C1 Central 1®

MemberDirect® Integrated Services

Online Access System Message Specification ISO8583
April 2017

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Introduction

This document contains Central 1's version of the ISO8583 (2003) messaging specification that is required to implement communication between the *MemberDirect*® software and a host banking system. It is intended for use by project managers and implementation/conversion team personnel and assumes a knowledge and understanding of the standard ISO8583 specification as well as data communication and network issues.

This document describes the messaging interface between the *MemberDirect*® online access system (referred to as the *"MemberDirect* system" or "the system") and host banking systems. Its purpose is to create a message set that:

▪ Follows as closely as possible the ISO8583:1987 &1993 standards

▪ Allows for easy future expansion of functionality as required

While the ISO Standard is being followed closely, there are a few differences agreed to by the development team:

1. Fields considered Mandatory within the ATM and POS networks are not necessarily considered Mandatory here as they are either not needed at all to preserve the intent of the transaction or they are not required by all parties.

2. Expanded date fields that have a two-digit year to incorporate a full four-digit year to circumvent impending Year 2000 problems.

3. The Process Code field is not used because it is too restrictive in the Home Banking environment. Instead, Data Element 62, a user-defined field with an expanded processing code set, replaces the Process Code.

4. Binary fields are doubled in size and Display Hex is used instead. This convention allows any communications protocol to be used.

Note:	Signed amounts are shown as follows:
	C = negative (credit)
	D = positive (debit)

Message structure

Communication between the *MemberDirect* server and the host banking system occurs in the form of messages that adhere to the ISO8583 message specification. These messages are comprised of following components:

• The message type

• The bitmap

• The message content

Figure 1-1 illustrates the structure of an ISO 8583 message.
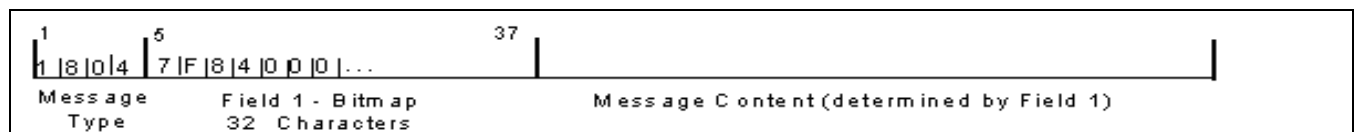
Figure 1-1: Message Structure

Message types

The message type occupies the first four characters of each message. It defines the following information about the message:

- The version number (such as ISO8583 (1987), ISO8583 (1993), etc.)
- The message class (such as authorization, reversal, fee collection, etc.)
- The message function (request, request response, advice, etc.)
- The transaction originator (acquirer, issuer, etc.)

The message type consists of four sub-fields:

VCFO
where:
V = Version Number
  1   ISO 8583 (1993)
  2   New message series for *MemberDirect*® Release 5.0 and up
C = Message Class
  0   Reserved for ISO use
  1   Authorization
  2   Financial
  3   File Action
  4   Reversal/Chargeback
  5   Reconciliation
  6   Administrative
  7   Fee Collection
  8   Network Management
  9   Reserved for ISO used
F = Message Function
  0   Request
  1   Request Response
O = Transaction Originator
  0   Acquirer
  4   Other

In Figure 1-1, the message type, 2804, means that the message is an IS08583 (1993), network management message that performs a handshake function between the *MemberDirect* server and the host banking system. (Refer to Section Two – *Message Overview* for more information about each message type.)

The bitmap field

The bitmap field follows the message type within a message. It occupies 32 characters from Position 5 to Position 37 and defines the presence of data elements within the content of the message, based on their position in the bitmap.

The bitmap field uses ASCII values (Display HEX) to transmit binary information that indicates the presence of data elements. Each ASCII character translates to four binary bits. Thus, A has a binary value of 1010, while 7 has a value of 0111. The binary values in the bitmap define the presence (or absence) of 128 data elements (4 bits x 32 hexadecimal characters).

Thus, the bitmap, 1126D5A200003000, translates to the following binary values:

0001 0001 0010 0110 1101 0101 1010 0010 0000 0000 0000 0000 0011 0000 0000 0000

(Spaces have been inserted only for readability.)

The position of each binary value in the bitmap corresponds to a specific data element. For example, Position 4 of the bitmap corresponds to Data Element 4. If there is a 1 in bitmap Position 4, then Data Element 4 is present in the message; if there is a 0 in Position 4, Data Element 4 is not present.

The above bit string indicates that Data Elements 4, 8, 11, 14, 15, 17, 18, 20, 22, 24, 25, 27, 31, 51 and 52 are present.

The following table translates the above bitmap.

ASCII binary

Byte	Value	Element #
1	0001	4
1	0001	8
2	0010	11
6	0110	14, 15
D	1101	17, 18, 20
5	0101	22, 24
A	1010	25, 27
2	0010	31
0	0000	
0	0000	
0	0000	
0	0000	
3	0011	51, 52
0	0000	
0	0000	
0	0000	

The message content

The bitmap field determines the content of the message by defining which data elements are present in the message and, in doing so, also determines the length of the message. Messages do not have a maximum number of characters other than that determined by the combined length of the data elements they contain. Refer to Section 5 – *Data Element Descriptions* for detailed information about data elements.

Supported message types

This specification supports the following types of message.

21xxAuthorization

An authorization is an approval or guarantee of action or of funds given by the card issuer to the acquirer. In Home Banking, the action it performs is a Member Sign-On and digital signature or Personal Access Code Authentication and Verification. For Future Use.

22xxTransaction

Used for all actions requiring the application of an amount to the cardholders account for billing or posting. What is a transaction? The essential criterion for determining what a transaction is (as different from a File Action or Administrative Message) is that a transaction affects an account and cannot be removed or changed. Only a reversal transaction can nullify its effect.

23xxFile Action

Used to add, change, delete or replace a file or record and may be used to inquire into a file to perform card administration (reporting lost or stolen cards). Such actions are New Member Setup and Vendor Account Maintenance in the Bill Payment context

24xxReversal

Used to partially or completely nullify the effects of a previous financial or authorization transaction. These messages are used in conjunction with the 22xx Credit/Debit message set to ensure transaction flow integrity.

26xxAdministrative Message

For transfer of information such as Statement, vendor or loan. Much of the extended Home Banking requirements will be handled with the 06xx message set.

28xxNetwork Management

Used for management of the network between the host or switch and the Remote Banking Server. Will allow the Host to indicate that it is in "Writes Off" or "Writes On" mode. Used to initiate a session and also for management of security, accounting and audit information management.

Abbreviations, acronyms and terms

The *MemberDirect*® Online Access System	Originated from VanCity Direct, it is the first on-line PC banking package in Canada. It allows the user to perform financial transactions such as funds transfer and bill payment. The user may also obtain information on accounts, exchange rates, product rates and product information. Browsing through one's statement assisted by dynamic *screening*, exporting and printing utilities makes personal banking a breeze. Direct RRSP contributions and term deposit investments are made possible. In addition, the user may create stop payment(s) on cheque(s) and set up future-dated funds transfer. With the latest Release 2.0, electronic mail and applications for loans and mortgages are used extensively.
Account	Membership account number within an institution.
Product(s)	Financial products such as demands, terms and loans that are created and maintained within a membership account.

Service(s)	Banking services such as stop payments, future-dated funds transfers, bill payments, immediate funds transfers and RRSP contracts.
Stateless	Stateless communication implies that the host has no recollection of any previous messages/queries sent from the client. Mechanisms are built into the request and reply messages (such as statement, product list) to keep track of specific host information so the host's subsequent processing may resume at a certain point and not at the beginning.

Message overview

This section describes each type of message listed in the *Introduction*. Each message description contains the following information:

- The message number and name
- The purpose of the message
- The products that use each message type
- The message flow for each message (to and from the host)

Included in the description are the Data Element and Process Codes used for each message request and reply.

Message flows

Messages containing requests flow from the *MemberDirect*® system to the host, while the host returns replies to the system. The arrows beside each message indicate the flow of the message as follows:

→ - Flow is from the *MemberDirect* system to the host.

← - Flow is from the host to the *MemberDirect* system.

Data elements present

The data elements used by messages are shown in the message descriptions following the Message Flow in a table titled Data Elements Present. This table indicates whether is the data element presence is mandatory, mandatory echo, conditional or optional by placing the following brackets around the data element number in the table:

- Mandatory – no brackets
- Mandatory echo – round brackets – example: (2)
- Conditional – braces – example: {44}
- Optional – square brackets – example: [72]

The table also shows which form, if any, of Data Element 48 and Data Element 123-127 they contain under the **D/E 48 Form Used** and **D/E 123-127 Form Used** columns.

Message descriptions

2200 – 2210 Financial transaction request and reply

The 2200 level messages are used for processing immediate transfers and bill payments.

Immediate funds transfer

This message is used for a request to transfer funds. The processing code (Data Element 62) for this message is set to either:

- 0301067 for funds transfer from a product to another product within the same membership
- 0311067 for transfer between two different membership products in the same institution
- 0321067 for transfer between two products of different institutions

Message flows

```
→ 2200 Immediate Funds Transfer Request
← 2210 Immediate Funds Transfer Reply

→ 2600 Product Balance Inquiry Request – From Account
← 2610 Product Balance Inquiry Reply

→ 2600 Product Balance Inquiry Request – To Account
← 2610 Product Balance Inquiry Reply
```

Data Elements Present	Process Code	D/E 48[1] Form Used	D/E 123-127 Form Used
Immediate Funds Transfer – Intra-Member – Request: 1, 2, 3, 4, 7, 11, [22], {47|52}, {53}, 62, 63, {72}, 102, 103, [104]	0301067	-	-
Immediate Funds Transfer – Intra-Member – Reply: 1, (2), (3), 7, (11), 39, {44}, {53}, 54, (62), (63), (102), (103)	0301067	-	-
Immediate Funds Transfer – Inter-Member – Request: 1, 2, 3, 4, 7, 11, [22], {47|52}, {53}, 62, 63, {72}, 102, 103, [104]	0311067	-	-
Immediate Funds Transfer – Inter-Member – Reply: 1, (2), (3), 7, (11), 39, {44}, {53}, 54, (62), (63), (102), (103)	0311067	-	-
Immediate Funds Transfer – Inter-Institution – Request (*Currently not implemented*) 1, 2, 3, 4, 7, 11, [22], {47|52}, {53}, 62, 63, {72}, 102, 103, [104]	0321067	-	-
Immediate Funds Transfer – Inter-Institution – Reply 1, (2), (3), 7, (11), 39, {44}, {53}, 54, (62), (63), (102), (103)	0321067	-	-

Immediate bill payments

This message is used to make an immediate bill payment to the member's vendor billing account. The processing code (Data Element 62) is set to 0221065 without setting the Action Date (Data Element 73). The account must be previously registered with the service provider. The client is advised of the Bill Payment Confirmation Number if the request is processed successfully.

Message flows

→ 2200 Immediate Bill Payment Request
← 2210 Immediate Bill Payment Reply
→ 2600 Product Balance Inquiry Request
← 2610 Product Balance Inquiry Reply

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1 See pages 4-1 to 4-3 for clarification of how these fields values are used.

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Immediate Bill Payment – Request 1, 2, 3, 4, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 103	0221065	00001* or 20001	-
Immediate Bill Payment – Reply 1, (2), (3), 7, (11), 39, 48, {44}, {53}, 54, (62), (63), (102), (103)	0221065	00002* 20002	-

* - The use of different forms for this field depends on whether the vendor ID and account number sizes 5/20 or 9/30 have been implemented. If the vendor ID/account sizes are 5/20 used, then the form 0000x is used. If they are 9/30, then 2000x is used.

2300 – 2310 File update request and reply

Product updates use bitmaps in the mapping of the host's data elements for each product. These bitmaps are described in *Appendix B – Product Group Definition.*

In a 2300 request, two bitmaps are sent in Data Element 48. The first bitmap is termed "Parsing Bitmap", which the host uses to determine the fields contained in Data Element 123. The second data element is called "Display Bitmap", which informs the host of the data elements required in the reply.

In a 2310 reply, only the Display Bitmap is sent in Data Element 48. This bitmap informs the client of the fields contained in Data Element 123. The host has the option, if necessary, to add or remove data by altering the original Display Bitmap sent in the request.

Create demand product

This message is a request for the host to create a demand product. The processing code (Data Element 62) is 0111001 (creation) and the product type field (5 ANS) in Data Element 102 is set to a demand product type as defined by the institution. The parsing bitmap in Data Element 48 defines the fields in Data Element 123, which contains the parameters used by the host to create the new demand product.

Message flows
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→ 2300 Demand Product Update Request (Creation) – Create new Account
Product
← 2310 Demand Product Update Reply (Creation)
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Create Demand Product – Request 1, 2, 3, 7, 11, [22], {47|52}, 48, {53}, 62, 63, {72}, 102, 123-127	0111001	00004	00013 20013 B-3
Create Demand Product – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0111001	00005	00013 20013 B-3

Create term product

This message is a request for the host to propose and create a term product. Before a term can be created, the client first indicates to the host the type of term in a proposal message (processing code being set to 0101001). The host replies with the institutional setup parameters for the term type. The client then returns to the host the prescribed parameters in a creation message (processing code set to 0111001). The product type field (5 ANS) in Data Element 102 is set to a term product type as defined by the institution. The parsing bitmap in Data Element 48 defines the fields in Data Element 123, which are the parameters used by the host for the new term product. *The proposal message may not be applicable to other institutions and may only be implemented where necessary.*

Message flows

Propose term product

→ 2300 Term Product Update Request (Proposal) – To get Service Charge
← 2310 Term Product Update Reply (Proposal)

Create term product

→ 2300 Term Product Update Request (Creation) – Create new Term Product
← 2310 Term Product Update Reply (Creation)

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Propose Term Product – Request 1, 2, 3, 7, 11, [22], 48, {53}, 62, 63, {72}, 102, 123-127	0101001	00004	00013 20013 B-4
Propose Term Product – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102), 123-127	0101001	00005	00013 20013 B-4
Create Term Product – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 123-127	0111001	00004	00013 20013 B-4
Create Term Product – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102), 123-127	0111001	00005	00013 20013 B-4

Future-Dated funds transfer create/update/remove

This message is a request for the host to create, update or delete a future-dated funds transfer (auto) service. The processing code (Data Element 62) is 0111055 (creation), 0121055 to Remove or 0131055 to Update. In Data Element 48, two additional bitmaps are used. The first bitmap is the Parsing Bitmap. It is for the host to parse the data elements in Data Element 123. The second bitmap is the Display Bitmap. It informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit. Both the client and host-server reference the set of Group Definitions as detailed in Appendix B. The host returns the Display Bitmap, which the client uses to parse the fields in Data Element 123.

Note: The Display Bitmap sent in the request message will contain all zeros in Data Element 48. The reply must contain the following bits:

- Bits 2-8
- Bit 11 (if an inter-member transfer)
- Bits 12 – 16
- Bits 18 – 21
- Bits 23 – 26 (if this is an inter-institutional transfer)

Message flows

Create future dated transfer

→ 2300 Future-dated Funds Transfer Creation Request
← 2310 Future-dated Funds Transfer Creation Reply

Update future dated transfer

→ 2300 Future-dated Funds Transfer Update Request
← 2310 Future-dated Funds Transfer Update Reply

Remove future dated transfer

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→ 2300 Future-dated Funds Transfer Removal Request
← 2310 Future-dated Funds Transfer Removal Reply
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Create Future-dated Funds Transfer – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, (54), 62, 63, {72}, 102, 103, 123-127	0111055	00004	00013 20013 B-2
Create Future-dated Funds Transfer – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102), (103), 123-127	0111055	00005	00013 20013 B-2
Remove Future-dated Funds Transfer – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 103, 123-127	0121055	00004	00013 20013 B-2
Remove Future-dated Funds Transfer – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102), 123-127	0121055	00005	00013 20013 B-2
Update Future-dated Funds Transfer – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 123-127	0131055	00004	00013 20013 B-2
Update Future-dated Funds Transfer – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102), 123-127	0131055	00005	00013 20013 B-2

Note: Update future-dated funds transfers are not currently implemented.

Future-Dated funds transfer create/remove

Also see page 5-7 in *Real-time Payments Message Details* for information about this transaction.

Change product name/member profile

This message is a request to change a product or the member profile. A product change may include modifying the name or changing the term maturity option. The product change mechanism is flexible enough to use the same message to implement new types of product updates in the future. The processing code (Data Element 62) for product changes is 0131001 and 0131008 for profile updates. The parsing bitmap in Data Element 48 defines the fields in Data Element 123, which contains the parameters used by the host to change the product as follows:

- Demand name changes use Data Element 123, Form 13 (Appendix B-3, Bit 6)
- Term Deposit name changes use Data Element 123, Form 13 (Appendix B-4, Bit 45)

- Term Deposit maturity update use Data Element 123, Form 13 (Appendix B-4, Bits 30 {31 32})
- Loan name changes use Data Element 123, Form 13 (Appendix B-5, Bit 27)
- Member profile changes use Data Element 123, Form 13 Form 13 (Appendix B-8, various bits)

Message Flows

→ 2300 Demand/Term/Loan Product/Member Profile Update Request
← 2310 Demand/Term/Loan Product/Member Profile Update Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Demand Product Update – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102, 123-127	0131001	00004	00013 20013 B-3
Demand Product Update – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0131001	00005	00013 20013 B-3
Term Deposit Update – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102, 123-127	0131001	00004	00013 20013 B-4
Term Deposit Update – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0131001	00005	00013 20013 B-4
Loan Product Update – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102, 123-127	0131001	00004	00013 20013 B-5
Loan Product Update – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0131001	00005	00013 20013 B-5
Member Profile Update – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102, 123-127	0131008	00005	00013 20013 B-8
Member Profile Update – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0131008	00005	00013 20013 B-8

Update member's bill payment vendors

This message is used to add or remove a bill payment vendor account on the service provider's database. The processing code (Data Element 62) is set to 0111032 for adding or to 0121032 for removal. The vendor account is identified in Data Element 48. The host routes this request to the service provider.

Message Flows

Add Bill Payment Vendor

→ 2300 Update Member's Bill Payment Vendors Request
← 2310 Update Member's Bill Payment Vendors Reply
→ 2600 Request for Member's Bill Payment Vendor List
← 2610 Reply for Member's Bill Payment Vendor List

Remove Bill Payment Vendor

→ 2300 Remove Member's Bill Payment Vendors Request
← 2310 Remove Member's Bill Payment Vendors Reply
→ 2600 Request for Member's Bill Payment Vendor List
← 2610 Reply for Member's Bill Payment Vendor List

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Add Member Bill Payment Vendors – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102	0111032	00001 20001 23001	-
Add Member Bill Payment Vendors – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102)	0111032	00001 20001 23001	-
Remove Member Bill Payment Vendors – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102	0121032	00001 20001	-
Remove Member Bill Payment Vendors – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, 62), (63), (102)	0121032	00001 20001	-

Future-dated bill payments

This message is used for making a future-dated bill payment to the member's vendor billing account. The processing code (Data Element 62) is set to 0111066 with the Action Date (Data Element 73) set to a future date. The account must be previously registered with the service provider. A positive completion is indicated by the return of a Bill Payment Confirmation Number originated from the Bill Payment service provider.

Message flows

→ 2300 Future Dated Bill Payment Request
← 2310 Future Dated Bill Payment Reply

→ 2600 Product Balance Inquiry Request
← 2610 Product Balance Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Future Dated Bill Payment – Request 1, 2, 3, 4, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 73, 102, 103 Data Element 73 set to Payment Date	0111066	00001 20001	-
Future Dated Bill Payment – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (73), (102), (103)	0111066	00002 20002	-

Remove future-dated bill payments

This message is used for removing a future dated bill payment from the member's vendor billing account. The processing code (Data Element 62) is set to 0121066 with the Action Date (Data Element 73) set to a future date. The future-dated bill payment must have been previously processed with the service provider and the original Bill Payment Confirmation Number must accompany the removal request.

