion Rate, Cardholder Billing Cardholder Billing Currency Code	Currently NPSB is working with only BDT (050) currency code. But NPSB has kept the option open for future to use multi-currency. These fields can still be used with Conversion Rate = 1 and Currency fields (DE49 & DE51) = 050. If DE6 is present then DE10 & DE51 must be present.
18	Merchant's Type	For P2P transfer 4829 should be the only Merchant Category Code (MCC). But in case of bill/merchant payment it should be set according to merchant category. For example, please refer *Visa Merchant Data Standards Manual*, Section 2: Merchant Category Code Listing, published in October 2019, Link: https://usa.visa.com/content/dam/VCOM/download/merchants/visa-merchant-data-standards-manual.pdf
22	Point of Service Entry Mode	The target account/card number will be entered by customer manually and no need to enter PIN of target account/card. Therefore, 012 is suitable for DE22.
37	Retrieval Reference Number	NPSB recommended format for Retrieval Reference Number (RRN) is YJJJNNNNNNNN, where Y is the last digit of the year, JJJ is a Julian date and NNNNNNNN is a counter unique during the day. The combination of DE37 and field DE32 must be unique to link the messages belonging to the same transaction into a message chain. RRN is used with other data elements as a key to identify and track all messages related to a given cardholder transaction. RRN is a key data element for matching a message to others within a given transaction set. RRN must be the same in all messages for the set. For example, a new RRN is assigned when a financial transaction is processed. The same RRN appears in all related messages: response, advice, and reversal.
39	Response Code	The list of Response Codes of NPSB which are applicable for MFS is given in Appendix-B.
47	Proprietary Field 47	Beneficiary MFS may receive other tag (919: For NPSB internal use, 924: If Target is an AMEX card) of DE47 on 0100 message. NPSB recommends to ignore all the tags if not specified in specification.
112	Additional Info	Acquirer/Issuer MFS will receive DE112 on 0110 message even if the Beneficiary MFS does not response with DE112. For each type of transactions the value is fixed and F0 is parent tag. All other tags are child of F0.

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Identification of transactions / messages:

Field	Name of the Field	Message / Transaction	Fixed Value
70	Network Management Information Code *DE70 can be used to identify the type of Network Management Message.*	Network Management Message - Sign On	001
		Network Management Message - Sign Off	002
		Network Management Message - Echo Test	301
		Network Management Message - Key Exchange - *Solicitation Message, request initiated by MFS A*	162
		Network Management Message - Key Exchange - *Key Exchange Message, request initiated by NPSB*	161
112	Additional Info *DE112 can be used to identify the transaction type since Processing Code (DE3) for all Funds Transfer and Payment transactions are same (280000).*	Funds Transfer - MFS Account to MFS Account/Wallet to Wallet (Credit Message Only)	F016D20954574841545F545258D309544D46534654413241
		Funds Transfer - Cards to MFS Account (Credit Message Only)	F016D20954574841545F545258D309544D46534654433241
		Funds Transfer - MFS Wallet Account to Cards (Credit Message Only)	F016D20954574841545F545258D309544D46534654413243
		Funds Transfer - Bank Account to MFS Account (Credit Message Only)	F016D20954574841545F545258D309544D46534654423241
		Funds Transfer - MFS Account to Bank Account (Credit Message Only)	F016D20954574841545F545258D309544D46534654413242
		Merchant Payment (Credit Message Only)	F013D20954574841545F545258D306544D46534D50

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7.1. Network Management Message - Sign On

Field	Name of the Field	0800	0810	Sample Data
7	Transmission Date & Time	M	MR	1015112900
11	System Trace Audit Number	M	MR	100001
39	Response Code		M	00
70	Network Management Information Code	M	MR	001

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7.2. Network Management Message - Sign Off

Field	Name of the Field	0800	0810	Sample Data
7	Transmission Date & Time	M	MR	1015112900
11	System Trace Audit Number	M	MR	100002
39	Response Code		M	00
70	Network Management Information Code	M	MR	002