Message flows

→ 2300 Request for the Removal of a Future Dated Bill Payment
← 2310 Reply for the Removal of a Future Dated Bill Payment

→ 2600 Request for Member's Future Dated Bill Payments
← 2610 Reply for Member's Future Dated Bill Payments

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Remove Future Dated Bill Payments – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 103	0121066	00003 20003	-
Remove Future Dated Bill Payments – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), 73, (102), (103)	0121066	00003 20003	-

Recurring bill payments

This message is used for handling recurring bill payments, that is, payments with a fixed amount that are made on a regular schedule, such as monthly. The processing code (Data Element 62) is set to 0111067 with the Action Date (Data Element 73) set to the first payment date. The account must be previously registered with the service provider. A positive completion is indicated by the return of a Bill Payment Confirmation Number originated from the Bill Payment service provider.

Note: For more information on the message flows and logic for recurring bill payments, see *Recurring Bill Payments* on Page A-5.

Message Flows

→ 2300 Recurring Bill Payment Request
← 2310 Recurring Bill Payment Reply

→ 2600 Product Balance Inquiry Request
← 2610 Product Balance Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Recurring Bill Payments – Request 1, 2, 3, 4, 7, 11, 14, {20}, [22], 48, {47|52}, {53}, 62, 63, {72}, 73, 102, {103}	0111068	21001 22001	-
Recurring Bill Payments – Reply 1, 2, 3, 7, 11, {20}, 39, [44], 48, {53}, (62), (63), 102, {103}	0111068	00002 20002	-

Remove recurring bill payments

This message is used for removing a recurring bill payment from the member's vendor billing account. The processing code (Data Element 62) is set to 0121067 with the Action Date (Data Element 73) set to the date of the first bill payment. The recurring bill payment must have been previously processed with the service provider and the original Bill Payment Confirmation Number must accompany the removal request.

Note: For more information on the message flows and logic for recurring bill payments, see *Recurring Bill Payments* on Page A-5.

Message flows

→ 2300 Request for the Removal of a Recurring Bill Payment
← 2310 Reply for the Removal of a Recurring Bill Payment

→ 2600 Request for Member's Recurring Bill Payments
← 2610 Reply for Member's Recurring Bill Payments

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Remove Recurring Bill Payments – Request 1, 2, 3, 4, 7, 11, 14, {20}, [22], 48, {47|52}, 62, 63, {72}, 73, 102, {103}	0121068	00003 20003	-
Remove Recurring Bill Payments – Reply 1, 2, 3, 7, 11, {20}, 39, [44], 48, (62), (63), 102, {103}	0121068	00003 20003	-

Stop payment update

This message is a request for the host to create a stop payment service. The processing code (Data Element 62) is 0111050 (Add One Stop).

This message is also used to retrieve the service charge for creating a stop payment service by setting Data Element 62 to 0101050. The client warns the user of this potential payment before it continues with the process. To update a Stop Payment update, set Data Element 62 to 0131050; the removal of a stop payment is accomplished by setting Data Element 62 to 12150.

Message flows

Create stop payment

→ 2300 Stop Payment Update Request (Proposal) - To get Service Charge
(Optional)
← 2310 Stop Payment Update Reply (Proposal)

→ 2300 Stop Payment Update Request (Creation) - Create Stop
← 2310 Stop Payment Update Reply (Creation)

→ 2600 Product Balance Inquiry Request - To show deducted service
charges (Optional)
← 2610 Product Balance Inquiry Reply

Remove stop payment

→ 2300 Stop Payment Update Request (Removal)
← 2310 Stop Payment Update Reply (Removal)

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Stop Payment Proposal - Request: 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 123-127	0101050	00004	00013 20013 B-1
Stop Payment Proposal - Reply: 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102)	0101050	00006	-
Stop Payment Create – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 123-127	0111050	00004	00013 B1
Stop Payment Create – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102), [123-127]	0111050	00005	00013 20013 B1
Stop Payment Remove – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 123-127	0121050	00004	00013 20013 B1
Stop Payment Remove – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102), [123-127]	0121050	00005	00013 20013 B1

Change member PAC update

This message is used to change a member's Personal Access Code (PAC). The current PAC is
placed in Data Element 52, while the new PAC is placed in Data Element 48 in the request
message. The processing code (Data Element 62) is set to 0131090. The reply indicates whether
the PAC has been accepted or not.

Message flows

```
→ 2300 Change Member PAC Update Request
← 2310 Change Member PAC Update Reply
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Change Member PAC Update - Request 1, 2, 3 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102	0131090	00010 21010	-
Change Member PAC Update - Reply 1, (2), (3), 7, (11), 39, {44}, {53}, (62), (63), 102	0131090	-	-

2400 – 2410 Credit/debit reversal transaction

See page 6-5 in *Real-time Payments Message Details* for information about this transaction.

2600 – 2610 Administrative request and reply

For performance efficiency, the client caches tables of exchange rates, loan and demand rates in memory. (Other cached tables for bill payment vendors and vendor categories are also implemented.) Investment term deposit rates are not cached because of the business requirement for timeliness and accuracy. These tables are updated periodically at a pre-set interval stipulated by the institution.

Another table that the client caches, is the Products table. The rationale behind this implementation is the acknowledgement that different institutions offer different products to their users and in instances, may modify, add or even remove a product. At specific intervals, the client requests a list of the currently offered products from the institution and updates the cached Products table. The client uses the product categories to make this request. Product categories are defined in Appendix C. Using the Products table, the server populates the Product Rates tables.

Access authentication

This message sends the user's membership number and the Personal Access Code (PAC) to the host for verification. If the credit union uses the Primary Account Number (PAN) (that is, debit card number) to identify the user, the Access Authentication request message and all subsequent messages will contain the PAN in data element 20. All reply messages must echo back the PAN in element 20. If the institution uses the member and branch (optional) numbers to identify a user, the Access Authentication request message will contain Data Element 102. The BIN field in Data Element is populated with the BIN configured for the institution in the *MemberDirect*® server. The Branch and Member Number fields are populated according to the values that the user has entered. The second option corresponds to the standard access authentication method prior to *MemberDirect* Release 5.0.

PAN login

If the institution uses the PAN for logging in, the banking system must use the new 2600 series Access Authentication Reply message, which contains a list of memberships associated with the user. The *MemberDirect*® system will then send a series of Product Balance requests to retrieve the accounts under each membership.

Disclaimer indicator

The *MemberDirect* system uses the Disclaimer indicator in Data Element 44 (Response Condition 1 = 7001) for the user's first sign-on. In this scenario, the disclaimer indicator of the initial request is either set to *N* or is absent from the message and the host returns an error condition, advising the client to display the User Agreement. After the user indicates acceptance, the disclaimer indicator is included and is set to *Y* in the subsequent sign on. After these activities, the disclaimer indicator is no longer relevant as the host updated the database with the date of the first sign-on. *Institutions may ignore the disclaimer indicator if this business requirement is not applicable*. If the reply is negative, the client terminates the session or, if it is a first sign-on, displays the User Agreement for acceptance.

Mandatory change PAC

The Mandatory Change PAC function uses Data Element 44 (Response Condition 1 = 7002) to force users to change their PAC when they first sign on to the *MemberDirect* system.

Retrieve lost PAC

The host banking system must meet the following prerequisites in order to use the Retrieve Lost PAC function:

1. The host banking system must be able to receive and respond to a Member Profile Request Message, an Authentication Request Message and a Change PAC Request Message.

2. The above messages do not have a PAC.

3. The NetworkID for this functionality is set to MDPAC0500000.

For the Retrieve Lost PAC feature to function, the *MemberDirect* system must distinguish between members who have an account at a financial institution, but do not have a PAC because they have not accessed the system before or members who have a PAC, but have lost or forgotten it.

Message flows

→ 2600 (2600) Access Authentication Request (optionally PAN
  Authentication)
← 2610 (2610) Access Authentication Reply

The following messages are implemented as part of the Access Authentication request in *MemberDirect* Release 5.0 as noted below:

→ 2600 (2600) Product Balance Inquiry Request
← 2610 (2600) Product Balance Inquiry Reply

If display of future-dated transfers on the Account Summary page enabled by an institution:

→ 2600 Future Dated Funds Transfer Inquiry Request

← 2610 Future Dated Funds Transfer Inquiry Reply

If display of future-dated bill payments on main page enabled by an institution:

→ 2600 List Member Future Dated Bill Payments Request

← 2610 List Member Future Dated Bill Payments Reply

Login with disclaimer

→ 2600 Access Authentication Request

← 2610 Access Authentication Reply (bit 44 contains 7001 code)

→ 2600 Access Authentication Request with Disclaimer Request (bit 48, form 7 present)

← 2610 Access Authentication Reply

Login with mandatory change PAC

Note that a banking system can reply to the Access Authentication Request with Disclaimer Request with a message containing code 7002 to force the member to change their PAC after acknowledging the disclaimer.

→ 2600 Access Authentication Request

← 2610 Access Authentication Reply (bit 44 contains 7002 code)

→ 2300 Change Member PAC Update Request

← 2310 Change Member PAC Update Reply

→ 2600 (2600) Product Balance Inquiry Request etc. as per standard
  Member Login (*MemberDirect*® Release 5.0)

Login with lost PAC

The Request message will carry a NetworkID (Data element 63) with the value "MDPAC0500000". In the Reply message, Data Element 44 will carry a Response Condition 1 (RC1) = "7000" to indicate the member has an account at the institution, but has *not* yet been issued a PAC. If the member has lost or forgotten their PAC, the Reply message will either not contain BM44 or RC1 will = "0000".

2600 – Member Profile Request
2610 – Member Profile Reply
    The information returned here is used to assist in the validation of the member's ID.

2600 - Access Authentication Request
2610 - Access Authentication Reply BM44 not present or BM44/RC1 is set to "7000" – Not yet
    registered for on-line banking or "0000" – Registered for On-Line Banking. The
    MemberDirect system uses the returned values to lead the member through the
    appropriate process.

2300 – Change PAC Request
    (BM 52 or BM47 (current PAC) not present or empty)
    BM 48 form 00010 or 21010 contain the NEW PAC.
    The banking host will either update the existing *old* PAC with the *new* PAC or will set the
    new PAC.

2310 – Change PAC Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Access Authentication- Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, {59{D}*}, 62, 63, {73}, 102	0901000	00007	-
Access Authentication- Reply 1, (2), (3), (7), (11), (20), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0901000	00022 02022	00002
Access Authentication with PAN - Request 1, 2, 3, 7, 11, 20 [22], 48, {47|52}, {53}, {59{D}*}, 62, 63, {73}	0901000	20007	-
Access Authentication with PAN – Reply 1, (2), (3), (7), (11), (20), (22), 39, {44}, 48, {53}, (62), (63), [72], 123-127	0901000	20022 22022	20002

*- D indicates delegate. If a delegate was involved in creating the transaction prior to the collection of signatures, the Delegate ID will be present.

Logout process

The Logout process is an optional message that is used if a property-controlled session logout required. The processing code (Data Element 62) is 0991000.

Note that Data Element 1 is conditional if Data Element 102 is present and Data Element 102 is conditional if the logout is *not* from a PAN login. Also, in the Logout Request, Data Element 72 is conditional – it is present if it was sent during the client's session.

Message flows
→ 2600 Logout Request
← 2610 Logout Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Logout - Request {1}, 2, 3, 7, 11, {20}, 62, 63, {72}, {102}	0991000	-	-
Logout – Reply {1}, 2, 3, 7, 11, {20}, 39, [44], 62, 63, {102}	0991000	-	-

Exchange rates

This message requests the current exchange rates from the institution. The processing code (Data Element 62) is 0029020. The exchange rates are returned. There are different rates applicable to different benefit and transaction types.

Message flows

→ 2600 Exchange Rates Request
← 2610 Exchange Rates Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Current Exchange Rates - Request [1], 2, 3, 7, 11, [22], 48, 49, {47|52}, {53}, 62, 63, {73}, [102]	0029020	00011	-
Current Exchange Rates – Reply 1, (2), (3), 7, (11), 39, {44}, 48, 49, {53}, (62), (63), [102], 123-127	0029020	00013	00003
Historical Exchange Rates – Request (*Currently not implemented*) [1], 2, 3, 7, [22], 11, 48, 49, {47|52}, {53}, 62, 63, {73}, [102]	0021020	00021	-
Historical Exchange Rates – Reply (*Currently not implemented*) 1, (2), (3), 7, (11), 39, {44}, 48, 49, {53}, (62), (63), [102], 123-127	0021020	00013	

Exchange rate types

The following exchange rates types are contained in Data Element 123-127, Form 00003:

0 = Buying cash from institution
1 = Selling cash to institution
2 = Buying cheques from institution
3 = Selling cheques to institution
4 = Buying from institution – account withdrawal
5 = Selling to institution – account deposit
6 = Buying American Express Travellers' Cheques
7 = Selling US cheques to institution – cashing

Product rates

This message is used to query the host for the applicable interest rates for a specific product as identified by the combination of its product category, currency, type, subtype, benefit type and class. The processing code (Data Element 62) is 0021021.

Message flows

→ 2600 Product Rates Request
← 2610 Product Rates Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Demand Product Rates – Request [1], 2, 3, 7, 11, [22], 48, {53}, 62, 63, {73}, [102]	0021021	00019	-
Demand Product Rates – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [102], 123-127	0021021	00020	00004
Loan Product Rates – Request [1], 2, 3, 7, 11, [22], 48, {53}, 62, 63, {73}, [102]	0021021	00019	
Loan Product Rates – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [102], 123-127	0021021	00020	00005
Term Product Rates – Request [1], 2, 3, 7, 11, [22], 48, {53}, 62, 63, {73}, [102]	0021021	00019	
Term Product Rates – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [102], 123-127	0021021	00020	00006

Interest calculation methods

The following interest calculation methods are specified in Data Element 123-127, Forms 00004 – Forms 00006:

1. Interest calculation methods:

The first 3 characters	DCB - Daily Closing Balance BAL - Current Balance
The fourth character:	P - Paid Out C - Compounded
The fifth character:	M - Monthly S - Semi-annually A - Annually Q - Quarterly H - Semi-monthly W - Weekly B - Bi-Weekly D - Daily E – at End or Maturity of term

2. All rates in this message have implied three decimal places are implied for the above rates.

3. Length and frequency jointly indicate the duration of a term. The options for frequency are Y(ear), M(onth), D(ay).

4. Possible rate descriptions are "OPEN", "FIXED" and "CLOSED". It is used for displayed as column headings for rate list box.

Maturity Instructions   Data Element 123 - 127   Term Details
REN = Renew; ROL = Roll-over; TSF = Transfer Out

Interest To Instructions Data Element 123-127 Term Details
TSF = Transfer; CMP = Compounded; CHQ = Write a Cheque

Investment products

The client uses this message to obtain the currently available investment products, namely demands and term deposits. The processing code (Data Element 62) is 0029041. The product list on the host may be customized by individual institution using the combination of category, currency, type, subtype, benefit type and class. The list of currently offered investment products by the institution is returned.

Message Flows

→ 2600 Investment Products Request
← 2610 Investment Products Reply

→ 2600 Product Rates Request
← 2610 Product Rates Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Investment Products – Request 1, 2, 3, 7, 11, 48, {53}, 62, 63, 102	0029041	00019	
Investment Products – Reply 1, (2), (3), 7, (11), 48, {53}, (62), (63), [102], 123-127	0029041	00020	00014

Bill Payment Vendor Categories

This message is used to obtain the currently defined bill payment vendor categories. The processing code (Data Element 62) is 0029030. The host returns the vendor categories.

> **Note:** As of *MemberDirect*® Release 4.1, the *MemberDirect* server caches the Vendor and Vendor Category Lists. If enabled, these lists will be stored in the cache and refreshed every 24 hours at a time determined by the *MemberDirect* configuration.

Message Flows

→ 2600 Bill Payment Vendor Categories Request
← 2610 Bill Payment Vendor Categories Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Bill Payment Vendor Categories – Request [1], 2, 3, 7, 11, [22], 48, {53}, 62, 63, [102]	0029030	00011	-
Bill Payment Vendor Categories – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [102], 123-127	0029030	00013	00008

Vendor categories

The following vendor categories are recommended in Data Elements 123-127, Form 00008:

01 = Utilities	06 = Property tax payees
02 = Telecommunications	07 = Insurance companies
03 = Cablevision systems	08 = Others
04 = Credit cards	
05 = Oil companies	

Institution bill payment vendor list

The *MemberDirect*® server uses this message to obtain the currently available bill payment vendors. The processing code (Data Element 62) is 0029031. The bill payment vendor list is returned.

Message flows

```
→ 2600 Institutional Bill Payment Vendor List Request
← 2610 Institutional Bill Payment Vendor List Reply
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Institution Bill Payment Vendor List Request [1], 2, 3, 7, 11, [22], 48, {53}, 62, 63, [102]	0029031	00011	-
Institution Bill Payment Vendor List Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [102], 123-127	0029031	00013	00007 20007

Future-dated funds transfer inquiry

This message is a request for the host to list one or more future-dated funds transfers. The processing code (Data Element 62) is 0029055 for all transfers. The product ID must *not* be zero, if only one service is queried.

In Data Element 48, one additional bitmap is used. The bitmap, termed Display Bitmap, informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit and both the client and host-server reference the set of Group Definitions as detailed in Appendix B.

> **Note:** If the transfer is an inter-member transfer, only Data Element 11 is returned. If it is set, then Bit 11 – "To Customer" appears in the To Account.

Message flows

```
→ 2600 Future-dated Funds Transfer Inquiry Request
← 2610 Future-dated Funds Transfer Inquiry Reply
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Future-dated Funds Transfer Inquiry – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029055	00012	-
Future-dated Funds Transfer Inquiry – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029055	00014	00013 20013 B-2

Stop payment inquiry

This message is a request for the host to list one or all stop payment service(s). The processing code (Data Element 62) is 02150 for the current information of one stop payment service or 0029050 for all service(s). The product id must not be zero, if only one service is queried.

In Data Element 48, one additional bitmap is used. The bitmap, termed Display Bitmap, informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit and both the client and host-server reference the set of Group Definitions as detailed in Appendix B.

Message Flows

→ 2600 Stop Payment Inquiry Request
← 2610 Stop Payment Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Stop Payment Inquiry – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029050	00012	-
Stop Payment Inquiry – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029050	00014	00013 20013 B-1

Demand product inquiry

This message is a request for the host to list one or all demand product(s). The processing code (Data Element 62) is 0021001 for the current information for one demand product or 0029001 for all product(s). The product category field (4 ANS) in Account Identification 1 (Data Element #102) is set to DMD. The product type and id must not be blanks or zero, if only one product is queried.

In Data Element 48, one additional bitmap is used. The bitmap, termed Display Bitmap, informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit and both the client and host-server reference the set of Group Definitions as detailed in Appendix B.

Message flows

→ 2600 Demand/Term/Loan Product Inquiry Request
← 2610 Demand/Term/Loan Product Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Demand Product Inquiry – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0021001	00012	-
Demand Product Inquiry – Reply 1, (2), (3), 7, (11), 39, {44}, 48 {53}, (62), (63), [72], 102, 123-127	0021001	00014	00013 20013 B-3

Term product inquiry

This message is a request for the host to list one or all term product(s). The processing code (Data Element 62) is 0002101 for current information of one term product or 0029001 for all product(s). The product category field (4 ANS) in Account Identification 1 (Data Element 102) is set to TERM. The product id must not be zero, if only one product is queried.

In Data Element 48, one additional bitmap is used. The bitmap, termed Display Bitmap, informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit and both the client and host-server reference the set of Group Definitions as detailed in Appendix B.

Message flows

→ 2600 Demand/Term/Loan Product Inquiry Request
← 2610 Demand/Term/Loan Product Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Term Product Inquiry – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0021001	00012	-
Term Product Inquiry – Reply 1, (2), (3), 7, (11), 39, {44}, 48 {53}, (62), (63), [72], 102, 123-127	0021001	00014	00013 20013 B-4

Loan product inquiry

This message is a request for the host to list current information of one loan product using processing code (Data Element 62) 0021001. The product category field (4 ANS) in Account Identification 1 (Data Element #102) is set to LOAN. The product ID must not be zero, if only one product is queried.

In Data Element 48, one additional bitmap is used. This bitmap, termed Display Bitmap, informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit and both the client and host-server reference the set of Group Definitions as detailed in Appendix B.

Message flows

```
→ 2600 Demand/Term/Loan Product Inquiry Request
← 2610 Demand/Term/Loan Product Inquiry Reply
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Loan Product Inquiry – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0021001	00012	-
Loan Product Inquiry – Reply 1, (2), (3), 7, (11), 39, {44}, 48 {53}, (62), (63), [72], 102, 123-127	0021001	00014	00013 20013 B-5

Statement inquiry

This message is used to request statement transactions for an identified product. The processing code (Data Element 62) is 019001. Multiple requests may be required to complete the entire request. All applicable transactions for the product are returned.

Message flows

```
→ 2600 Statement Inquiry Request
← 2610 Statement Inquiry Reply
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Statement Inquiry – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0019001	00008	-
Statement Inquiry - Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0019001	00009	00015

RRSP and TFSA contract information

This message is a request for the host to list all RRSP and TFSA (Tax-free Savings Accounts) contracts. The processing code (Data Element 62) is 0029005. The product category field (4 ANS) in Account Identification 1 (Data Element #102) is set to either RRSP or TFAspace (that is, "TFA " with a space after the "A") and the product type is blank.

In Data Element 48, one additional bitmap is used. The bitmap, termed Display Bitmap, informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit and both the client and host-server reference the set of Group Definitions as detailed in Appendix B.

Message flows

→ 2600 RRSP/TFSA Contract Information Request
← 2610 RRSP/TFSA Contract Information Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
RRSP/TFSA Contract Information – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029005	00012	-
RRSP/TFSA Contract Information – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029005	00014	00013 20013 B-6

RRIF contract inquiry - all

This message is a request for the host to list all RRIF contracts. The processing code (Data Element 62) is 0029006. The product category field (4 ANS) in Account Identification 1 (Data Element #102) is set to RRIF and the product type is blank.

In Data Element 48, one additional bitmap is used. The bitmap, termed Display Bitmap, informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit and both the client and host-server reference the set of Group Definitions as detailed in Appendix B.

Message flows

→ 2600 RRIF Contract Information Request
← 2610 RRIF Contract Information Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
RRIF Contract Information – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029006	00012	-
RRIF Contract Information – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029006	00014	00013 20013 B-7

Request for member's bill payment vendor list

The client uses this message to obtain the available bill payment vendors of a membership. The processing code (Data Element 62) is 029032. The host returns all bill payment vendors registered for that membership.

Message flows

→ 2600 Request for Member's Bill Payment Vendor List
← 2610 Reply for Member's Bill Payment Vendor List

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Get Member Bill Payment Vendor List – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029032	00011	-
Get Member Bill Payment Vendor List – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029032	00013	00010 20010

Request for member's future-dated bill payments

This message is used for requesting all future-dated bill payments made by a membership. The processing code (Data Element 62) is 0029066. Multiple requests may be required to complete the entire request. The host returns all future-date bill payments from the service providers.

Message flows

→ 2600 Request for Member's Future-dated Bill Payments
← 2610 Reply for Member's Future-dated Bill Payments

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
List Member Future Dated Bill Payments – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029066	00011	-
List Member Future Dated Bill Payments – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029066	00013	00011 20011

Member's urgent messages

In the Access Authentication Reply, the client deciphers from the message indicators whether the host locates a number of urgent or delinquency message(s) within this membership. The client then uses this request to get the urgent messages from the host. The processing code (Data Element 62) is 0029060. The host returns the membership's urgent messages.

Message flows

→ 2600 Request for Member's Urgent Messages
← 2610 Reply for Member's Urgent Messages

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Member's Delinquency Messages - Request 1, 2, 3, 7, 11, {47|52}, [22], 48, {53}, 62, 63, {72}, {73}, 102	0029060	00011	-
Member's Delinquency Messages – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029060	00013	00012 20012

Request for member's recurring bill payments

This message is used for requesting all recurring bill payments made by a membership. The processing code (Data Element 62) is 0029068. Multiple requests may be required to complete the entire request. The host returns all recurring bill payments from the service providers.

Message flows

→ 2600 Request for Member's Recurring Bill Payments
← 2610 Reply for Member's Recurring Bill Payments

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
List Member Recurring Bill Payments – Request 1, 2, 3, 4, 7, 11, {20}, [22], 48, {52}, 62, 63, {72}, 73, 102, {103}	0029068	00011	-
List Member Recurring Bill Payments – Reply 1, 2, 3, 7, 11, {20}, 39, [44], 48, 62, 63, 102, {103}, 123-127	0029068	00013	00023 20023

Request for member's financial reminders

In the Access Authentication Reply, the client deciphers from the message indicators whether the host locates a number of financial reminders within this membership. The client then uses this request to get the financial reminders from the host. The processing code (Data Element 62) is 02961. The host returns the membership's financial reminders

Message flows

→ 2600 Request for Member's Financial Reminders
← 2610 Reply for Member's Financial Reminders

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Member's Financial Reminders – Request 1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029061	00011	
Member's Financial Reminders – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029061	00013	00012 20012

Product balance inquiry

This message is sent to the host requesting the product balances of all active products within a specific membership. The processing code (Data Element 62) is set to 0001001 for one product balance and 0009001 for all products. This message allows for the balance information of a maximum of 40 products in a single transmission (if the value of the "products requested" field is set accordingly).

Because of the potential number of products that may be present in a membership, the message structure is set up to allow subsequent request(s) to fetch the next batch of 40 products. In a subsequent request, the search items returned by the host in the previous reply must be sent so the host begins processing the next product to send. (In the initial request, these search items are set to zeros).

This request message can also be used to retrieve the balance of a single product by identifying the product in the product type field (5ANS) and product id in Account Identification 1 (Data Element 102). The processing code is 0001001. The host returns the last product balance information in the search item before transmitting a reply to a multi-product request.

Message flows
→ 2600 Product Balance Inquiry Request
← 2610 Product Balance Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Product Balance Inquiry - One Product Balance – Request 1, 2, 3, 7, 11, 20, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0001001	00011	
Product Balance Inquiry - One Product Balance – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0001001	00013	00001 or 20001
Product Balance Inquiry - All Products – Request 1, 2, 3, 7, 11, 20, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0009001	00011	
Product Balance Inquiry - All Products – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0009001	00013	00001 or 20001

Inter-Member transfer account inquiry

The inter-member transfer account inquiry request asks the banking system to return a list of accounts that it will appear as destination accounts for inter-member transfers. The *MemberDirect*® system uses this message in the three ways described below. The process code (Data Element 62) is 0029007. Institutions have a choice of a particular option within the *MemberDirect* system. They can customize these options for any particular banking system.

Option 1 – Reply with Data Element 123, Form 00016
The inquiry request message identifies only the member who is making the request. The banking system should then return a list of accounts registered by the member as legitimate destination accounts for inter-member transfer.

Message Flows
→ 2600 Inter-Member Transfer Account Inquiry Request
← 2610 Inter-Member Transfer Account Inquiry Reply

Option 2 – Reply with Data Element 123, Form 00014
Similar to option 1, the inquiry request message identifies only the member who is making the request. However, instead of returning a list of actual accounts, the banking system returns a list of generic products. The member is then required to fill in the destination member ID and branch (if applicable). The message sent with this option is a specialized Investment Products Request, Process Code = 0029041.

Message flows
→ 2600 Investment Product Request
← 2610 Investment Product Reply

Option 3 – Reply with Data Element 123, Form 00016

The inquiry request message identifies the member making the request and the destination member ID. The host banking system should then return a list of accounts belonging to the destination member to which the requesting member can perform transfers. This option uses the message flow for Option 1.

Option 4

The *MemberDirect*® system does not query for a destination account list. The host banking system determines the account in which to deposit the transfer amount. No messages are sent or received with this option.

Option 5

This option combines the functionality of both Options 1 and 2 and is implemented as two separate calls to the banking system for information. This option uses both the message flows for Options 1 and 2.

Options 1, 3, 5 Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Inter-Member Transfer Account Inquiry – Request 1, 2, 3, 7, 11, [22], 48, 52 {53}, 62, 63, {72}, {73}, 102, [103]	0029007	00011	-
Inter-Member Transfer Account Inquiry – Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, [103], 123-127	0029007	00013	00016

Options 2, 5 Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Inter-Member Transfer Product Query– Request 1, 2, 3, 7, 11, 48, {53}, 62, 63, 102	0029041	00019	
Inter-Member Transfer Product Query – Request – Reply 1, (2), (3), 7, (11), 48, {53}, (62), (63), [102], 123-127	0029041	00020	00014

Member profile inquiry

The *MemberDirect* functions do not directly use the member profile inquiry as they use function-specific inquiries and requests. The *MemberDirect* system uses this message to pre-populate registration forms for services offered by third party service providers such as bill presentment or online brokerages. Using this information simplifies registration for these services by eliminating the need to re-enter information that exists within the profile. It also simplifies the application process for loans or insurance. The process code (Data Element 62) is 0029008.

At this time, there is no specific function to display the member profile (except for testing). In a production environment, the member profile is typically requested in order to pre-populate a registration form.

Message flows

```
→ 2600 Member Profile Inquiry Request
← 2610 Member Profile Inquiry Reply
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Member Profile Inquiry - Request 1, 2, 3, 7, 11, [20], [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029008	00012	-
Member Profile Inquiry - Reply 1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029008	00014	00013 B-8 20013 B-8

Institution biller list request/reply

The *MemberDirect*® server uses this message to obtain the supplemental information for the institution's billers. The processing code (Data Element 62) is 0029031. The bill payment vendor list is returned.