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7.3. Network Management Message - Echo Test

Field	Name of the Field	0800	0810	Sample Data
7	Transmission Date & Time	M	MR	1015112900
11	System Trace Audit Number	M	MR	100003
39	Response Code		M	00
70	Network Management Information Code	M	MR	301

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7.4. Network Management Message - Key Exchange (ZAK)

(a) Solicitation Message, request initiated by MFS A

Field	Name of the Field	0800	0810	Sample Data
7	Transmission Date & Time	M	MR	1015112900
11	System Trace Audit Number	M	MR	100003
39	Response Code		M	00
70	Network Management Information Code	M	MR	162

(b) Key Exchange Message, request initiated by NPSB

Field	Name of the Field	0800	0810	Sample Data
7	Transmission Date & Time	M	MR	1015112900
11	System Trace Audit Number	M	MR	100003
39	Response Code		M	00
46	Proprietary Field 46 Tags: PDS740, PDS741, PDS742, PDS746	M	MR	7400325612616D45BE88A912BE1C95A6BA476A74100137420 06A33EDD7460040002 (New Zone Authentication Key)
70	Network Management Information Code	M	MR	161

DE46 Proprietary field sub-elements

There is a set of sub-elements for Network Management/Key Exchange Messages processing. The field is in TLV form with three digits tag and three digits length.

3 bytes	3 bytes	N bytes	3 bytes	3 bytes	N bytes	
Tag ID	Tag Length = N	Tag Value	Tag ID	Tag Length = N	Tag Value	…

Tag ID	Tag Length	Description
740	Variable	New Key
741	Variable	Key Type: 2-ZPK, 3-ZAK
742	Variable	Key Check Value
746	Variable	Key ID

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7.5. Funds Transfer - MFS Account to MFS Account/Wallet to Wallet (Credit Message Only)

Field	Name of the Field	0100	0110	Sample Data
2	Primary Account Number	M	MR	0008881912109099 (Member ID + Target Account Number)
3	Processing Code	M	MR	280000
4	Amount, Transaction	M	MR	000001000000
6	Amount, Cardholder Billing	C	CR	000001000000
7	Transmission Date & Time	M	MR	1015112900
10	Conversion Rate, Cardholder Billing	C	CR	61000000
11	System Trace Audit Number	M	MR	152901
12	Local Transaction Time	M		112900
13	Local Transaction Date	M		1015
18	Merchant's Type	M		4829
22	Point of Service Entry Mode	M		012
32	Acquiring Institution ID, Code	M	MR	000889
37	Retrieval Reference Number	M	MR	211015112900
39	Response Code		M	00
41	Card Acceptor Terminal Id.	C	CR	90001000
42	Card Acceptor Identification Code	C	CR	999998999998998
43	Card Acceptor Name/Location	C		1 Gulshan Ave DHAKA BD
47	Proprietary Field 47 PDS927 Counterpart Account Id	M		9270101912109088 (Source Account Number)
49	Transaction Currency Code	M	MR	050
51	Cardholder Billing Currency Code	C	CR	050
103	Account Identification	M	MR	22814215673348 (Destination Account Number)
112	Additional Info	M	MR	F016D20954574841545F545258D309544D46534654413241
128	Message Authentication Code	M	M	E4B76DF300000000

DE2 Primary Account Number

This field consists of 6 digits Beneficiary MFS Member ID followed by 10-13 digits Beneficiary Account Number (MFS Wallet Account Number).

If beneficiary MFS member ID + beneficiary account number consists of more than 19 digits, fill this field with only first 19 digits of beneficiary MFS member ID + beneficiary account number.

If beneficiary MFS member ID + beneficiary account number consists of less than 16 digits, right pad this field with zero until this field consists of 16 digits.

DE47 Proprietary field sub-elements

There is a set of sub-elements for P2P processing. Tags are applicable for request messages and may be present in response messages.