Message flows

```
→ 2600 Institutional Bill Payment Vendor List Request
← 2610 Institutional Bill Payment Vendor List Reply
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Institution Biller List Request [1], 2, 3, 7, 11, [22], 48, {53}, 62, 63, [102]	0029031	00011	-
Institution Biller Reply 1, (2), (3), 7, (11), (22), 39, {44}, 48, {53}, (62), (63), [102], 123-127	0029031	00013	00007 20007 21007

Note: If BM22 is present, then honour the language code that is present. Echo it back in the reply. If the language code is not present, the default language for the biller descriptions is English.

Cheque image viewing charge

The Cheque Image Viewing Charge retrieves cheque image information for an account via a 2600 message – Extended Account Information Request/Reply. This message can also be used for other account transactions or activity, such as bill payments, transfers and stop cheques. It uses Processing Code (Data Element 62) 0401001. The host will retrieve the member's cheque image information.

Message flows

→ 2600 Extended Account Information Request
← 2610 Extended Account Information Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Extended Account Information – Request 2, 3, 7, 11, 62, 63, {72}, 102, 123-127	0401001	-	21013
Extended Account Information – Reply 2, 3, [4], 7, 11, 39, [44], 62, 63, [72], 102	0401001	-	-

Snapshot inquiry

This message requests the host to return three periods of summary data for all-in-one combination accounts. In Data Element 48, the Group ID is present. In Data Element 102, it is the specific membership and in Data Element 20, it is the PAN indicating which member is logged on and requesting the information.

Message flows

→ 2600 Snapshot Inquiry Request
← 2610 Snapshot Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Snapshot Inquiry – Request 1, 2, 3, 7, 11, [20], [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0021071	20023	-
Snapshot Inquiry – Reply 1, (2), (3), 7, (11), [20], 39, {44}, 48, {53}, (62), (63), [72], 102, 123	0021071	20023	20024

Graph inquiry

This message is a request for the host to return a number of periods of data for graphing the financial history of an all-in-one combination account. In the Data Element 48 Request, the Group ID is present. In Data Element 102, it is the specific membership and in Data Element 20, it is the PAN indicating the specific member who is logged on and requesting the information.

Message flows

→ 2600 Graph Inquiry Request
← 2610 Graph Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Graph Inquiry – Request 1, 2, 3, 7, 11, [20], [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0021070	20024	-
Graph Inquiry – Reply 1, (2), (3), 7, (11), [20], 39, {44}, 48, {53}, (62), (63), [72], 102, 123	0021070	20025	20025

eStatement access ID inquiry

This message facilitates requests from and replies to the *MemberDirect*® system for eStatement Access IDs, however they are formulated. The processing code (Data Element 62) is 0029033.

The system will pass user information in terms of:

▪ BIN, branch and member numbers *plus*

▪ an optional PAN for institutions supporting PAN login *OR* an optional UMID for banking systems supporting UMID. See *Appendix A – FAQs* for more information about the UMID.

In addition, the system will pass an identifier for the specific eStatement provider. The host bank system will return to the *MemberDirect* system, a list of zero or more eStatement Access IDs for eStatements accessible to the specified member.

Message flows

→ 2600 eStatement Access ID Inquiry Request
← 2610 eStatement Access ID Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
eStatement Access ID Inquiry – Request 1, 2, 3, 7, 11, 20, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029033	20022	00026 with count of Statement IDs =0
eStatement Access ID Inquiry – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029033	00013	00026

In the request message, BM123 Form 00026 will be sent to the host banking system with the eStatement Provider ID set, but with the Count of eStatement Access IDs set to 00000.

The reply message will return with zero or more eStatement Access IDs.

2804 – 2814 Network management request and reply

System handshake

The client periodically sends this message to the host advising security key change and detecting whether the connection is maintained in good order. The host acknowledges the receipt of the request. The host also sends this message to the client advising of a security key change.

Message flows

→ 2804 System Handshake Request
← 2814 System Handshake Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
System Handshake Request 2, 3, 7, 11, 24, {53}, 63	0029060	-	-
System Handshake Reply (2), (3), 7, (11), (24), 39, {44}, {53}. (63)	0029060 or 0000000	-	-

System handshake request

Function Codes are set in the 2804 message to define the functionality required at the destination. It must be echoed back unchanged.

Function codes Data Element 24:

801 = Sign-On
802 = Sign-Off
811 = Key Change
831 = Echo Test
899 = System Status Request - Sent from the *MemberDirect*® server to the Host - Expected responses are 000, 803, 880 and 881

Action Codes are returned as condition codes in the 2814 message. They may be used in conjunction with Data Element 44 - Additional Response Data.

Action codes Data Element 39

000 = OK
800 = New key accepted
803 = Target System Unavailable
880 = Host in writes-off mode

Host disallows database updates. Some *MemberDirect* functions (such as the creation of investment products, stop payment and future-dated funds transfers) require the host to be in writes-on mode, when the database can be updated.

881 = Host in writes-on mode

Data element descriptions

The tables included in this section describe the function and format for the data elements that comprise ISO8583:03 *MemberDirect*® messages. These tables provide the following information for each data element:

- The data element number and name. The number corresponds to a specific bit in the bitmap in Field 1 of the message.
- The attribute for the data element, such as LLVar, AN, etc. (See below for an explanation of the abbreviations used for the attribute.)
- The size of the data element in characters (see *Abbreviations* below)
- A description of the data element (if required)
- The notation that applies to the data element

Member number field

Although the Member Number field is defined as "12N", it is currently restricted to 8 significant digits, zero filled on the left. The member number is found in BM102, BM103, BM123 Forms 20001, 21001, 20002, 20010, 20011, 20012, 20013, 00014, 00016, 00023, 20023 and in Appendix B, Forms B1, B4, B7, B9 and B10. It is variously called "member number", "member id", "customer id", "subscriber #" and "To Customer", etc. Note that this is *not* an exclusive list of variants or of locations in the messages.

Abbreviations

The following abbreviations are used for the data element attribute and size.

a	-	Alphabetic characters, A - Z and a-z
an	-	Alphabetic and numeric characters
anp	-	Alphabetic, numeric and space (padded) characters
ans	-	Alphabetic, numeric and special characters
as	-	Alphabetic and special characters
b	-	Binary representation of data
C	-	Count of variable length items (C =1..9 items)
CC	-	Count of variable length items (01 - 99 items)
		Note that C and CC are always combined with VAR to denote a variable number (count) of fixed length items (1..9 for CVAR and 01-99 for CCVAR). The data element will define the length of each item.
DD	-	Day (01-31)
hh	-	Hours (00-23)
LL	-	Length of variable data element (01-99)
LLL	-	Length of variable data element (001-999)

		Note that LL and LLL are always combined with VAR to denote variable data element lengths (01..09 for LLVAR and 001-999 for LLLVAR).
MM	-	Month (01-12)
n	-	Numeric characters (0-9) – leading, trailing and embedded spaces are not allowed; leading zeros are expected.
ns	-	Numeric and special characters
p	-	Padded character, space
s	-	Special characters
ss	-	Second (00-59)
VAR	-	Variable length data element
x	-	C for Credit, D for Debit; always associated with a numeric amount data element. For example, x + n 16 in amount, net reconciliation means prefix C or D and 16 digits of amount, net reconciliation.
YYYY	-	Year (0001-9999)
z	-	Tracks 2 and 3 code set as defined in ISO4909 and ISO7813
3	-	Fixed length of three characters
..17	-	Variable length up to maximum 17 characters. All variable length fields contain two or three positions (LL or LLL) at the beginning of the data element to identify the number of positions following to the end of the data element.

Note:	All fixed length n (numeric) data elements are right justified with leading zeroes. An exception to this rule is if there is no value to send, in which case, the field can be either all zeroes or all blanks. All other fixed length data elements are left justified with trailing spaces. In all *b* data elements, blocks of 8 bits are left justified with trailing zeroes.

All data elements are counted from left to right, that is, the left-most position is Number 1.

Common attribute values

The following values apply to attributes used throughout the messaging system and appear in this document in the *Data Element Descriptions*, *Data Element Details* and *Product Group Definitions* sections.

Amount	Sign ("C"redit or "D"ebit) followed by 12 digits with two (2) decimal places implied.
Benefit/Class	Refers to either a three-character benefit type plus two trailing blanks or an institution-defined value (5 ANS).
Boolean	This attribute contains a one-character value indicating true/false, yes/no or zero/one.
Frequency	The frequency attribute is used throughout the messaging system to indicate the frequency at which account activity is to occur, such as interest

compounding, automatic transfers or loan payments. The valid frequency attribute values are:

A = Annually
B = Bi-weekly
D = Daily
E = End or Maturity of term
G = Mid-month
H = Semi-monthly
M = Monthly
Q = Quarterly
S = Semi-annually
W = Weekly
Z = Month end

Note that activities using the frequency attribute may only use the frequency values that are appropriate to the activity

Rate   Sign ("C"redit or "D"ebit) followed by six digits with three (3) decimal places implied.

Date   8 digits in the format YYYYMMDD to be Year 2000 compliant.

1	Bitmap, Extended	Attribute	AN
		Size	16
		Description	Although this field (and the primary Bitmap) is defined in the ISO8583 standard as a binary field, "Display Hex" is used to circumvent possible problems with some communications protocols. Thus, the byte represented by "11010011" becomes the two-character string "D3".
		Notation	Bit 0 is set to 1 in the primary bitmap for the extended bitmap (and it is present if any of fields 65 through 128 are used in the message).
2	Bank Identification Number (BIN)	Attribute	LLVar
		Size	..10
		Description	The BIN consists of 10 digits and is used for routing in multi-institution environments.
		Notation	BIN (Banking Identification Number)
3	Process Code/Message Sequence Number	Attribute	N
		Size	6
		Description	Standard usage is as a process code, but the process code function will be carried in Data Element 62 and Data Elements 102 and 103. It will be used in all messages originating at the *MemberDirect*® server to match message replies to the original request messages
		Notation	All message pairs originating at the *MemberDirect* server use this field. It is a message sequence number used to match reply messages to the request message.
4	Amount, Transaction	Attribute	N
		Size	12
7	Transmission Date and Time	Attribute	N
		Size	14
		Notation	YYYYMMDDhhmmss
			Changed from standard ISO format to be Year 2000 compliant.
11	System Trace Audit Number	Attribute	N
		Size	6
		Notation	Generated by the server.
13	Date, Effective	Attribute	YYYYMMDD
		Size	8N
		Description	The effective date of the transaction

14	Date, Expiry	**Attribute**	YYYYMMDD
		Size	8
		Description	The expiry date of the transaction
15	Date, Settlement	**Attribute**	YYYYMMDD
		Size	8
		Description	The date on which the transaction will be settled.
20	**Primary Account Number (PAN)**	**Attribute**	LLVar ANS
		Size	…19
		Notation	Up to 19-digit Primary Account Number. Typically debit card number. Used only if banking system supports use of PAN to identify members.
22	**Multilingual Capability**	**Attribute**	LLVar ANS
		Size	12
		Notation	LL=12 2 AN = Language Code (ISO 639) 2 AN = Country Code (ISO 3166) 8 AN = Reserved
24	**Function Code**	**Attribute**	N
		Size	3
		Notation	Network Management Code in 18xx. See Appendix D.
25	**Message Reason Code**	**Attribute**	N
		Size	4
			Reason for the reversal: - 4000 – Customer Cancel - 4001 - Unspecified - 4002 - Malfunction - 4003 – Format Error - 4021 – DR Host Timeout - 4022 – CR Host Error - 4051 – CR Host Timeout - 4052 – DR Host Error - 4416 - NSF - 4417 – Stop Payment
32	**Originating Institution**	**Attribute**	N
		Size	10
		Description	Route and Transit numbers of the originating institution
37	**Retrieval Reference Number**	**Attribute**	ANS

		Size	20
		Notation	Defined by the real-time engine.
		Description	Remains for the life of the transaction and is carried in reversal messages as well as the originating transaction. In a credit/debit pair, the Retrieval Reference number will be the same.
			If passed to the *MemberDirect*® system in a Statement Reply message for a Credit/Debit transaction, it may be placed in Attribute 32 – Item Trace Number.
39	**Action Code**	**Attribute**	N
		Size	3
		Notation	If the Action Code fits within the ISO Standard, it will be used (000-998). See Appendix E.
44	**Additional Response Data**	**Attribute**	LLVar ANS
		Size	..99
		Use	Optional
		Description	Up to 99 characters of textual and numeric information concerning the response. This data element extends Data Element 39.
			The banking system may use any codes for various conditions with the exception of the 07000 series codes. For these codes, the *MemberDirect*® client may take some specific actions. For example, when the client receives a code of 7001 from the host, it presents a page displaying the User Agreement (disclaimer). If a client receives a 7002 code, the client must select a new PAC.
			For non-07000 series codes, the *MemberDirect* system displays any text included in this element. Otherwise, it displays error text from the errors.properties file.
			Note: The *MemberDirect* system software expects two response codes (R1 and R2 as shown below) if Data Element 44 is present in the message.

		Notation	LL = varied length of the field 5N = first response condition (R1) 5N = second response condition (R2) xANS = optional response data (text message)
			If R1 = 0 and R2 = 0 and if Length > 10 then display the text message information.
			If either of R1 or R2 <> 0, then display the text as an error message.
			If LL=10 and R1 or R2 <> 0 and Data Element 39 = 0, then display the default message.
			If Data Element 39 <> 0 and R1 and R2 = 0, then display error message.
47	Expanded PAC	Attribute Size	LLLVar ANS …999
		Description	Extended Access Code or Pass Phrase (left justified plus fill space)
		Notation	This field is present if Data Element 52 is not present. It can also be used for a Pass phrase.
			Note: Only *one* of Field 47 or 52 is used. Field 47 is used if the Extended PAC is implemented. If the standard PAC is implemented, Field 52 is used.
48	Additional Data	Attribute	LLLVar ANS
		Size	…999
		Description	This data element and Data Elements 123 to 127 are used to pass home banking information between the source device and the host.
		Notation	Size and format varies depending on message and/or function. Refer to *Data Element Details* for further information.
49	Currency Code	Attribute	N
		Size	3
		Notation	ISO 4217 Currency code for request of a specific currency, such as 124 for Canada and 840 for the U.S.A.
52	Personal Access Code	Attribute	ANP
		Size	8
		Description	Access Code information (Left Justify/Space Fill).
			Note: Only *one* of Field 47 or 52 is used. Field 47 is used if the Extended PAC is implemented. If the standard PAC is implemented, Field 52 is used.

54	**Additional Amounts**	**Attribute**	LLLVar ANS
		Size	…120
		Description	This field is used instead of Data Element 48 for transactions that contain amounts. It accommodates a maximum of six additional amounts, which vary in contents and meanings depending on the message. In a loan payment reply message, there may be three amounts - one each for principal reduction, interest and tax. In a funds transfer reply, an additional amount indicates the resultant product balance after the transfer.
		Notation	LLL = 040
			Each amount uses 20 bytes. Each amount is defined as follows:

			2 N = account type always 00 (default)
			    As defined in positions 3 and 4 or positions 5 and 6 of the Processing Code data element.
			2 N = amount type always 01 (ledger)
			3 N = currency code (For a full description of the fields, refer to *Financial transaction card originated messages - Interchange message specifications*)
			Sign (either C or D -- Credit/+ or Debit/-) + 12 N = **FROM** product balance after immediate transfer
			2 N = account type always 00 (default)
			2 N = amount type always 01 (ledger)
			3 N = currency code (For a full description of the fields, refer to *Financial transaction card originated messages - Interchange message specifications*)
			Sign (either C or D - Credit/+ or Debit/-) + 12 N = **TO**
			
			    product balance after immediate transfer
			
			 OR
			LLL = 020
			2 N = account type always 00 (default)
			2 N = amount type:
			    01 (ledger)
			    56 (principal payment)
			3 N = currency code (For a full description of the fields, refer to *Financial transaction card originated messages - Interchange message specifications*)
			Sign (either C or D - Credit/+ or Debit/-) + 12 N =
			    When Amt Type = 01: product balance after immediate bill payment
			    When Amt Type = 56: payment to principal only

	Note:	When amount type is: < 20 the amount is a balance sent in a reply 20 – 39 Card-related amounts 40 – 55 Transaction-related amounts sent in a request 56 Payment to principal only 57 – 59 Transaction-related amounts sent in a request 60 – 99 ISO/national/ private use

62	**Processing Code**	**Attribute**	LLLVar N
		Size	…007
		Notation	This field determines what variation of the message set (immediate bill payment vs. future-dated bill payment)

After examining the range of possibilities for present and future transactions, we propose to expand the processing code by one digit and use the following definitions:

Posn 1-3   Action
Posn 4   Range of
Posn 5-7   Products/Services

Action		**Range of**	**Products/Services**	
000	Balance	1 One Of	000	Member
001	Statement	5 Some Of	001	Account
002	Detail	9 All Of	002	Transaction
010	Proposal		003	Debit Memo
011	Add/Create		004	Credit Memo
012	Remove		005	RSP Contract
			006	RIF Contract
013	Update		007	Inter-member accounts
014	Request Update		008	Member Profile
020	Withdrawal (Debit)		009	External Account (for real-time payments)
021	Deposit (Credit)			
022	Payment		020	Exchange Rates
023	Non-financial Netting		021	Interest Rates
030	Transfer Intra-member		030	Institution Vendor Categories
031	Transfer Inter-member		031	Institution Vendor List
040	Extended Account Information		032	Member's vendor List
			033	eSAID eStatement Access ID
090	Access		040	Products - Institution
099	Log Out		041	Investment
			042	Loan
			050	Stop
			055	Auto
			060	Message (Urgent)
			061	Message (Reminder)
			065	Immediate Bill Payment

				066 Future-dated Bill Payment 067 Immediate Transfer 068 Recurring Bill Payment 070 Graph 071 Snapshot 080-083 Reserved 090 PAC 091 PAC Key 092 MAC Key 093 KEK Key
63	**Network Identifier**		**Attribute**	LLLVar ANS
			Size	…012
			Description	Indicates the network/server identifier and the software release of the server that generated the message. The values set in this data element *are solely at the discretion of the institution*. The notations shown below provide examples of the definitions for this data element that institutions may use.
			Notation	Only the first two bytes of this field are used. (LLL=012)
				3 ANS = Examples of device definitions are:
				PHD = phone device such as screen phone
				TVD = Television device
				WEB = Internet or Intranet PC
				IVR = Interactive Voice Response unit
				KSK = Kiosk unit
				PCD = Personal Computer device
				These codes are suggestions only and are definable by host.
				3 AN = Server Identifier e.g. 001
				6 ANS = Client (Java or Direct) Software release e.g. 000201 denotes Release 2.01.
64	**Message Authentication Code**		**Attribute**	AN
			Size	8
		(See also Data Element 128.)	**Description**	8 characters. Based on Radix in Data Element 53
				This code is the low order (32 or 48 bits) of the result of performing a message authentication process on a message. Radix 16 (Hex) allows 32 bits to be converted to display hex, while Radix 64 allows 48 bits to be converted to ASCII character format

67	**Extended Payment Data**	Attribute	N
		Size	2
		Notation	Values = 01 – 99 indicate the tier pricing level that will be charged for this transaction.
		Description	This data element is used to carry the tier level of the transaction. A Pricing Tiers table would have to be implemented at the banking system to make use of this value. A property would be set to indicate whether Data Element 67 would be sent to specific host banking systems. Hosts that are not ready to implement this field would receive the transactions, but without the tier information.
			Although it has been currently defined for e-Transfers, having the tier level defined at the message level rather than the transaction level allows it to be used for any type of transaction in the future if required.
72	**Data Record**	Attribute	LLLVar ANS
		Size	…999
		Description	This data element can be used to optimize the retrieval of member data at the host. It may also be used for any data the host needs returned to it and may return any string of alphanumeric characters within the size limit.
			After the user is successfully connected, the host may return a value in this field containing the record number or row id in the logon reply. Detecting the presence of this field, the server returns the field's value to the host without modification in all subsequent messages. The host may rely on this information to expedite the database retrieval process.
			The recommended length is twelve characters.
		Notation	Host record number (12 N)
73	**Date, Action**	Attribute	N
		Size	8
		Notation	Date
			A future effective date, Year 2000-compliant that is used for future-dated bill payment dates. Also used to indicate an As of Date for a statement balance in a balance inquiry.

102	**Account Identification 1**	**Attribute**	LLVar ANS
		Size	..42

Notation

This data element is generally the FROM account for transactions, inquiries, requests, etc. for specific, client-related transactions. The mapping for OFX downloads is shown on the right.

BIN	10N	Table lookup with a 3-character field
Branch (Inst.)	3N	Compressed to a 2-character alpha number
Member #	12N	Compressed to 9-character alpha number
Category	4ANS	Table lookup with a 2-character field
Currency	3N	Not used by OFX
Product Type	5ANS (product)	Table lookup with a 2-character field
Product Number(occurrence)	5ANS	Compressed to a 3-character alpha number

If BIN in Data Element 102 <> Data Element 103 then this is an inter-institution transaction

else if Member in Data Element 102 <> Data Element 103 then this is an inter-member transaction

For real-time payments

The BIN in BM 102 and 103 currently begins with 5 or 9. In the Credit/Debit messaging, in order to accommodate Account IDs from various banking environments (CPA, ACH, IBAN, etc.), if the first digit of BIN is 0, then it is interpreted as:

1 N   "0" Extended Account ID

2 N   Account Type Code
      00 = CPA
      01 = ACH
      02 = IBAN
      Xx = tba

39 ANS Account Number

If an *external* account is present in BM102 or BM10, then this will be considered to be an inter-institutional transaction. Otherwise, a 42-character *MemberDirect*® account identifier will be mapped to a 22-character identifier as described above.

103	Account Identification 2	Attribute	LLVar ANS
		Size	..42
		Notation	This data element is generally the TO account for transactions, inquiries, requests, etc. for specific, client-related transactions.
			The notation for Data Element 103 is the same as Data Element 102.
104	Transaction Description	Attribute	LLLVar ANS
		Size	…100
		Description	The memorandum field in a transfer. The length varies with the requirements of the host banking system.
		Notation	Refer to the complete description of Data Element 123-127 in the next section, *Data Element Details*
123 – 127	Display Data	Attribute	LLLVar ANS
		Size	…999
		Notation	Refer to *Data Element Details* in the next section for information about Data Element 123-127.
			The format is variable, depending on the message and function.
128	Message Authentication Code	Attribute	AN
		Size	8
	(See also Data Element 64.)	Notation	8 display hex characters. Reserved for Data Element 64 – Message Authentication Code.

Data element details

Data Elements 48 and 123-127 contain additional information that only the *MemberDirect*® online access system uses. The type of message determines the contents of these data elements. Therefore, there are different forms for these data elements, depending on the message type (bill payment, statement items, transfers, etc.) as shown in the following tables. These tables describe each form, including its attributes and size as well as the messages to which each form applies. They also indicate whether the form is mandatory (M), conditional (C) or optional (O). Notes are provided on the notation required for each data element form.

Data element usage

In order of accommodate variations in different banking systems such as login methods, vendor numbers and PACs, the ISO specification contains variants for some data elements. For example, there are two versions of Data Element 00001 – Immediate Bill Payment to allow different vendor IDs and numbers. The following chart summarizes the data elements that have variants in vendor numbers, login methods and PACs.

		Vendor ID No. of Digits	Vendor Account No. of Digits	Login	PAC	Notes
Data Element 48						
00001	Immediate Bill Payment Processing Code: 0221065	5	20			
20001	Immediate Bill Payment Processing Code: 0221065	9	30			
21001	Recurring Bill Payment Processing Code: 0111068	5	20			
22001	Recurring Bill Payment Processing Code: 0111068	9	30			Used in Ontario
00002	Immediate Bill Payment Reply Processing Code: 0221065	5	20			
20002	Immediate Bill Payment Reply Processing Code: 0221065	9	30			
		Vendor ID No. of Digits	Vendor Account No. of Digits	Login	PAC	Notes
00003	Remove Scheduled Bill Payment Reply Processing Code: 0221066	5	20			
20003	Remove Scheduled Bill Payment Reply Processing Code: 0221066	9	30			
00007	Authentication Request Processing Code: 0901000			Member		
20007	Authentication Request Processing Code:0901000			PAN		
00010	New PAC Processing Code:0131090				Standard	Fixed length, 8 characters
21010	New PAC Processing Code:0131090				Extended	Used primarily by Home Bank clients
00022	Authentication Reply Processing Code:0901000			Member		

		Vendor ID No. of Digits	Vendor Account No. of Digits	Login	PAC	Notes
20022	Authentication Reply Processing Code: 0901000			PAN		
Data Element 123-127						
00001	Product Balance Inquiry Reply Processing Code: 0001001			Member		
20001	Product Balance Inquiry Reply Processing Code: 0009001			PAN		
00002	Access Authorization Reply Processing Code: 0901000			Member		
20002	Access Authorization Reply Processing Code: 0901000			PAN		
00007	Institution's Approved Bill Payment Vendor list Processing Code: 0029031	5	20	Member		
20007	Institution's Approved Bill Payment Vendor list Processing Code: 0029031	9	30	PAN		Primarily for Ontario/Telpay clients
		Vendor ID No. of Digits	**Vendor Account No. of Digits**	**Login**	**PAC**	**Notes**
00010	Member's Bill Payment Vendors Processing Code: 0029032	5	20	Member		
20010	Member's Bill Payment Vendors Processing Code: 0029032	9	30	PAN		
00011	Member's Future-dated Bill Payments Processing Code: 0029066	5	20	Member		
20011	Member's Future-dated Bill Payments Processing Code: 0029066	9	30	PAN		
00012	Member's Urgent/Delinquency Messages Processing Code: 0029060			Member		

20012	Member's Urgent/Delinquency Messages Processing Code: 0029060			PAN		
00013	Display Data			Member		
20013	Display Data			PAN		
21013	Extended Account Information					Special variant of Form 00013, used currently only for cheque image charges, but can be easily as it is defined as one or more label/value pairs.
00023	Member's Recurring Bill Payments Processing Code: 0029068			Member		
20023	Member's Recurring Bill Payments Processing Code: 0029068			PAN		

Data Element 48

Element	Description	Notes
48 Form 00001	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2200 Immediate Bill Payment Request 2300 Future Dated Bill Payment Request 2300 Update Member's Bill Payment Vendors Request 2310 Update Member's Bill Payment Vendors Reply	LLL = 030 5 N = Form ID "00001" 5 ANS = vendor ID 20 ANS = member's vendor account number **Vendor ID Numbers** The *MemberDirect*® system will *not* differentiate between vendor ID numbers that have leading zeros and those that do not have them. For example, the vendor ID "00001AF3" will be processed as "1AF3".
48 Form 20001	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2200 Immediate Bill Payment Request 2300 Future Dated Bill Payment Request 2300 Update Member's Bill Payment Vendors Request 2310 Update Member's Bill Payment Vendors Reply	LLL = 044 5 N = Form ID "20001" 9 ANS = vendor ID 30 ANS = member's vendor account number
48 Form 21001	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2300 Recurring Bill Payment Request	LLL = 034 5 N = Form ID "21001" 5 ANS = vendor ID 20 ANS = vendor account number 3 N = frequency 1 A = period – M | S | A | Q | H | W | B | D
48 Form 22001	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2300 Recurring Bill Payment Request	LLL = 048 5 N = Form ID "22001" 9 ANS = vendor ID 30 ANS = vendor account number 3 N = frequency 1 A = period – M | S | A | Q | H | W | B | D

Element	Description	Notes
48 Form 23001	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2300 Add/Update Member's Bill Payment Vendor Request 2310 Add/Update Member's Bill Payment Vendor Reply	LLL = 084 5 N = Form ID "23001" 9 ANS = Vendor ID 30 ANS = Member's Biller account number 40 ANS = Biller Nickname
48 Form 00002	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2210 – Immediate Bill Payment Reply 2310 – Future Dated Bill Payment Reply 2310 – Recurring Bill Payment Reply	LLL = 036 5 N = Form ID "00002" 5 ANS = vendor ID 20 ANS = member's vendor account number 6 N = original confirmation number from service provider
48 Form 20002	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2210 – Immediate bill Payment Reply 2310 – Future Dated Bill Payment Reply 2310 – Recurring Bill Payment Reply	LLL = 050 5 N = Form ID "20002" 9 ANS = vendor ID 30 ANS = member's vendor account number 6 N = original confirmation number from service provider
48 Form 00003	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2300 Request for Removal of a Future Dated Bill Payment 2310 Reply to Removal of …	LLL = 052 5 N = Form ID "00003" 5 ANS = vendor ID 20 ANS = member's vendor account number 6 N = original confirmation number from service provider 8 N = original transaction entry date 8 N = original transaction effective date
48 Form 20003	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2300 Request for Removal of a Future Dated Bill Payment 2310 Reply to Removal of …	LLL = 066 5 N = Form ID "20003"` 9 ANS = vendor ID 30 ANS = member's vendor account number 6 N = original confirmation number from service provider (Cont'd.)

Element	Description	Notes
		8 N = original transaction entry date
		8 N = original transaction effective date
48 Form 00004	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2300 Future Dated Funds Transfer Creation Request 2300 Stop Payment Update Request 2300 Demand Product Update Request 2310 Term Product Update Reply 2300 Future Dated Funds Transfer Removal Request Payment 2300 – Remove Stop Payment 2600 Single Inquiry of a Future Dated Transfer or a Stop Payment 2300 Stop Payment Creation Request	LLL = 042 5 N = Form ID "00004" 5ANS = Occurrence number " " = To create a future-dated funds transfer or a stop payment in a request message 16 DH – display hex, parsing bitmap 16 DH – display hex, display bitmap **Note**: The occurrence number to create a stop is 00000. Removing a stop is host related. The host *must* hold the occurrence number for stops.
48 Form 00005	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2310 Future Dated Funds Transfer Creation Reply 2310 Demand Product Update Reply 2310 Term Product Update Reply 2310 Stop Payment Update Reply (Creation)	LLL = 021 5 N = Form ID "00005" 16 DH – display hex, display bitmap
48 Form 00006	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2310 Stop Payment Update Reply	Proposal: LLL = 017 5 N = Form ID "00006" 12 N = service charge for creating a stop payment
48 Form 00007	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** O 2600 Access Authentication Request	LLL=006 5 N = Form ID "00007" 1 ANS = disclaimer flag (Y|N)

Element	Description	Notes
48 Form 20007	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** O 2600 Access Authentication Request	LLL=028 5 N = Form ID "20007" 1 ANS = disclaimer flag (Y|N) 5 N = items requested 5 N = items received (Refer to *Appendix I –Statement Filtering* for more information on Items Requested and Received.) 12 ANS = search item
48 Form 00008	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2600 Statement Inquiry Request	LLL = 093 5 N = Form ID "00008" 1 ANS = retrieval option= {D = date option from oldest to newest L = date option from newest to oldest F = filter (date option = newest to oldest) f = filter (date option = oldest to newest) S = search (date option = newest to oldest) s = search (date option = oldest to newest) 1 ANS = attribute indicator {blank = attributes not req. A = send attributes X = OFX download) 8 N = from date (<= to date) 8 N = to date (>= from date) 5 N = items requested 5 N = items received (Refer to *Appendix I –Statement Filtering* for more information on Items Requested and Received.) 60 ANS = search criteria as determined by the host of the institution If retrieval option = D or L, then search criteria is initialized to spaces If retrieval option = S or s, F or f, then search criteria is initialized as follows: **For Retrieval Option = S or s** { 1 A = Type of item to search for: B = bill payment by confirmation number C = cheque by cheque number X = transaction (Cont'd.)

Element	Description	Notes
		1 A = Search Criteria Descriptor C=Cheque Number N=Confirmation Number A=Amount D=Description } **Retrieval Option = F or f (Show all that fit the category)** 1 A = Type of item to retrieve by filter: **For Non-Credit Card Accounts Only** B = show only bill payments C = show only cheques D = show only deposits W = show only cash withdrawals Z = show all transactions **For Credit Card Accounts Only** Z = All transactions S = Purchases A = Preauthorized Purchases C = Cash Advances F = Service Fees I = Interest P = Payments R = Returns 1 A = Category Descriptor Space = Non Credit Card Filter Z = All Categories 1 = Restaurant 2 = Gasoline 3 = Travel 4 = Groceries 5= Pharmacy 6 = Telecommunications 7 = Cash Advances 8 = Transportation 9 = House 0 = Other } 58 ANS = search criteria (Cont'd.)

Element	Description	Notes

		For Retrieval Option = S or s
		
		{
		
		    12 N = cheque number
		      Or
		    12 N = amount (2 decimal places implied)
		       Or
		    12 N = confirmation number
		      Or
		    30 ANS = description
		followed by variable amount of filler (spaces) up to a total of 30 characters. The last 28 characters are either spaces (initial request) or the host search criteria from the previous response message.
		}
		
		For Retrieval Option = F or f
		
		{
		    12 N = From amount
		    12 N = To Amount
		    6 A = Spaces
		      Or
		    30 ANS = Spaces
		The last 28 characters are either spaces (initial request) or the host search criteria from the previous response message.
		
		}

Element	Description	Notes
48 Form 00009	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Statement Inquiry Reply	LLL = 107 5 N = Form ID "00009" 1 ANS = retrieval option {D = date option from oldest to newest L = date option from newest to oldest F = filter (date option = newest to oldest) f = filter (date option = oldest to newest) S = search (date option = newest to oldest) s = search (date option = oldest to newest) 1 ANS = attribute indicator {blank = attributes not req. A = send attributes X = OFX download) 8 N = from date (<= to date) 8 N = to date (>= from date) 5 N = items sent 5 N = items remaining (Optionally, this field can return items requested) (Refer to *Appendix I –Statement Filtering* for more information on Items Sent and Items Remaining.) Sign + 12 N = current ending balance 60 ANS = search criteria as determined by the host If retrieval option = D or L, then search criteria is initialized to spaces If retrieval option = S, s, F or f, then Search criteria is initialized as follows: **For the Retrieval Option = S or s** { 1 A = Type of item to search for B = bill payment by confirmation number C = cheque by cheque number X = transaction 1 A = Search Criteria Descriptor C=Cheque Number N=Confirmation Number A=Amount D=Description } **For Retrieval Option = F or f (Show all that fit the category and criteria)** { 1 A = Type of item to retrieve by filter **For Non-Credit Card Accounts Only** B = show only bill payments C = show only cheques D = show only deposits W = show only cash withdrawals Z = show all transactions

Element	Description	Notes
		For Credit Card Accounts Z = All transactions S = Purchases A = Preauthorized Purchases C = Cash Advances F = Service Fees I = Interest P = Payments R = Returns 1 A = Category Descriptor Space = Non Credit Card Filter Z = All Categories 1 = Restaurant 2 = Gasoline 3 = Travel 4 = Groceries 5 = Pharmacy 6 = Telecommunications 7 = Cash Advances 8 = Transportation 9 = House 0 = Other } 58 ANS = Search Criteria **For Retrieval Option – S or s** { 12 N = cheque number *Or* 12 N =amount (2 decimal places implied) *Or* 12 N =confirmation number *Or* 30 ANS = description followed by variable amount of filler (spaces) up to a total of 30 characters The last 28 characters are reserved for the host search criteria from the last response message. } **For Retrieval Option = F or f** { 12 N = From amount 12 N = To Amount 6 A = Spaces *Or* 30 ANS = Spaces The last 28 characters are either spaces (initial request) or the host search criteria from the previous response message. }

Element	Description	Notes
		1 N = more indicator {0 = no more 1 = more }
48 Form 00010	Additional Data **Attribute:** LLL Var ANS **Size:**…994 **Mand/Opt:** M 2300 Member PAC Change Request	LLL = varied 5 N = Form ID "00010" 8 ANS = new PAC
48 Form 21010	Additional Data **Attribute:** LLL Var ANS **Size:**…994 **Mand/Opt:** M 2300 Member PAC Change Request – Extended PAC	LLL = varied 5 N = Form ID "21010" New PAC For the Change Expanded PAC action, the PAC length will be the length of the field LLL minus five (the length of the Form ID).

Element	Description	Notes
48 Form 00011	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2600 Institutional bill Payment Vendor List Request 2600 Bill Payment Vendor Categories Request 2600 Request for Member's Bill Payment Vendor List 2600 Request for Member's Future Dated Bill Payments 2600 Request for Member's Financial Reminders 2600 Request for Member's Urgent (Delinquency) Messages 2600 Product Balance Inquiry Request 2600 Exchange Rates Request 2600 Inter-member Transfer Account Inquiry Request	LLL = 027 5 N = Form ID "00011" 5 N = items requested 5 N = items received (Refer to *Appendix I – Statement Filtering* for more information on Items Requested and Received.) 12ANS = search item
48 Form 00012	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2600 Future Dated Funds Transfer Inquiry Request 2600 Stop Payment Inquiry Request 2600 Demand Product Inquiry Request 2600 Term Product Inquiry Request 2600 Load Product Inquiry Request 2600 RRSP Contract Information Request	LLL = 043 5 N = Form ID "00012" 5 N = items requested 5 N = items received (Refer to *Appendix I – Statement Filtering* for more information on Items Requested and Received.) 12ANS = search item 16 DH – display hex, display bitmap

Element	Description	Notes
48 Form 00013	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Product Balance Inquiry Reply 2610 Institutional Bill Payment Vendor List Reply 2610 Bill Payment Vendor Categories List Reply 2610 Reply for Member's Bill Payment Vendor List 2610 Reply for Member's Future Dated Bill Payments 2610 Reply for Member's Urgent Messages 2610 Reply for Member's Financial Reminders 2610 Exchange Rates Reply 2610 Inter-member Transfer Account Inquiry Reply	LLL = 028 5 N = Form ID "00013" 5 N = items requested 5 N = items sent (Refer to *Appendix I – Statement Filtering* for more information on Items Requested and Received.) 12ANS = search item 1 N = more indicator {0 = no more; 1 = more}

48
Form
00014
	Additional Data
	Attribute: LLL Var ANS
	Size:…999
	Mand/Opt: M
	2610 Future Dated Funds Transfer Inquiry Reply
	2610 RRSP Contract Information Reply
	2610 Stop Payment Inquiry Reply
	2610 Demand Product Inquiry Reply
	2610 Term Product Inquiry Reply
	2610 Loan Product Inquiry Reply
		LLL = 044
		5 N = Form ID "00014"
		5 N = items requested
		5 N = items sent
		(Refer to *Appendix I – Statement Filtering* for more information on Items Requested and Sent.)
		12ANS = search item
		1 N = more indicator
		  {0 = no more
		   1 = more for retrieval}
		16 DH – display hex, display bitmap

Forms 15– 18 Removed and are no longer used

Element	Description	Notes
48 Form 00019	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M Additional Data 2600 Product Rates Request 2600 Investment Products Request 2600 Loan Products Inquiry Request	LLL = 049 5 N = Form ID "00019" 5 N = items requested 5 N = items received (Refer to for more information on Items Requested and Received.) 12ANS = search item 4 ANS = product category 3 N = product currency code 5 ANS = product type 5 ANS = product ID 5 ANS = benefit/class
48 Form 00020	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Product Rates Reply 2610 Investment Products Reply 2610 Loan Products Inquiry Reply	LLL = 050 5 N = Form ID "00020" 5 N = items requested 5 N = items sent (Refer to *Appendix I – Statement Filtering* for more information on Items Requested and Received.) 12ANS = search item 1N = more indicator (0= No More; 1 = More) 4 ANS = product category 3 N = product currency code 5 ANS = product type 5 ANS = product ID 5 ANS = benefit/class
48 Form 00022	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Authentication Reply	LLL = 045 5 N = Form ID "00022" 40 ANS = UMID (Unique Member ID) See *Appendix A – FAQs* for more information about the UMID.

Element	Description	Notes
48 Form 20022	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Authentication Reply	LLL = 040 5 N = Form ID "20022" 40 ANS = UMID (Unique Member ID) See *Appendix A – FAQs* for more information about the UMID. 5 N = items requested 5 N = items sent (Refer to *Appendix I – Statement Filtering* for more information on Items Requested and Received.) 12ANS = search item 1 N = more indicator {0 = no more; 1 = more}
48 Form 20023	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2600 Snapshot Request/Reply	LLL = 7 5 N = Form ID "20023" 2 N = Group ID of an all-in-one combination account
48 Form 20024	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2600 Graph Inquiry Request	LLL =19 5 N = Form ID "20024" 1 A = period –initialized on first request to a blank space and thereafter returns the value that the host sends (M, Q, Y) 3 N = the maximum number of periods that can be displayed on any graph. 8 N = last date sent, initialized to 19000101 2 N = group ID of an all-in-one combination account
48 Form 20025	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Graph Inquiry Reply	LLL = 143 5 N = Form ID "20025" 1 A = the period – M=Monthly, Q=Quarterly, Y=Year 8 N = start date 8 N = end date 40 N = X axis – if left blank, a default properties value will be used 40 N = Y axis – if left blank, a default properties value will be used 40 N = title – if left blank, a default properties value will be used 1 N = more indicator {0 = no more, 1 = more for retrieval}

Data Elements 123-127

Element	Description	Notes

123-127 (5 fields) Form 00001	Product Information of maximum 40 products within a membership.
	
	Subsequent requests can retrieve the next batch of 40 products using products received and search items (Data Element 48) in the subsequent request message.
	Attribute: LLL Var ANS
	Size:…999
	Mand/Opt: C
	2610 Product Balance Inquiry Reply
		LLL = varied.
		5 N = Form ID "00001"
		5 N = count of products
		  {each product array:
		    4 ANS = product category
		    3 N = product currency
		    5 ANS = type
		    5 ANS = product ID.
		    40 ANS = product description
		    Sign + 12N = balance
		    5 N = rate
		    12 N = line of credit
		    12 N = hold amount
		    12 N = RRSP contract
		        number
		    10 ANS = filler with blanks (for hosts that do
		        not support front end verification
		        of dual signatures)
		
		       OR
		
		  {3 N = number of PACs required
		   1 ANS = override restricted transfers
		   (transfer- to)
		    T (True) = allow transfer
		    F (False) = use *MemberDirect*® default
		    A (Allow) = allow transfer from
		    D (Deny) = deny transfer from
		   1 ANS = override restricted transfers
		        (transfer-from)
		    T (True) = allow transfer
		    F (False) = use *MemberDirect* default
		    A (Allow) = allow transfer from
		    D (Deny) = deny transfer from
		  1 ANS = pay-from flag
		    A(Allow) = allow payments from
		    D(Deny) = deny payments from
		  1 ANS = e-statement Flag
		    A (Allow) = allow E-stmts for this account
		    D (Deny) = deny E-stmts for this account
		
		   3 ANS = filler with blanks}
		}

Element	Description	Notes
123-127 (5 fields) Form 01001	Product Information of maximum 40 products within a membership. Subsequent requests can retrieve the next batch of 40 products using products received and search items (Data Element 48) in the subsequent request message. **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** C 2610 Product Balance Inquiry Reply	LLL = varied. 5 N = Form ID "01001" 5 N = count of products {each product array: 4 ANS = product category 3 N = product currency 5 ANS = type 5 ANS = product ID. 40 ANS = product description Sign + 12N = balance 5 N = rate 12 N = line of credit 12 N = hold amount 12 N = RRSP contract number 10 ANS = filler with blanks (for hosts that do not support front end verification of dual signatures) OR {3 N = number of PACs required 1 ANS = override restricted transfers (transfer- to) T (True) = allow transfer F (False) = use *MemberDirect®* default A (Allow) = allow transfer from D (Deny) = deny transfer from 1 ANS = override restricted transfers (transfer-from) T (True) = allow transfer F (False) = use *MemberDirect* default A (Allow) = allow transfer from D (Deny) = deny transfer from 1 ANS = pay-from flag A(Allow) = allow payments from D(Deny) = deny payments from 1 ANS = e-statement Flag A (Allow) = allow E-stmts for this acct D (Deny) = deny E-stmts for this acct 3 ANS = filler with blanks} 60 ANS = primary account holder name 5N = count of joint members { for each joint member 60 ANS = joint name } }

Element	Description	Notes
123 –127 (5 fields) Form 20001	Product Information of maximum 40 products within a membership. Subsequent requests can retrieve the next batch of 40 products using products received and search items Data Element 48) in the subsequent request message. **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** C 2610 Product Balance Inquiry Reply	LLL = varied 5 N = Form ID "20001" 5 N = count of members {for each member: 10 N = BIN 3 N = branch 12 N = member number 5 N = count of products {each product array: 3 N = route number 5 N = transit number 30 ANS = MICR account number 4 ANS = product category 3 N = product currency 5 ANS = type 5 ANS = product ID 40 ANS = product description Sign + 12N = balance 5 N = rate 12 N = line of credit 12 N = hold amount 12 N = RRSP contract number 3 N = number of PACs required 1 ANS = override restricted transfers (transfer-to) T (True) = override property-driven transfer restrictions F (False) = follow property-driven transfer rules A (Allow) = absolute allow transfer to D (Deny) = absolute deny transfer to 1 ANS = override restricted transfers (transfer-from) T (True) = override property-driven transfer restrictions F (False) = follow property-driven transfer rules A (Allow) = absolute allow transfer from D (Deny) = absolute deny transfer from 1 ANS = pay-from flag A(Allow) = allow payments from D(Deny) = deny payments from 1 ANS = e-statement Flag A (Allow) = allow E-stmts for this account D (Deny) = deny E-stmts for this account 1 Account type: B = Business (Cont'd.)

Element	Description	Notes
		P = Personal 2 ANS = filler with blanks } }

Element	Description	Notes

| 123 – 127
(5 fields)
Form
22001 | .
Attribute: LLL Var ANS
Size:…999
Mand/Opt:
2610 | LLL = varied
5 N = Form ID "22001"
5 N = count of members
  {for each member:
    10 N = BIN
    3 N = branch
    12 N = member number

5 N = count of products
  {each product array:
    3 N = route number
    5 N = transit number
    30 ANS = MICR account number
    4 ANS = product category
    3 N = product currency
    5 ANS = product type
    5 ANS = product ID
    65 ANS = product description
    Sign + 12N = balance
    5 N = rate
    12 N = line of credit limit
    12 N = current credit line available
    S+12 N=available balance
   4 AN bank plan type code
    12 N = hold amount
    12 N = RRSP contract number
    3 N = number of PACs required
    1 ANS = override restricted transfers to
      A (Allow) = allow transfer to
      D (Deny) = deny transfer to
    1 ANS = override restricted transfers from
      A (Allow) = allow transfer from
      D (Deny) = deny transfer from
    1 ANS = pay-from flag
      A(Allow) = allow payments from
      D(Deny) = deny payments from
    1 ANS = E-statement flag
        A (Allow) = allow e-stmts for this acct
        D (Deny) = deny e-stmts for this acct
    1 A = can have cheques ("Y"\|"N")
    1 A = allow transaction history (" "\|"Y"\|"N")
        Blank or "Y" = Yes, "N" = No
    1 AN = Search Group ID
    1AN = Account Type
        "B" = Business
        "P" = Personal
        " " = Not Defined
     8 ANS = filler with blank}
                                          (Cont'd.)
  60 ANS = primary account holder name
    5 N = count of joint members |

		{for each joint member: 60 ANS = joint name} } }
123-127 (5 fields) Form 00002	Account Information of one main member and a maximum of 49 joint tenants within this membership. **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** C 2610 Access Authorization Reply	LLL = varied 5 N = Form ID "00002" 5 N = count of persons {main member: 60 ANS = member name 8 N = birthday 3 ANS = benefit type 10 N = message indicator {2 N = delinquency / urgent messages 2 N = financial reminders 6 N = to be defined} 9 ANS = filler with blanks} {joint tenant(s): 60 ANS = joint tenant name 8 N = birthday 3 ANS = benefit type 19 ANS = filler with blanks} }

| 123 –127
(5 fields)
Form
20002 | Account Information consisting of one main member and a number of joint tenants within each membership within a PAN.
Attribute: LLL Var ANS
Size:…999
Mand/Opt: C

2610 Access Authorization Reply | LLL = varied
5 N = Form ID "20002"
5 N = count of memberships
{for each membership associated with the PAN:
  10 N = BIN
  3 N = branch
  12 N = member number
  5 N = count of persons
       for each person: (The first person is always the Main Member (Count 1) followed by from Count 2 to Count n joint tenants)
{main member:
  60 ANS = member name
  8 N = birthday
  3 ANS = benefit type
  10 N = message indicator
  {2 N = delinquency / urgent messages
     2 N = financial reminders
     6 N = to be defined}
     9 ANS = filler with blanks}

{joint tenant(s) (joint tenants are optional):
  60 ANS = joint tenant name
  8 N = birthday
  3 ANS = benefit type
  19 ANS = filler with blanks}
} |

| 123-127
(5 fields)
Form
00003 | Exchange Rates
Attribute: LLL Var ANS
Size:…999
Mand/Opt: M

2610 Exchange Rates Reply | LLL = varied
5 N = Form ID "00003"
5 N = number of currencies
  { for each currency:
3 N = currency code
28 ANS = currency description
5 N = number of rates
  { for each rate:
    3 ANS = benefit type
    2 N = exchange transaction type (See
        Exchange Rates in the *Message
        Overview* section.)
      8 N = exchange rate
        where the left-most digit specifies the
        number of decimal places. The
        remaining seven digits represent the
        rate. For example, a conversion rate
        value, 71234567, equates to
         0.1234567". A value of "01234567"
         equates to "1234567.0"
} }
The format of the rate as described above
requires the property "exchange.rate=new". If
"exchange.rate=old" the value is formatted 8N as
old example: 23456789 = 2.3456789 |
| 123-127
(5 fields)
Form
00004 | Demand Product Rates
Attribute: LLL Var ANS
Size:…999
Mand/Opt: M

2610 Product Rates Reply
Note: { product category = DMDx,
        RSPV/RIFV/ESPV only. | LLL = varied
5 N = Form ID "00004"
5 N = count of products rates
{   12 N = min. balance
  12 N = max. balance
  5 ANS = interest calc. Methods
        (See *Interest Calculation Methods* in
        the *Message Overview* section.)
  5 N = overdraft rate
  5 N = LOC delinq. Rate
  5 N = number of rate levels
{ for each level:
  11 N = level cut-off amount
  5 N = rate}
}
} |

Element	Description	Notes
123-127 (5 fields) Form 00005	Loan Product Rates **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Product Rates Reply **Note:** { Product Category = LOAN only.	LLL = varied 5 N = Form ID "00005" 5 N = count of loans 12 N = min. balance 12 N = max. balance 3 N = max. length (See *Interest Calculation Methods* in the *Message Overview* section) 1 ANS = max. frequency (See *Interest Calculation Methods* in the *Message Overview* section) Sign + 5 N = prime-related 5 N = number of rate levels { for each level: 3 N = length 1 ANS = frequency 3 N = number of rates { for each rate: 6 ANS = rate description (See *Interest Calculation Methods* in the *Message Overview* section 5 N = rate} } }
123-127 (5 fields) Form 00006	Term Product Rates **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Product Rates Reply **Note:** { Product Category = TERM, RSPx, RIFx, ESPx only.	5 N = Form ID "00006" 5 N = number of subtypes { for each subtype: 5 ANS = subtype 3 ANS = display mode. 8 ANS = campaign start date 8 ANS = campaign end date 12 N = min. balance 12 N = max. balance 1 N = redemption indicator 0 = redeemable 1 = non-redeemable 3 N = min. length 1 ANS = min. frequency 5 ANS = interest calc. Method (See *Interest Calculation Methods* in the *Message Overview* section 5N = number of rate levels (for each level: 3 N = length 1 ANS = frequency 11 N = level cutoff amount 5 N = rate } } }

Element	Description	Notes

123-127
(5 fields)
Form 00007
	Institution's Approved Bill Payment Vendor list
	Attribute: LLL Var ANS
	Size:…999
	Mand/Opt: M
	2610 Institutional Bill Payment Vendor List Reply
		LLL = varied
		5 N = Form ID "00007"
		5 N = count of vendors
		    { for each vendor (47 bytes):
		      2 N = vendor category
		      5 ANS = vendor ID
		      40 ANS = long description }

123-127
(5 fields)
Form 20007
	Institution's Approved Bill Payment Vendor list
	Attribute: LLL Var ANS
	Size:…999
	Mand/Opt: M
	2610 Institutional Bill Payment Vendor List Reply
		LLL = varied
		5 N = Form ID "20007"
		5 N = count of vendors
		    { for each vendor (51 bytes):
		      2 N = vendor category
		      9 ANS = vendor ID
		      40 ANS = long description }

Element	Description	Notes