Tag ID	Tag Length	Description
927	Variable up to 99	Counterpart Account Id (Source Account Number)

DE103 Account Identification

This field is filled with the beneficiary MFS Account Number.

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DE112 Proprietary field sub-elements

Field 112 is a private-use field (BER-TLV). The field contains multiple items of additional transaction information:

Tag Name	Data Type	Length Hex	Hex Data	Text Data	Description
D2	Binary	9	54574841545F545258	TWHAT_TRX	Tag Name: [To determine type of transaction]
D3	Binary	9	544D46534654413241	TMFSFTA2A	Tag Value: [MFS Fund Transfer Account to Account]

DE128 Message Authentication Code

This consists of the first 8 digits of Message Authentication Code generated by MFS's HSM followed by 8 digits of zeros. Whole binary data of the message is sent to HSM to generate MAC and then DE-128 into message.

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7.6. Funds Transfer - Cards to MFS Account (Credit Message Only)

Field	Name of the Field	0100	0110	Sample Data
2	Primary Account Number	M	MR	0008881912109099 (Member ID + Target Account Number)
3	Processing Code	M	MR	280000
4	Amount, Transaction	M	MR	000001000000
6	Amount, Cardholder Billing	C	CR	000001000000
7	Transmission Date & Time	M	MR	1015112900
10	Conversion Rate, Cardholder Billing	C	CR	61000000
11	System Trace Audit Number	M	MR	152901
12	Local Transaction Time	M		112900
13	Local Transaction Date	M		1015
18	Merchant's Type	M		4829
22	Point of Service Entry Mode	M		012
32	Acquiring Institution ID, Code	M	MR	000090
37	Retrieval Reference Number	M	MR	211015112900
39	Response Code		M	00
41	Card Acceptor Terminal Id.	C	CR	90001000
42	Card Acceptor Identification Code	C	CR	999998999998998
43	Card Acceptor Name/Location	C		1 Gulshan Ave DHAKA BD
47	Proprietary Field 47 PDS927 Counterpart Account Id	M		9270168888884444555560 (Source Card Number)
49	Transaction Currency Code	M	MR	050
51	Cardholder Billing Currency Code	C	CR	050
103	Account Identification	M	MR	22814215673348 (Destination Account Number)
112	Additional Info	M	MR	F016D20954574841545F545258D309544D46534654433241
128	Message Authentication Code	M	M	E4B76DF300000000

DE2 Primary Account Number

This field consists of 6 digits Beneficiary MFS Member ID followed by 10-13 digits Beneficiary Account Number (MFS Wallet Account Number).

If beneficiary MFS member ID + beneficiary account number consists of more than 19 digits, fill this field with only first 19 digits of beneficiary MFS member ID + beneficiary account number.

If beneficiary MFS member ID + beneficiary account number consists of less than 16 digits, right pad this field with zero until this field consists of 16 digits.

DE47 Proprietary field sub-elements

There is a set of sub-elements for P2P processing. Tags are applicable for request messages and may be present in response messages.

Tag ID	Tag Length	Description
927	Variable up to 99	Counterpart Account Id (Source Account Number)

DE103 Account Identification

This field is filled with the beneficiary MFS Account Number.

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DE112 Proprietary field sub-elements

Field 112 is a private-use field (BER-TLV). The field contains multiple items of additional transaction information:

Tag Name	Data Type	Length Hex	Hex Data	Text Data	Description
D2	Binary	9	54574841545F545258	TWHAT_TRX	Tag Name: [To determine type of transaction]
D3	Binary	9	544D46534654423241	TMFSFTB2A	Tag Value: [MFS Fund Transfer Bank Account to Account]

DE128 Message Authentication Code

This consists of the first 8 digits of Message Authentication Code generated by Issuer Bank's HSM followed by 8 digits of zeros. Whole binary data of the message is sent to HSM to generate MAC and then DE-128 into message.

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7.7. Funds Transfer - MFS Wallet Account to Cards (Credit Message Only)

Field	Name of the Field	0100	0110	Sample Data
2	Primary Account Number	M	MR	6072589431607284 (Target Card Number)
3	Processing Code	M	MR	280000
4	Amount, Transaction	M	MR	000001000000
6	Amount, Cardholder Billing	C	CR	000001000000
7	Transmission Date & Time	M	MR	1015112900
10	Conversion Rate, Cardholder Billing	C	CR	61000000
11	System Trace Audit Number	M	MR	152901
12	Local Transaction Time	M		112900
13	Local Transaction Date	M		1015
18	Merchant's Type	M		4829
22	Point of Service Entry Mode	M		012
32	Acquiring Institution ID, Code	M	MR	000090
37	Retrieval Reference Number	M	MR	211015112900
39	Response Code		M	00
41	Card Acceptor Terminal Id.	C	CR	90001000
42	Card Acceptor Identification Code	C	CR	999998999998998
43	Card Acceptor Name/Location	C		1 Gulshan Ave DHAKA BD
47	Proprietary Field 47 PDS927 Counterpart Account Id	M		9270101912109088 (Source Account Number)
49	Transaction Currency Code	M	MR	050
51	Cardholder Billing Currency Code	C	CR	050
112	Additional Info	M	MR	F016D20954574841545F545258D30 9544D46534654413243
128	Message Authentication Code	M	M	E4B76DF300000000

DE2 Primary Account Number

This consists of 16-19 digits Beneficiary Card Number.

DE47 Proprietary field sub-elements

There is a set of sub-elements for P2P processing. Tags are applicable for request messages and may be present in response messages.

Tag ID	Tag Length	Description
927	Variable up to 99	Counterpart Account Id (Source Account Number)

DE112 Proprietary field sub-elements

Field 112 is a private-use field (BER-TLV). The field contains multiple items of additional transaction information:

Tag Name	Data Type	Length Hex	Hex Data	Text Data	Description
D2	Binary	9	54574841545F545258	TWHAT_TRX	Tag Name: [To determine type of transaction]
D3	Binary	9	544D46534654413243	TMFSFTA2C	Tag Value: [MFS Fund Transfer Account to Card]

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DE128 Message Authentication Code

This consists of the first 8 digits of Message Authentication Code generated by Issuer Bank's HSM followed by 8 digits of zeros. Whole binary data of the message is sent to HSM to generate MAC and then DE-128 into message.

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7.8. Funds Transfer - Bank Account to MFS Account (Credit Message Only)

Field	Name of the Field	0100	0110	Sample Data
2	Primary Account Number	M	MR	0008881912109099 (Member ID + Target Account Number)
3	Processing Code	M	MR	280000
4	Amount, Transaction	M	MR	000001000000
6	Amount, Cardholder Billing	C	CR	000001000000
7	Transmission Date & Time	M	MR	1015112900
10	Conversion Rate, Cardholder Billing	C	CR	61000000
11	System Trace Audit Number	M	MR	152901
12	Local Transaction Time	M		112900
13	Local Transaction Date	M		1015
18	Merchant's Type	M		4829
22	Point of Service Entry Mode	M		012
32	Acquiring Institution ID, Code	M	MR	000090
37	Retrieval Reference Number	M	MR	211015112900
39	Response Code		M	00
41	Card Acceptor Terminal Id.	C	CR	90001000
42	Card Acceptor Identification Code	C	CR	999998999998998
43	Card Acceptor Name/Location	C		1 Gulshan Ave DHAKA BD
47	Proprietary Field 47 PDS927 Counterpart Account Id	M		9270101912109088 (Source Account Number)
49	Transaction Currency Code	M	MR	050
51	Cardholder Billing Currency Code	C	CR	050
103	Account Identification	M	MR	22814215673348 (Destination Account Number)
112	Additional Info	M	MR	F016D20954574841545F545258D309544D46534654423241
128	Message Authentication Code	M	M	E4B76DF300000000

DE2 Primary Account Number

This field consists of 6 digits Beneficiary MFS Member ID followed by 10-13 digits Beneficiary Account Number (MFS Wallet Account Number).