123-127 (5 fields) Form 21007	Institution Biller List **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Institution Biller List Reply The Institution Biller List Reply carries three data elements to support whether a biller is an ePost Biller, whether the account number is variable (such as an invoice number) and the mask to show the customer how to enter the number. It also does some preliminary validation of the account number entered. If the Variable Account flag is "Y", then there will *not* be an account number present in the Biller Account number in the customer's biller list. Customers will enter their account number each time they pay a bill. The account mask shows the customer what is expected as an account number. It can also be the preliminary validation of the account number before sending it to the host for final validation. The mask characters are: #=numeric @=alphabetic &=alphanumeric ?=alphanumeric or spaces Specific character or numeral	LLL = varied 5 N = Form ID "21007" 5 N = count of vendors { for each vendor (83 bytes): 2 N = vendor category 9 ANS = vendor ID 40 ANS = long description 1 A = variable account [Y|N] 30 ANS = account # mask }

Element	Description	Notes
123-127 (5 fields) Form 00008	Institution's Bill Payment Vendor Categories **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Bill Payment Vendor Categories Reply	LLL = varied 5 N = Form ID "00008" 5 N = count of categories { for each category: 2 N = vendor category 28 ANS = category description}
123-127 (5 fields) Form 00010	Member's Bill Payment vendors (Standard Login) **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Reply for Member's Bill Payment Vendor List	LLL = varied 5 N = Form ID "00010" 5 N = count of vendors { for each vendor: (67 B) 2 N = vendor category 5 ANS = vendor ID 20 ANS= vendor account number 40 ANS = long description }
123-127 (5 fields) Form 20010	Member's Bill Payment vendors (PAN Login or full version 2003 with increased vendor id size) **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Reply for Member's Bill Payment Vendor List	LLL = varied 5 N = Form ID "20010" 5N = Count of members { for each member 10 N = BIN of bill owner 3 N = branch of bill owner 12 N = member number of bill owner 5 N = count of vendors { for each vendor: (81 B) 2 N = vendor category 9 ANS = vendor ID 30 ANS= vendor account numbers 40 ANS = long description } }
123-127 (5 fields) Form 00011	Member's Future-dated Bill Payments (max. 45 txns.) **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Reply for Member's Future Dated Bill Payments	LLL = varied 5 N = Form ID "00011" 5 N = count of payments { for each payment: (124 B) 5 ANS = vendor ID 20 ANS = vendor account numbers 40 ANS = long description 5 ANS = product type 5 ANS = product ID 8 N = effective date 8 N = entry date Sign + 12 N = amount 6 N = confirmation number}

Element	Description	Notes
123-127 (5 fields) Form 20011	Member's Future-dated Bill Payments PAN Login or full version 2003 with increased vendor id size (max. 45 txns.) **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Reply for Member's Future Dated Bill Paayments	LLL = varied 5 N = Form ID "20011" 5N = Count of members { for each member 10 N = BIN of bill owner 3 N = branch of bill owner 12 N = member number of bill owner 5 N = count of payments { for each payment: (124 B) 9 ANS= vendor ID 30 ANS = vendor account number 40 ANS = long description 10 N = BIN (source account owner) 3 N = branch (source account owner) 12 N = member number of source account owner 5 ANS = product type 5 ANS = product ID 8 N = effective date 8 N = entry date Sign + 12 N = amount 6 N = confirmation number} }
123-127 (5 fields) Form 00012	Member's Urgent / Delinquency Messages **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Reply for Member's Urgent (Delinquency) Messages 2610 Reply for Member's Financial Reminders	LLL = varied 5 N = Form ID "00012" 5 N = count of messages { for each message: 2 N = count of lines up to 15 lines { for each line: 60 ANS = 1 message line } }

Element	Description	Notes
123 –127 (5 fields) Form 20012	Member's Urgent / Delinquency Messages **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Reply for Member's Urgent (Delinquency) Messages 2610 Reply for Member's Financial Reminders	LLL = varied 5 N = Form ID "20012" 5 N = count of members {for each member 10 N = BIN 3 N = branch 12 N = member number 5 N = count of messages { for each message: 2 N = count of lines up to 15 lines { for each line: 60 ANS = 1 message line } } }
123-127 (2 fields) Form 00013	Display Data (1 service per bitmap) **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Future Dated Funds Transfer Inquiry Reply 2610 Stop Payment Inquiry Reply 2610 Demand Product Inquiry Reply 2610 Term Product Inquiry Reply 2610 Loan Product Inquiry Reply 2610 RRSP Contract Information Reply 2310 Future Dated Transfer Remove Reply 2610 Stop Payment Removal Reply 2610 Create Stop Payment Reply 2610 Stop Payment Proposal Reply 2310 Create or Propose Account Reply 2300 Future Dated Funds Transfer Creation Request	LLL = varied 5 N = Form ID "00013" 2 N = Appendix B Form (varied) 5 N = Occurrence Number for Stop Payment product. Must be the same as the Inquiry Reply. (See Data Element 48, Form 4.) Appendix B Data

Element	Description	Notes
123-127 (5 fields) Form 20013	Display Data (1 service per bitmap) **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Future Dated Funds Transfer Inquiry Reply 2610 Stop Payment Inquiry Reply 2610 Demand Product Inquiry Reply 2610 Term Product Inquiry Reply 2610 Loan Product Inquiry Reply 2610 RRSP Contract Information Reply 2310 Future Dated Transfer Remove Reply 2610 Stop Payment Removal Reply 2610 Create Stop Payment Reply 2610 Stop Payment Proposal Reply 2310 Create or Propose Account Reply 2300 Future Dated Funds Transfer Creation Request	LLL = varied 5 N = Form ID "20013" 2N = Appendix B Form (varied) 10 N = BIN 3 N = branch 12 N = member number 5 N = occurrence number for stop payment product. Must be the same as the Inquiry Reply. (See Data Element 48, Form 4.) Appendix B Data
123-127 (2 fields) Form 21013	Extended Account Information (1 service per bitmap) Attribute: LLL Var ANS Size:…999 Mand/Opt: M	LLL = 031 5 N = Form ID "21013" Count of Label/Value Pair = 00001 ID "01" indicates cheque image viewed Label Length = 012 Label = "ChqImgViewed" Value Length = 001 Value = "1" (cheque front viewed) = "2" (cheque back viewed) = "3" (both sides view

Sending Multiple Data Items in Forms 13 and 20013

To send multiple data items in the Form 13 or 20013 replies, the host banking system can send one item in each of Data Element 123 through to Data Element 127. If there are more than five items, the host banking system must set the More indicator in the appropriate form of Data Element 48 so that the *MemberDirect*® system will send a request for the remaining items. Note that the occurrence number is not a count of items within Data Element 123. It is used as an index value to identify the item in a Delete or Update request.

Element	Description	Notes
123-127 (2 fields) Form 00014	Investment Products **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Investment Products Reply 2610 Loan Products Inquiry Reply	LLL = varied 5 N = Form ID "00014" 5 N = number of types { for each type: 4 ANS = product category 3 N = product currency code 5 ANS = product type 5 ANS = product ID (For the Investment Products Reply, this field must contain an *invalid* value - one that will not appear in a regular account of this category. This will allow the product to be created because the ID will be unique. Then, it can be changed to a valid product ID. This does not apply if the reply is for an *inter-member* transfer product reply) 5 ANS = benefit/class *If standard product reply:* 40 ANS = product description *If special inter-member transfer product reply*: 12 N = member number 3 N = branch number 25 ANS = product description}
123-127 (2 fields) Form 00015	Statement transactions **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Statement Inquiry Reply 2610 Statement Item Search Reply	LLL = varied 5 N = Form ID "00015" 5 N = count of transactions for each transaction: varied { 8 N = effective date 8 N = entry date 28 ANS = description 1 28 ANS = description 2 28 ANS = description 3 Sign + 12 N = amount Sign + 12 N = running balance 3 N = transaction source code (See *Transaction Source Codes* in *Appendix L*.) 2 N = number of attributes { for each attribute: 15 B 2 N = attribute code, various formats, for example: 13 bytes = attribute}} (See *Statement Attribute Codes* in *Appendix J*.)

Element	Description	Notes
123-127 (5 fields) Form 00016	Inter-member transfer destination accounts **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M	LLL = varied 5 N = Form ID "00016" 5 N = number of accounts { for each account: 10 N = BIN 3 N = branch 12 N=member ID 4 ANS = category 3 N = currency 5 ANS = product type 5 ANS = product ID 40 ANS = description }
123-127 Form 20021	Additional Data	Currently not used.
123-127 Form 20022	Additional Data Encrypted PAC	LLL = varied field size 5N = Form ID = 20022 1 N =encrypted PAC radix 3 N = encrypted PAC length LLL Var = encrypted PAC 4 N = check digits: Low order 4 hex digits of the result of encrypting 8 bytes of binary zeroes under the PEK. For any given key, the check digits will always be the same.

Element	Description	Notes
123-127 (5 fields) Form 00023	Member's Recurring Bill Payments (max. 45 txns.) **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Reply for Member's Recurring Bill Payments	LLL = 10 + number of arrays * 140 bytes for a maximum of arrays in a field. 5 N = Form ID "00023" 5 N = count of payments {for each payment (130 B) 5 ANS = vendor ID 20 ANS = vendor account numbers 40 ANS = long description 10 N = source BIN 3 N = source branch 12 N = source member 5 ANS=source product type 5 ANS = source product ID 8 N = effective date 8 N = entry date 8 N = next payment date 8 N = expiry date Sign + 12N = amount 6 N = original confirmation number 3 N = frequency 1 A = period }

Element	Description	Notes
123-127 (5 fields) Form 20023	Member's Recurring Bill Payments PAN Login or full version 2003 (max. 45 txns.) Attribute: LLL Var ANS Size:…999 Mand/Opt: M 2610 Reply for Member's Recurring Bill Payments	LLL = varied .5 N = Form ID "20023" 5 N = count of members {for each member: 10 N = BIN of bill owner 3 N = branch of bill owner 12 N = member number of bill owner 5 N = count of payments {for each payment: (144 B) 9 N = vendor 30 ANS = vendor account numbers 40 ANS = long description 10 N = source BIN 3 N = source branch 12 N = source member 5 ANS =source product type 5 ANS = source product ID 8 N = effective date 8 N = entry date 8 N = next payment date 8 N = expiry date Sign + 12 N = amount 6 N = original confirmation number 3 N = frequency 1 A = period } }

123 – 127 Form 20024	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Snapshot Reply	LLL = 200 5 N = Form ID "20024" 1. Account lifetime – from account opening to present date (or as close as possible) 8N = period start date 8N = period end date Sign + 12N = beginning balance Sign + 12N = total credits Sign + 12N = total debits Sign + 12N = ending balance Sign + 12N = net change in total borrowing 2. Previous month – statement date to statement date 8N = period start date 8N = period end date Sign + 12N = beginning balance Sign + 12N = total credits Sign + 12N = total debits Sign + 12N = ending balance Sign + 12N = net change in total borrowing 3. Current month – statement date to current date 8N = period start date 8N = period end date Sign + 12N = beginning balance Sign + 12N = total credits Sign + 12N = total debits Sign + 12N = ending balance Sign + 12N = net change in total borrowing

Element	Description	Notes
123-127 Form 20025	Additional Data **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2610 Graph Inquiry Reply	LLL = varied 8 + (n*47) Maximum 21 periods per bitmap. Total of 105 in one message. 5 N = Form ID "20025" 3 N = number of periods {for each period: S + 12 N = total incoming $ S + 12 N = total outgoing $ S + 12 N = period balance 8 N = period date – used to format the period label (x-axis) }
123-127 (5 fields) Form 00026	eStatement Access ID **Attribute:** LLL Var ANS **Size:**…999 **Mand/Opt:** M 2600 eStatement Access ID Inquiry – Request 2610 eStatement Access ID Inquiry – Reply	LLL = varied 5 N = Form ID "00026" 15 ANS = eStatement Provider ID One of CUPS, DOXIM, CENTRAL1, ROLER, others as required. 5 N = count of eStatement Access IDs { for each eSAID (20 bytes): 20 ANS = eStatement Access ID }
123-127 Form 00027	Additional Data Attribute: LLL Var ANS Size:…999 Mand/Opt: M 2610 Transaction SignerID List Reply	LLL = varied 85 + p*(22 + (s * 41)) 5 N = Form ID "00027" 40 ANS = Business ID 35 ANS = Business Short Name The Business ID and the Business Short Name will be empty (SPACES) if this is not a Business membership. 5 N=Number of Products {for each Product 4 ANS = category 3 N = currency 5 ANS = product type 5 ANS = product ID 5 N = Number of Signers {For each Signer 40 ANS = UMID 1 A = Signer is Mandatory (T/F) } } }

| 123-127
Form
20027 | Additional Data
Attribute: LLL Var ANS
Size:…999
Mand/Opt: M
2610 Transaction SignerID List Reply | LLL = varied
$\quad$ 10 + m * (105 + p * (22+(s*41)))
5 N = Form ID "20027"
5 N = number of Memberships
{for each membership:
$\quad$ 10 N = BIN
$\quad$ 3 N = branch
$\quad$ 12 N=member ID
$\quad$ 40 ANS = Business ID
$\quad$ 35 ANS = Business Short Name
$\qquad$ The Business ID and the Business Short
$\qquad$ Name will be empty (SPACES) if this
$\qquad$ is not a Business membership.
$\quad$ 5 N=Number of Products
$\quad$ {for each Product
$\qquad$ 4 ANS = category
$\qquad$ 3 N = currency
$\qquad$ 5 ANS = product type
$\qquad$ 5 ANS = product ID
$\qquad$ 5 N = Number of Signers
$\qquad$ {For each Signer
$\qquad\qquad$ 40 ANS = UMID
$\qquad\qquad$ 1 A = Signer is Mandatory (T/F)
$\qquad$ }
$\quad$ }
} |

Real-time payments messaging specification

With the increasing popularity of real-time activity, Central 1 has recognized the need for a generic message that can process today's requirements as well as meet potential future requirements, while still limiting the development required on host banking systems. This chapter defines the messaging relevant to implementing Real Time Payments (RTP).

The messaging defined in this document is designed to enable the processing of credit and debit transactions and transfers between financial institutions. It is based on and expands the functionality in the *MemberDirect*® ISO Message specification.

The implementation provides for single or two-phase commit as well as roll-back for fail-safe processing. The relevant messages are shown by function as follows:

Function	Messages
Login	▪ Product Balances Inquiry/Reply ▪ Future-Dated Funds Transfer Inquiry ▪ External Transfer Accounts Inquiry
Credit and Debit Messaging	▪ Credit Proposal Request/Reply ▪ Credit Request/Reply
Debit Proposal Request /Rep**ly**	▪ Debit Request /Reply ▪ Credit Reversal Request/Reply ▪ Debit Reversal Request/Reply
Future Dated and Recurring Funds Transfers between Institutions	▪ Future-Dated Funds Transfer Create/Remove
Funding New Accounts from External Accounts	▪ New fields in Appendix B Forms 2 and 3

Also covered are data elements relevant to credit/debit messaging that are not already covered in the ISO8583:03 Message Specification. Information specific to a particular transaction type will be carried in BM 48 and BM123.

System requirements

The request messages defined on the following pages will be generated by a Central 1 Server and will contain all information *relevant* and necessary to perform the particular transaction. The host will process the request and return a response message with relevant data and a response code. Relevant information that would normally be received from other channels (such as the Clearings system) will be saved.

Proposal messages will be identical to the "real" transaction except that the Proposal flag will be set to "Y". The flag will be set to "N" in the transaction request.

Host considerations

The host must process reversal transactions. Reversal transactions will occur if the reply to a requested transaction does not arrive at the requesting Central 1 system in time. In addition, the host will be expected to process duplicate reversal transactions that will occur if a reversal

is not responded to by the host banking system/gateway in time. Central 1 will continue to send a transaction until it receives a reply. If a message has not been responded to after "*N*" times or *15 minutes prior to Settlement Cut-Over time*, the transaction information will be placed on an exception report and handled in a batch process.

Files and reports

Files and reports will be generated daily and monthly for settlement, reconciliation, billing and for statistical purposes at the national, provincial and institution levels.

Real-time payments message descriptions

Below are detailed descriptions of the messages used in processing real-time payments. It includes a description of the message type, message flows and the data elements present in the message.

Following the login process, the first messages of consequence to the real-time payments process are the Balance Inquiry Request and Reply messages. The need to move funds between institutions outside of the *MemberDirect*® Integrated system sometimes using AFT and LVTS, requires the accounts be identified in a manner consistent with the CPA.

> **Note:** Because accounts must be identified as described above, institutions developing real-time transaction capability *must use* BM123 form 20001 *instead of* BM123 form 00001 in order to pass back the MICR account ID (CPA Route-Transit-Account format). The account ID is expected to be left-justified and right-padded *with spaces*.

2600 – 2610 Product balance inquiry request and reply

This message is sent to the host requesting the product balances of all active products within a specific membership. The processing code (Data Element 62) is set to 0001001 for one product balance and 0009001 for all products. This message allows for the balance information of a maximum of 40 products in a single transmission (if the value of the "products requested" field is set accordingly).

Because of the potential number of products that may be present in a membership, the message structure is set up to allow subsequent request(s) to fetch the next batch of 40 products. In a subsequent request, the search items returned by the host in the previous reply must be sent so the host begins processing the next product to send. (In the initial request, these search items are set to zeros).

This request message can also be used to retrieve the balance of a single product by identifying the product in the product type field (5ANS) and product ID in Account Identification 1 (Data Element 102). The processing code is 0001001. The host returns the last product balance information in the search item before transmitting a reply to a multi-product request.

Message flows

→ 2600 Product Balance Inquiry Request
← 2610 Product Balance Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Product Balance Inquiry – One Product Balance – Request 1, 2, 3, 7, 11, 20, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0001001	00011	
Product Balance Inquiry – One Product Balance – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0001001	00013	XXX01 (See Note below)
Product Balance Inquiry – All Products – Request 1, 2, 3, 7, 11, 20, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0009001	00011	
Product Balance Inquiry – All Products – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0009001	00013	XXX01 (See Note below)

Note: For the Product Balance Inquiry – One Product Balance – Reply and Product Balance Inquiry – All Products – Reply, "XXX01" = 20001, 21001 and 22001, used for PAN login with Real-time processing.

2600 – 2610 Future-dated funds transfer inquiry

This message is a request for the host to send a list of all future-dated funds transfer service(s). The processing code (Data Element 62) is 0021055 for the current information of one future-dated funds transfer service or 0029055 for all service(s). The product ID must not be zero, if only one service is queried.

In Data Element 48, one additional bitmap is used. The bitmap, termed Display Bitmap, informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit and both the client and host-server reference the set of Group Definitions as detailed in Appendix B.

Note: If the transfer is an inter-member transfer, Data Element 11 (in Appendix B 2) is returned. If it is set, then Data Element 11 (To Customer) appears in the To Account.

If the transfer is an inter-institutional (Me-to-Me) transfer, then Data Elements 23 (From Account), 24 (To Account), 25 (Transaction Code) and 26 (Transaction Type) *must* be present in Appendix B Form 2 in the Reply message.

Message flows

$\rightarrow$ 2600 Future-dated Funds Transfer Inquiry Request
$\leftarrow$ 2610 Future-dated Funds Transfer Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Future-dated Funds Transfer Inquiry – Request 1, 2, 3, 7, 11, [20], [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	0029055	00012	-
Future-dated Funds Transfer Inquiry – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	0029055	00014	00013 20013 B-2

2600 – 2610 External transfer account inquiry request and reply

The External Transfer Account Inquiry request will be used for requesting and returning accounts the member has access to at another institution for real-time credit and debit processing where the accounts reside at different institutions. The inquiry asks the banking system to return a list of accounts that it will appear as source or destination accounts for Inter-Institutional (Me-to-Me) transfers. The process code (Data Element 62) is 0029009.

Message flows

→ 2600 External Transfer Account Inquiry Request
← 2610 External Transfer Account Inquiry Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
External Transfer Account Inquiry – Request 1, 2, 3, 7, 11, [20], [22], 48, 52 {53}, 62, 63, {72}, {73}, 102	0029009	00012	-
External Transfer Account Inquiry – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), [72], 102,, 123-127	0029009	00014	00013 or 20013 B12

2200 – 2210 Credit/debit transactions

Credit/debit messages along with their associated reversals enable a wide range of financial transactions. A Central 1 server will generate the messages defined on the following pages. The messages will contain all information relevant and necessary to perform the particular transaction. The host will process the request and return a response code. A Proposal message will initiate the credit/debit conversation. When the Proposal message also contains the Proposal Flag in BM123 form xxx13 where Appendix B-11 set to "V", the host will validate the linkage between the internal and the external accounts and to return any associated fee for the transaction. If the Validate flag is blank, no fees need to be returned.

The non-validated form of the proposal is used to ensure host connection prior to completing the transaction. This design minimizes the requirement for clean up using reversal messaging due to host time-outs. It is expected that the banking system validate all proposals such that the response to a proposal is the same as the response to the matching final transaction.

Messages for transaction reversals are defined and discussed in *2400 – 2410 Credit/Debit Transaction Reversal Request and Reply* in this chapter.

Time-out for Real-time messages

The time-out for all real-time messages (2200, 2220, 2221 and 2400) is *eight* seconds.

The Message flows

→ 2200 Debit Proposal Request
← 2210 Debit Proposal Reply

→ 2200 Credit Proposal Request
← 2210 Credit Proposal Reply

→ 2200 Debit Transaction Request
← 2210 Debit Transaction Reply

→ 2200 Credit Transaction Request
← 2210 Credit Transaction Reply

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Credit/Debit Transaction – Request 1, 2, 3, 4, 7, 11, 12, 13, [20], [22], 32, 37, 48, 49, 53, 62, 63, 100, 102, 103 , 104,123-127, 128	Various: Cr=0211001 Dr=0201001	00004	00013 or 20013 B11
Credit/Debit Transaction – Reply 1, (2), (3), 7, (11), (20), (32), 37, 39, {44}, 46, 48, 53, (62), (63), (100), (102), (103), 123-127, 128	Various: Cr=0211001 Dr=0201001	00005	00013 or 20013 B11

The determination of the use of Data Element 123 Form 00013 vs. Form 20013 is based on whether the *MemberDirect*® connector is employing PAN login or not. Form 20013 is used in PAN Login environments.

> **Note:** The PAN will not be present in the credit/debit transaction message sent to the receiving institution. It will only be present in the message to the *originating* (logged in) institution.

2400 – 2410 Credit/debit reversal transaction

The 2400 messages are used for handling credit/debit transaction reversals. In a reversal transaction, the host is requested to perform the reversal of a specific transaction. Reversals will occur if the reply to a requested transaction is *not* returned to Central 1. The host must also handle the processing of duplicate reversal transactions that will occur if a reversal is not responded to within eight seconds.

Central 1 will continue to send a reversal request until it receives a reply at intervals until the settlement cutover time. If there is not a response to the Reversal Request message, it will appear on an exception report and must be handled in an off-line batch process. If a duplicate reversal is received, it must be acknowledged as received *OK*. However, duplicate reversals must not result in duplicate credits or debits being created and reversed.

> **Note:** The 2400 message is in the same format as the original 2200 message except that it will contain the Original Data Elements field. The trace number from the original message will be contained in the original data elements.

Debit/credit reversal processing

While Central 1's ISO8583 message specification for real-time transactions is not explicit about reversal message processing, it implies that a repeat reversal is only sent if the previous message (transaction or reversal) times out. If a reversal is received, even with an error code, reversals will not be sent and the reconciliation process must handle the outage overnight.

From a technical perspective, if the banking system is sent a reversal, it will recognize that a transaction (debit or credit) is to be reversed. It will occur in multi-threaded transaction processing system that the transaction is "in flight" and has not been posted. An ambiguity on the bank host occurs when the reversal arrives about whether the transaction actually occurred or not. The solution for these in-flight transaction ambiguities is as follows.

When a transaction arrives and is parsed, ready to be sent into the transaction processing engine, the retrieval reference number (RRN) in Bitmap 37 is tabled in a dynamic pending transaction table. When the transaction is complete and has been replied to, the RRN entry is removed from the pending table. This approach allows the following actions to occur when a reversal is received:

- A positive response to the reversal request to Central 1 indicating the reversal has taken (or will take) place
- The RRN of the reversal is looked up in the table.

If entry is found in the Pending table

If the entry is found in the pending table, the transaction is known to be incomplete. The reversal will be placed in the holding queue until one of the following conditions occur:

- The transaction has completed (the table entry for the transaction no longer exists) OR
- An adequate period of time has passed that would ensure the transaction would have been completed OR
- The cut-over time has occurred

At this time, the reversal can be processed.

Processing the reversal
If the Reversal Reason indicates the customer cancelled the transaction, the reversal is posted against the transaction. If the Reversal Reason indicates *any other error*, the posting could be cancelled as if it never occurred, depending on the host system's business rules.

If the entry is not found in the Pending table
If the entry is *not* found, then either the transaction did not arrive for processing and is assumed lost in transmission or the transaction did arrive and has been posted. The reversal can be sent forward for processing.

If the transaction did *not* arrive, then there will be no transaction to reverse. In this case, the RRN must be posted with the transaction so that a match between transaction and reversal can take place).

If the transaction did arrive (Transaction RRN = Reversal RRN) then the transaction posting can be reversed.

Message flows

Timeout of debit requests
Debit requests that time out are reversed in case they reached the host. A reply to the debit request received following the sending of a reversal will then be ignored.