If beneficiary MFS member ID + beneficiary account number consists of more than 19 digits, fill this field with only first 19 digits of beneficiary MFS member ID + beneficiary account number.

If beneficiary MFS member ID + beneficiary account number consists of less than 16 digits, right pad this field with zero until this field consists of 16 digits.

DE47 Proprietary field sub-elements

There is a set of sub-elements for P2P processing. Tags are applicable for request messages and may be present in response messages.

Tag ID	Tag Length	Description
927	Variable up to 99	Counterpart Account Id (Source Card Number)

DE103 Account Identification

This field is filled with the beneficiary MFS Account Number.

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DE112 Proprietary field sub-elements

Field 112 is a private-use field (BER-TLV). The field contains multiple items of additional transaction information:

Tag Name	Data Type	Length Hex	Hex Data	Text Data	Description
D2	Binary	9	54574841545F545258	TWHAT_TRX	Tag Name: [To determine type of transaction]
D3	Binary	9	544D46534654433241	TMFSFTC2A	Tag Value: [MFS Fund Transfer Card to Account]

DE128 Message Authentication Code

This consists of the first 8 digits of Message Authentication Code generated by Issuer Bank's HSM followed by 8 digits of zeros. Whole binary data of the message is sent to HSM to generate MAC and then DE-128 into message.

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7.9. Funds Transfer - MFS Account to Bank Account (Credit Message Only)

Field	Name of the Field	0100	0110	Sample Data
2	Primary Account Number	M	MR	0000901234567890 (Member ID Bank + Dummy Number)
3	Processing Code	M	MR	280000
4	Amount, Transaction	M	MR	000001000000
6	Amount, Cardholder Billing	C	CR	000001000000
7	Transmission Date & Time	M	MR	1015112900
10	Conversion Rate, Cardholder Billing	C	CR	61000000
11	System Trace Audit Number	M	MR	152901
12	Local Transaction Time	M		112900
13	Local Transaction Date	M		1015
18	Merchant's Type	M		4829
22	Point of Service Entry Mode	M		012
32	Acquiring Institution ID, Code	M	MR	000889
37	Retrieval Reference Number	M	MR	211015112900
39	Response Code		M	00
41	Card Acceptor Terminal Id.	C	CR	90001000
42	Card Acceptor Identification Code	C	CR	999998999998998
43	Card Acceptor Name/Location	C		1 Gulshan Ave DHAKA BD
47	Proprietary Field 47 PDS927 Counterpart Account Id	M		9270101912109088 (Source Account Number)
49	Transaction Currency Code	M	MR	050
51	Cardholder Billing Currency Code	C	CR	050
103	Account Identification	M	MR	22814215673348 (Destination Account Number)
112	Additional Info	M	MR	F016D20954574841545F545258D309544D46534654433241
128	Message Authentication Code	M	M	E4B76DF300000000

DE2 Primary Account Number

This field consists of 6 digits Beneficiary MFS Member ID followed by 10-13 digits Beneficiary Account Number (MFS Wallet Account Number).

If beneficiary MFS member ID + beneficiary account number consists of more than 19 digits, fill this field with only first 19 digits of beneficiary MFS member ID + beneficiary account number.

If beneficiary MFS member ID + beneficiary account number consists of less than 16 digits, right pad this field with zero until this field consists of 16 digits.

DE47 Proprietary field sub-elements

There is a set of sub-elements for P2P processing. Tags are applicable for request messages and may be present in response messages.

Tag ID	Tag Length	Description
927	Variable up to 99	Counterpart Account Id (Source Account Number)

DE103 Account Identification

This field is filled with the beneficiary Bank Account Number.