```
→ 2200 Debit Transaction Request
:
:
(timeout)
→ 2400 Debit Transaction Reversal Request
← 2410 Debit Transaction Reversal Reply
```

Timeout of credit requests
Credit requests that time out are reversed in case they reached the host. A reply to the credit request received following the sending of a reversal will then be ignored.

The credit transaction is reversed with the reason that the credit could not be applied. A reply to the debit request received following the sending of a reversal will then be ignored.

```
→ 2200 Debit Transaction Request
← 2210 Debit Transaction Reply
→ 2200 Credit Transaction Request
:
:
(timeout)
→ 2400 Credit Transaction Reversal Request
← 2410 Credit Transaction Reversal Reply
→ 2400 Debit Transaction Reversal Request
← 2410 Debit Transaction Reversal Reply
```

Negative response to a credit request
In this situation, the debit transaction must be reversed with the reason that the credit could not be applied.

$\rightarrow$ `2200 Debit Transaction Request`
$\leftarrow$ `2210 Debit Transaction Reply`

$\rightarrow$ `2200 Credit Transaction Request`
$\leftarrow$ `2210 Credit Transaction Reply – Negative Response Code`

$\rightarrow$ `2400 Debit Transaction Reversal Request`
$\leftarrow$ `2410 Debit Transaction Reversal Reply`

The reversal request message contains all the unique transactional information contained in the original debit or credit message (Data Elements 2, 4, 13, 20, 22, 49, 62, 63, 102, 103, 123-127). In addition, Data Elements 25 (Message Reason Code) and 56 (Original Data Elements) are present.

The reversal reply contains the same information in Data Elements 2, 54, 62, 63, 102, 103, 123-127 that was received in the Credit/Debit reply.

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Credit/Debit Reversal Transaction – Request 1, 2, 3, 4, 7, 11, 12, 13, [20], [22], 25, 32, 37, 48, 49, 53, 56, 62, 63, 100, 102, 103, 123-127, 128	Cr=0211001 Dr=0201001	00004	00013 or 20013 Form B11
Credit/Debit Reversal Transaction – Reply 1, (2), (3), 7, (11), (12), (20), (32), 37, 39, {44}, 48, 53, (62), (63), (100), (102), (103), 123-127, 128	Cr=0211001 Dr=0201001	00005	00013 or 20013 Form B11

The determination of the use of Data Element 123 Form 00013 vs. Form 20013 is based on whether the *MemberDirect*® connector is employing PAN login or not. Form 20013 is used in PAN Login environments.

> **Note:** The PAN will not be present in the credit/debit transaction message sent to the receiving institution. It will only be present in the message to the originating (logged in) institution.

2300 – 2310 Future-dated funds transfer create/remove

This message is a request for the host to create, update or delete a future-dated funds transfer (auto) service. The processing code (Data Element 62) is 0111055 (creation), 0121055 to Remove or 0131055 to Update. In Data Element 48, two additional bitmaps are used. The first bitmap is the Parsing Bitmap. The host will parse the data elements in Data Element 123. The second bitmap is the Display Bitmap. It informs the host to send the specific data elements in the reply message. The formats and attributes of each field in Data Element 123 are implicit. Both the client and host-server reference the set of group definitions as detailed in Appendix B. The host returns the Display Bitmap, which the client uses to parse the fields in Data Element 123.

Institutional transfers

This message can be used to create an inter-institutional transfer. The internal account number will follow the *MemberDirect*® rules for formation while the external account will follow the extended rules for naming accounts, as defined in the definition of Data Element 102 and Data Element 103.

Processing rules

If both accounts are internal to the institution (regardless of whether the transfer is an intra or inter-member), the host will handle the future and/or recurring processing of the transfer in its entirety.

If one of the accounts is internal to the institution and one of the accounts is external to the institution, the host banking system will post an entry of the future-dated record and manage the processing of the transaction at the specified date.

The host system has control over whether the future-dated record is removable via the *MemberDirect* system or only via processing at a branch. If it is removable and the *MemberDirect* user deletes it, an ISO8583 message will be sent to the host system as is currently done. Upon successful removal, the *MemberDirect* system will send removal instructions to the real-time engine.

> **Note:** The Display Bitmap sent in the request message will contain all zeros in Data Element 48. The reply must contain the following bits:
> - Bits 2-8
> - Bit 11 (if an inter-member transfer)
> - Bits 12 – 16
> - Bits 18 – 21
> - Bits 23 – 26 (if this is an inter-institutional transfer)

Message flows

Create future-dated transfer