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DE112 Proprietary field sub-elements

Field 112 is a private-use field (BER-TLV). The field contains multiple items of additional transaction information:

Tag Name	Data Type	Length Hex	Hex Data	Text Data	Description
D2	Binary	9	54574841545F545258	TWHAT_TRX	Tag Name: [To determine type of transaction]
D3	Binary	9	544D46534654413242	TMFSFTA2B	Tag Value: [MFS Fund Transfer Account to Bank Account]

DE128 Message Authentication Code

This consists of the first 8 digits of Message Authentication Code generated by MFS's HSM followed by 8 digits of zeros. Whole binary data of the message is sent to HSM to generate MAC and then DE-128 into message.

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7.10. Merchant Payment (Credit Message Only)

Field	Name of the Field	0100	0110	Sample Data
2	Primary Account Number	M	MR	0008881912109099 (Member ID + Target Account Number)
3	Processing Code	M	MR	280000
4	Amount, Transaction	M	MR	000001000000
6	Amount, Cardholder Billing	C	CR	000001000000
7	Transmission Date & Time	M	MR	1015112900
10	Conversion Rate, Cardholder Billing	C	CR	61000000
11	System Trace Audit Number	M	MR	153001
12	Local Transaction Time	M		113000
13	Local Transaction Date	M		1015
18	Merchant's Type	M		5999 or VISA standard code
22	Point of Service Entry Mode	M		012
32	Acquiring Institution ID, Code	M	MR	000889
37	Retrieval Reference Number	M	MR	211015113000
39	Response Code		M	00
41	Card Acceptor Terminal Id.	C	CR	90001000
42	Card Acceptor Identification Code	C	CR	999998999998998
43	Card Acceptor Name/Location	C		1 Gulshan Ave DHAKA BD
47	Proprietary Field 47 PDS927 Counterpart Account Id	M		9270101912109088 (Source Account Number)
49	Transaction Currency Code	M	MR	050
51	Cardholder Billing Currency Code	C	CR	050
103	Account Identification	M	MR	22814215673348 (Destination Account Number)
112	Additional Info	M	MR	F013D20954574841545F545258D306544D46534D50
128	Message Authentication Code	M	M	E4B76DF300000000

DE2 Primary Account Number

This field consists of 6 digits Beneficiary MFS Member ID followed by 10-13 digits Beneficiary Account Number (MFS Wallet Account Number).

If beneficiary MFS member ID + beneficiary account number consists of more than 19 digits, fill this field with only first 19 digits of beneficiary MFS member ID + beneficiary account number.

If beneficiary MFS member ID + beneficiary account number consists of less than 16 digits, right pad this field with zero until this field consists of 16 digits.

DE47 Proprietary field sub-elements

There is a set of sub-elements for P2P processing. Tags are applicable for request messages and may be present in response messages.

Tag ID	Tag Length	Description
927	Variable up to 99	Counterpart Account Id (Source Account Number)

DE103 Account Identification

This field is filled with the beneficiary Merchant Account number.

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DE112 Proprietary field sub-elements

Field 112 is a private-use field (BER-TLV). The field contains multiple items of additional transaction information:

Tag Name	Data Type	Length Hex	Hex Data	Text Data	Description
D2	Binary	9	54574841545F545258	TWHAT_TRX	Tag Name: [To determine type of transaction]
D3	Binary	9	544D46534D50	TMFSMP	Tag Value: [MFS Merchant Payment]

DE128 Message Authentication Code

This consists of the first 8 digits of Message Authentication Code generated by MFS's HSM followed by 8 digits of zeros. Whole binary data of the message is sent to HSM to generate MAC and then DE-128 into message.

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8. Impact on the System

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9. Restrictions

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Appendix - A: NPSB Members

Serial Number	Bank Code	Bank Name	Acquiring/Member ID
1	010	AGRANI BANK LTD.	000010
2	015	AL-ARAFAH ISLAMI BANK LTD.	000015
3	020	AB BANK LTD.	000020
4	025	BANGLADESH BANK	000025
5	030	BANGLADESH COMMERCE BANK LTD.	000030
6	035	BANGLADESH KRISHI BANK	000035
7	040	BANGLADESH SAMABAYA BANK LTD.	000040
8	047	BANGLADESH DEVELOPMENT BANK LTD.	000047
9	055	BASIC BANK LTD.	000055
10	060	BRAC BANK LTD.	000060
11	065	BANK AL-FALAH LTD	000065
12	070	BANK ASIA LTD.	000070
13	075	CITI BANK N A	000075
14	080	COMMERCIAL BANK OF CYLON	000080
15	085	DHAKA BANK LTD.	000085
16	090	DUTCH-BANGLA BANK LTD	000090
17	095	EASTERN BANK LTD.	000095
18	100	EXIM BANK LTD.	000100
19	105	FIRST SECURITY ISLAMI BANK LTD.	000105
20	110	HABIB BANK LTD.	000110
21	115	HONGKONG & SHANGHAI BANKING CORP.	000115
22	120	IFIC BANK LTD.	000120
23	125	ISLAMI BANK BANGLDESH LTD.	000125
24	130	JAMUNA BANK LTD.	000130
25	135	JANATA BANK LTD.	000135
26	140	MERCANTILE BANK LTD.	000140
27	145	MUTUAL TRUST BANK LTD.	000145
28	150	NATIONAL BANK LTD.	000150
29	155	NATIONAL BANK OF PAKISTAN	000155
30	160	NATIONAL CREDIT & COMMERCE BANK LTD.	000160
31	165	ONE BANK LTD.	000165
32	170	PRIME BANK LTD.	000170
33	175	PUBALI BANK LTD.	000175
34	180	RAJSHAHI KRISHI UNNAYAN BANK	000180
35	185	RUPALI BANK LTD.	000185
36	190	SHAHJALAL ISLAMI BANK LTD.	000190
37	195	SOCIAL ISLAMI BANK LTD	000195
38	200	SONALI BANK LTD.	000200
39	205	SOUTHEAST BANK LTD.	000205
40	210	STANDARD BANK LTD.	000210
41	215	STANDARD CHARTERED BANK	000215

42	220	STATE BANK OF INDIA	000220
43	225	THE CITY BANK LTD.	000225
44	230	ICB ISLAMIC BANK LTD	000230
45	235	THE PREMIER BANK LTD.	000235
46	240	TRUST BANK LTD.	000240
47	245	UNITED COMMERCIAL BANK LTD.	000245
48	250	UTTARA BANK LTD.	000250
49	255	WOORI BANK	000255
50	260	NRB COMMERCIAL BANK LTD.	000260
51	265	UNION BANK LTD.	000265
52	270	SBAC BANK LIMITED	000270
53	275	MEGHNA BANK LIMITED	000275
54	280	THE FARMERS BANK LIMITED	000280
55	285	MIDLAND BANK LIMITED	000285
56	290	NRB Bank Limited	000290
57	295	Modhumoti Bank Limited	000295
58	300	NRB Global Bank Limited	000300
59	555	IT Consultants Limited	000555

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Appendix - B: Response Codes

Response Code	Description
00	Successfully completed
06	Error
12	Invalid transaction
13	Invalid amount
14	No such card
21	No action taken
22	Suspected malfunction
25	No such record
30	Format error
31	Issuer signed-off
34	Suspect fraud
54	Expired card / target
57	Transaction not permitted to cardholder
59	Suspected fraud
61	Exceeds withdrawal amount limit
62	Restricted card
65	Exceeds withdrawal frequency limit
66	Call acquirers security department
70	Invalid transaction; contact card issuer
78	Record not found
80	Network error
81	Foreign network error / PIN cryptographic error
82	Time-out at issuer system / Bad CVV (VISA)
83	Transaction failed
91	Issuer or switch is inoperative
96	System malfunction

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