```
→ 2300 Future-dated Funds Transfer Creation Request
← 2310 Future-dated Funds Transfer Creation Reply
```

Remove future-dated Transfer

```
→ 2300 Future-dated Funds Transfer Removal Request
← 2310 Future-dated Funds Transfer Removal Reply
```

> **Note:** The following example describes the process flow if a failure occurs. It includes the real-time engine that will control the processing of future-dated transactions.

Below is the message flow in which a future-dated transfer is created on the host, but not the real-time engine:

```
MD      Create FDX  →            Host
MD                  ←- (OK)      Host
MD      Remove FDX  -→           Host
MD                  ←-(OK)       Host
```

In the following message flow, a Create Future-dated Transfer transaction times out at the host.

```
MD      Create FDX  -→          Host
                    :
                    Timeout
MD      Remove FDX  -→          Host
MD                  ←-(OK) or   Host
                    (Not found)
```

Data Elements Present	Process Code	D/E 48 Form Used	D/E 123-127 Form Used
Create Future-dated Funds Transfer – Request 1, 2, 3, 7, 11, [20], [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 103, 123-127	0111055	00004	00013 20013 B-2
Create Future-dated Funds Transfer – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), (102), (103), 123-127	0111055	00005	00013 20013 B-2
Remove Future-dated Funds Transfer – Request 1, 2, 3, 7, 11, [20], [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 123-127	0121055	00004	00013 20013 B-2
Remove Future-dated Funds Transfer – Reply 1, (2), (3), 7, (11), (20), 39, {44}, 48, {53}, (62), (63), (102), 123-127	0121055	00005	00013 20013 B-2

Newly created accounts from external accounts

When real-time payments are implemented, an option allows newly created accounts to be funded from external accounts (that is, accounts held at other financial institutions). When this option is used and the funding account is a linked external account, *MemberDirect*® Integrated sends a proposal to create a demand account to the institution to which the member is logged on (FI-A). After receiving the reply to the proposal from FI-A, *MemberDirect* Integrated sends back a proposal request for any charges the member's financial institution may charge for allowing the external funding. The charge, if any, will be presented to the member. If the member decides to continue, *MemberDirect* Integrated will continue the creation process for the product and then fund the new account through a real-time transfer of funds between the financial institutions. Since the *funding* institution may only be available via an AFT transfer, the *creating* institution may place a hold on the funds in the account until the funds have cleared.

If the Create account option is used, then the External Account ID (CPA) of the new account must be available in Field 28 of Form B-2 – Demand Product details or Field 52 of Form B-3 – Term Product Details. Fields 28 and 52 are *mandatory* if the institution selects external funding of accounts as an option.

Figures 7-1 and 7-2 show the message flow for two scenarios. In Figure 7-1, both institutions are real-time, while in Figure 7-2, the financial institution holding the funding account (FI-B) is accessible only via AFT.

Assumptions and caveats

The following assumptions and caveats apply to the creation and funding of new accounts from external accounts.

The member is logged into FI-A and holds an account at FI-B that is linked to their membership.

If any part of the account funding process fails, *MemberDirect*® Integrated will be able to roll-back and recover the funds. However, the account cannot be uncreated and will be present on the banking system without funds.

Figure 6-1 shows the message flow for creating an account when both the institutions use real-time payments.

Creating a Demand Account and Funding From an External Account – Both FIs RealTime
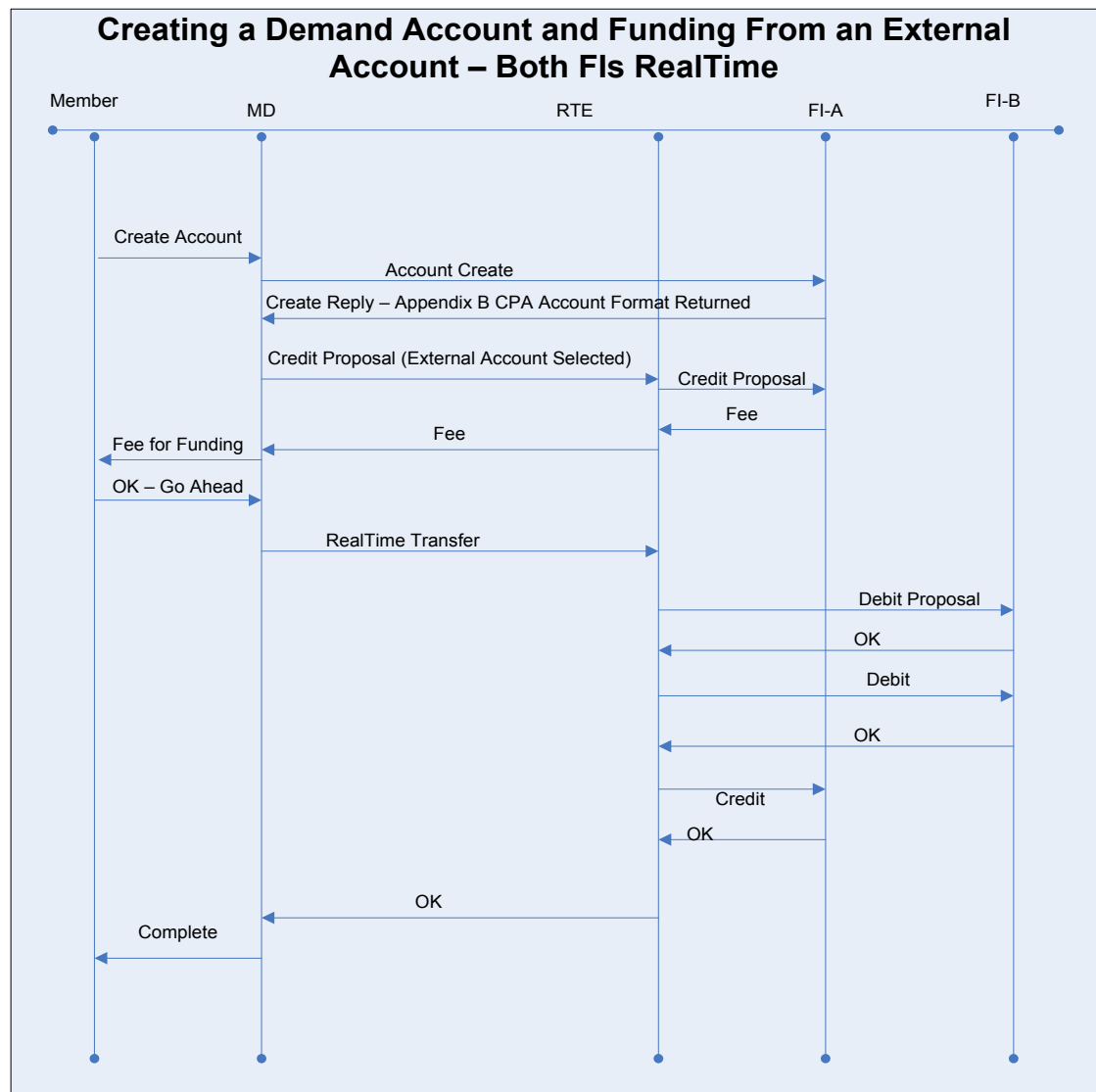
Figure 6-1: Creating and Funding a Demand Account When Both Institutions Are Real-Time

Figure 6-2 shows the message flow for creating and funding a new demand account when the external account is accessible via an AFT.
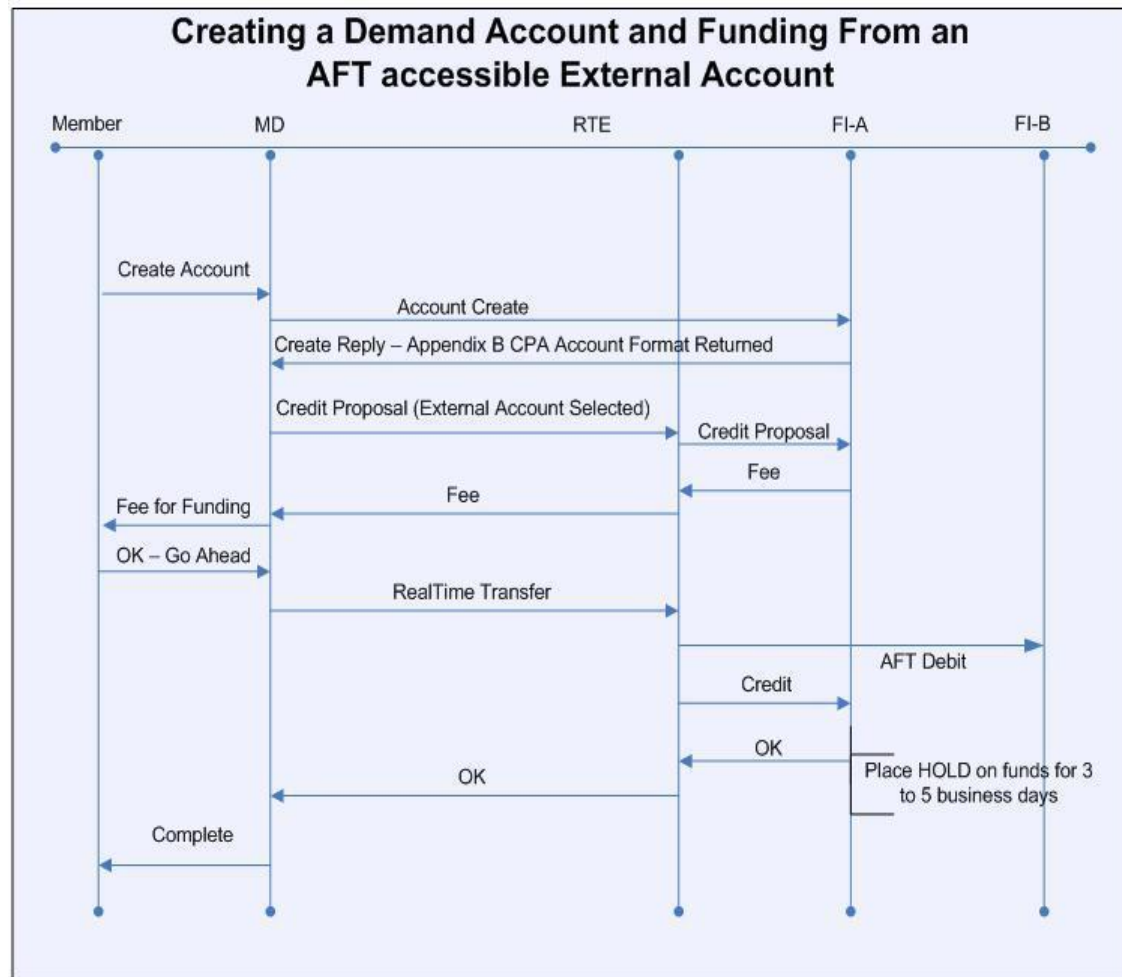
Figure 6-2: Creating and Funding a Demand Account When External Account Not Real-time

For a list of the data elements used when creating and funding a demand account from an external account, see Appendix B, Forms 2 and 3 for creating external accounts.

Real-time data elements

The following data elements have been introduced for real-time processing:

Data Element	Description
12	Date Time, Local Transaction
13, 14, 15	various dates
25	Message Reason Code for Reversals

32	Originating Institution
37	Retrieval Reference Number
53	Security Control
56	Original Data Elements – for Reversals
62	New Process Codes
63	New Network Source ID – Real-time Processor
64	MAC Code

Modified data elements

The following existing data elements have been re-defined, modified or clarified:

Data Element	Description
72	New use of Data Record
100	Receiving Institution
102, 103	New formats for Account Identifiers These new formats for Data Elements 102 and 103 accommodate various formats of Account Identifiers, including: CPA (Canadian), ACH (American), IBAN (European) etc. as well as the established *MemberDirect*® Integrated style of Account Identification.
128	MAC Code

Appendix A – FAQs

This appendix contains clarifications and detailed explanations, in a question-and-answer format, regarding the *MemberDirect*® products and transactions, messaging and other technical issues, based on questions received by Central 1.

Account information

Account summary

In the Account Summary, what does the *MemberDirect* application show for a recurring bill payment?

The next bill payment is shown. However, on the Payments Page, there is a sidebar option to request the Schedule Payments page on which the specifics of the payment are shown (including start and end dates, frequency and next date). This can probably be configured, but as it is a core item, it would require a change request and may be chargeable.

In the Account Summary, what does the *MemberDirect* application show for a recurring transfer?

The next recurring transfer is shown on the Account Summary. The Schedule Transfers page shows the transfer details – start, end and next transfer date and the transfer frequency. This is a core item as presently configured and would require a change request to be modified and may be chargeable.

Mapping accounts

Can Central 1 provide mapping used by the banking system for the keying of an account for CUSA?

MemberDirect maps accounts, products and services in a specific way using the following fields:

BIN branch and member number
These two fields used to identify the specific member or membership that the account belongs to order that inter-member/membership transactions can be handled correctly.

Category
The Category is used to apply specific business logic/rules. See Appendix C for more information.

Currency
This field used only in managing rules regarding inter-currency transactions.

Finally, there are some two host-specific data fields to map the product to a specific account, product, r service on the banking system. These are:

Product type
The Product type is a host-defined code identifying the account, product or service.

Product number
The Product Number identifies a specific occurrence of the product type.

Identifier Integrity

The above identifiers must remain the same *within* a session so that the *MemberDirect*® system can function properly. Since transactions such as scheduled transfers and bill payments identify the accounts involved, these identifiers must maintain referential integrity *across* sessions

Account identification: key fields

Could you identify the keys used by the *MemberDirect* Integrated system to keep track of information received from the host? For the accounts, verify that BIN (10N) is a value sent by the system as it is configured. Also, Branch (3N), Member number (12N), Product type (5N), Product number (5N) – are all of these supplied by banking host except BIN?

BIN (10N)	− Bi-lateral agreement with the banking host provider. − Used primarily for routing to a particular institution
Branch (3N)	− Host-defined (often used with member number, − Product type and product number for account object − Management (to create uniqueness)
Member number (12N)	− Host-defined
Product type (5N)	− Host-defined (used as a key along with Product) − Number within a membership to manage the object account/service/ product)
Product number (5N)	− See Product Type

Can the host change values returned in KEY fields and if so, is there an impact on the *MemberDirect* system? (If this key data is rebuilt dynamically following login, then there should not be any impact.)

There may be some implications to having different keys at different hosts for the same product/service/account for the same member. If a member logs into host-gateway-1 and pays a bill from account 12345 and then later logs in and is passed to host-gateway-2 and gets a list of his bill payments. How are you identifying the account from which the bill was paid for the member? What does the member see? One of the things we do with account descriptors, since they are usually not unique example, is append the product number (usually an occurrence number of a particular product). For example, this would be done if a member had several Plan-24 accounts.

Statements

Statement attributes

Can you identify the use of statement attributes by institution?

A complete list of all statement attributes is shown in *Appendix J – Statement Attribute Codes*. However, not all attributes are used. The following are the most commonly used attributes. Explanations are provided for attributes that are used by the *MemberDirect* system for more than one display.

Attribute code	Format	Explanation
01	S+12 N	exchange amount
02	8N+ 5 blanks	exchange rate – for format, see definition of exchange rates in Data Elements 123-127, Form 3
03	S+12 N	transaction charge amount

(Cont'd.)

04	S+12 N	interest amount
05	S+12 N	dividend amount
06	S+12 N	interest charge amount
07	S+12 N	non-resident tax amount
09	S+12 N	fixed charge amount
10	S+12 N	service charge amount
11	S+12 N	line of credit charge amount
12	S+12 N	personal access charge amount
13	S+12 N	loan principal reduction amount
14	S+12 N	pre-payment penalty amount
16	13 ANS	US$ cheque number
17	13 ANS	cheque number (posted via the branch)
18	13 ANS	cheque number (posted via clearing)
19	13 ANS	bill payment confirmation number
20	13 ANS	other reference number
28	13ANS	statement transaction ID (FITID)
29	13ANS	transfer memo (See Note below)
30x	8N+5 blanks	cheque date
31	13ANS	MICR account number (See Note below)
32	13ANS	item trace number (See Note below)
33	4N+9 blanks	route formatted as 4N (Route)
34	5N+8 blanks	transit (see Note below)
35	1A+12 blanks "late"	Late Indicator. If this attribute is present, the item is This attribute was implemented for MDB-ACS

Attributes 16, 17 and 18

Attributes 16, 17, 18 are used when searching for or filtering on cheques. Attribute 19 is used to filter on bill payments – the *MemberDirect*® system uses the confirmation number to identify the item as a bill payment.

Attributes 31-34

Attributes 31, 32, 33 and 34 are available for cheque image retrieval. The use of these attributes is specific to the image provider. Most of them are just displayed with a line item in the transaction history as additional information for the member.

Attribute 32

If the transaction was a *real-time* debit or credit, then Attribute 32 will contain the retrieval reference number.

See *Appendix J – Statement Attribute Codes* for additional relevant formatting information

Statement inquiry	
In transaction ordering in statement inquiry, does the *MemberDirect* system support the ordering of transactions locally?	
If you mean the date ordering from oldest to newest or newest to oldest, the *MemberDirect* system does not provide that capability – the host must provide it. The *MemberDirect* system does send a flag indicating the order in which the host is to send the transactions.	
Statement filters	

Can statement filters be activated or deactivated for all *MemberDirect*® screens?
The drop-down list of filters/search items can be configured, but the configuration is only on the Account Activity page.

Product balance inquiry

If a user has only one membership and one account, the *MemberDirect* system will the request to obtain all product balances (after login) send the *Product balance Inquiry - All Products - Request* or the *Product Balance Inquiry – One Product Balance – Request*?
The Product Balance Inquiry – All Products is sent since, at that point, *MemberDirect* does not know how many products/accounts the member has.
Is the Product Balance Inquiry – One Product Balance – Request only sent after an immediate funds transfer or after an immediate, future-dated or recurring Bill Payment?
Since a future-dated or recurring transfer or bill payment is just a memo to the banking system without immediate action on the account, the balance is not requested. The balance is only requested after *immediate* transactions (which use the 2200/2210 messages).
In the Product Balance Inquiry Reply (Form 20001), does the rate need to be returned? What is the impact of leaving it at 0?
The member will not know what the rate is when asking for product details. Two rates are returned: one for positive balance (rate earned) from Appendix B3 and the other is the rate charged (Balance Reply Bit Map 123).

Bill Payments

Bill Payment Vendors List	
Does the Request for Member's Bill Payments Vendors return the member's *own* vendor's list? If there are multiple members (such as PAN login with multiple members), does the list apply only to one member?	
Usually *all* members vendor lists are returned in the reply. Any items that are duplicated are shown only once. When a bill payment is made from one members account to another member's bill, then the From Account (Bit Map 102) contains the From Account Member and Bit Map 103 contains the bill owner member.	
Can *MemberDirect* Integrated retrieve more than one list of vendors in the case where a number of institutions use the same back-end processor, via the *MemberDirect* interface?	
Yes. the *MemberDirect* system has a BillSystemKey= property that allows only one vendor list to be accessed for a particular set of institutions. Currently, when a cached vendor or category list is deemed out of date (once in a 24-hour period), the cache is updated when a member attempts to create a new vendor account. A request for the vendor list will be sent to whichever institution the member belongs to, but it will update the cache for all institutions that share the same BillSystemKey. This means that the service provider must accept these messages with a BIN value (Bitmap field 2) from any one of the institutions sharing that same list.	
Note: Only one request will be sent for the group.	

For example, on Day 1, a service bureau may receive a request for Institutional Vendor/Category list for institution 5818091230 corresponding to Group 1. And on Day 2 it may receive a request from institution 5818094250 also belonging to Group 1.

Institution bill payment vendors list and vendor categories

Is the member number included in the request for the Institution Bill Payment Vendors List and Vendor Categories?

The member number is *not* sent in the request. The From Account (Data Element 102) contains the From Account number and Data Element 103 contains the bill owner member.

Request for future-dated bill payments

On the Request for Future-dated Bill Payments, are the Entry Date and Original Confirmation Number optional? They are not included on Form 20011.

Currently, there is no checking or validation for these fields and they are not displayed. In the future, they may be displayed as part of the core product. If that occurs, we will give the banking system notice in order to make the required adjustments in processing or the data sent.

Bill confirmation numbers

If a service bureau does not support confirmation numbers for bill payments, can they be suppressed anywhere they might appear?

Confirmation numbers are mandatory in messages, so "000000" must be returned in the field. Some customization and development would be needed in order to suppress the returned value from displaying. Capability to filter by bill payments would not be available, since that attribute is used to identify bill payment.

Recurring bill payments

When Recurring Bill Payments are used, is the Recurring Bill Payment Request or the Future-dated Bill Payment request sent in the case of a one-time payment?

If the institution does *not* support recurring bill payments, then the following bill payment messages will be used:

− Future-dated Bill Payment Request and Reply (Process Code 0111066)
− List Request and Reply (Process Code 0029066)
− Remove Future-dated Bill Payment Request and Reply (Process Code 0121066)

If the institution *supports and implements* recurring bill payments in the *MemberDirect*® system, then some messages for future-dated (one-time) payments will not be used, Instead, the logic flow for scheduled transfers will be used and the following messages supported:

− Future-dated Bill Payment Request and Reply (Process Code 0111066)
− Recurring Bill Payment Request and Reply (Process Codes 0111068)
− List Recurring Bill Payment Request and Reply (Process Code 0029068)
− Remove Recurring Bill Payment Request and Reply (Process Code 0121068)

Note the following points about recurring bill payments:

1. The Future-dated Bill Payment Request remains the same and creates a one-time payment with expiry date that is the same as the effective date.

2. The Recurring Bill Payment Request is new and defines a multi-time payment where the expiry date is *after* the effective date.

3. The List Future-dated and Remove Future-dated Requests and Replies are *not* supported when Recurring bill Payments are implemented. Instead, the following messages are used:

   ▪ The List Recurring Bill Payments message requests both recurring and future-dated bill payments messages. Note that future-dated bill payments have an effective date and an expiry date that are the *same* while recurring bill payments have an effective date (date of first payment) that is *prior to* from the expiry date. In addition, the period set in the List Scheduled Payments reply for a future-dated, one-time payment is O (for "O"ne-time) and the frequency is 1.

   ▪ The Remove Recurring Bill Payment Requests do not differentiate between one-time or recurring payments. It is assumed the banking system can find the proper payment based on the original confirmation number, the entry or effective date and the period and frequency.

Are recurring bill payments an optional feature? If not, is it possible to hide to the user the expiry date (see *MemberDirect*® *Online Banking Tour*, *Chapter 5*)? Is there some validation done by the *MemberDirect* system on the expiry date received from host? Both the expiry date and frequency are shown as well on the Scheduled Payments page (though not in the summary)

The feature is optional; however, the expiry date is neither shown nor validated. It is displayed as an informational item for the member and can be deleted or cancelled.

Request for member's recurring bill payments

Could you describe the following elements (Data Element 123 – Form 20011): Effective Date, Entry Date, Expiry Date, Frequency and Period? Which ones of those fields are shown on screen? Can the host return a blank field instead? Which ones are required by the *MemberDirect* system?

Effective Date is the first or next date to make the payment.

Entry Date is the date the payment is entered on the ledger via the *MemberDirect* system which, in the case of a future-dated or recurring bill payment, may be different from the effective date.

Expiry Date is the date when the recurring payment instruction is to be cancelled and no longer is effective.

Frequency and *Period* – A number of periods between payments, where period is a unit of time such as (D)ays, (M)onths, (W)eeks, (Q)uarters, etc. Thus, a Frequency/Period of 7/D would be every seven Days (which would also be the same as saying 1/W), 3/M would be every three Months (also, the same as 1/Q).

The *MemberDirect* system does not require these values, although there currently are places such as the Schedule Transfers or Scheduled Bill Payments pages where the instructions are displayed as "3 months" instead of "3 M".

Demand product

In Appendix B – Demand Product, could you explain Bit 5 - LOC Limit? Is it the maximum credit amount allowed or is it the maximum minus the credit already borrowed by member?

It is the maximum allowed and includes any credit already borrowed under the LOC. The Available Balance is the LOC Limit plus the Ledger Balance. If the Ledger Balance is negative, the Available Balance will be less than the LOC Limit by the amount the Ledger Balance is negative.

Loan product

Loan product inquiry

Can you confirm that Loan product inquiry messages request only *one* account at a time? The description of the inquiry says that product ID must not be zero, true or not?

This is true. For any of the inquiry messages that use Bit Map 123 Form 00013 or 20013 and Appendix B forms, the request is for *one* account at a time. These messages are really requests for the details of a single account.

The Product Type in the Loan Product Inquiry does not seem to hold the product type known elsewhere, but is restricted to the values listed in the B-5 form description. What is the use of that field?

The example values in Appendix B-5 are for a specific institution and are institution specific and defined. *MemberDirect*® does not display these values nor does it use them in any way. As with many of the non-mandatory fields in Appendix B, they were initially defined for possible future use by the institutions first using the product.

The Bit Map 48 request and the response do not have the same values for the display hex field. The host returns only several of the fields requested. Is this OK in general to do so? What kind of validation does MD do to the display hex field?

The bitmap sent in the request is a *suggested* list. The host may modify that and send back a reduced list of information or an expanded one, *as long as the requirements of mandatory fields is met*.

If the host does not have a value for the Next Due field in the Loan Product Inquiry, is there a default value allowed by the *MemberDirect* system that indicates there is not value supplied by the host?

Currently, there is no default value for the Next Due field.

Loan product – pay type (Field 9)

Can you explain the meaning of the Pay Type values: OPEN, CLOSED, FIXED and PRECMP in B-5 Loan product, Bit 9?

These values indicate the loan interest payment type and are defined as follows:

OPEN Both the principal and the amount of interest may change from payment to payment. Open loans can be paid out at any time without penalty.

CLOSED The loan is closed, which means that the interest rate and the payment amount are locked in for the term of the loan. There would be a penalty if the loan was paid out early. The interest payment stays the same for the duration of the loan.

FIXED The Fixed loan payment type – the interest and principal are fixed and does not change over the term of the loan.

PRECMP This is a Pre-Computed Payment amount. The payment amount stays the same for the duration of the loan, but is not necessarily locked in (CLOSED or FIXed). The values 0 to 3 key to messages that are shown to the member when the member requests detailed information about the loan. In other words, these values can be flexible.

Transfers

Immediate transfers

In an Immediate Funds Transfer, if there is an inter-member transfer TO another member that is not part of the memberships associated with the PAN of user logged in, the host does not know the resulting balance of the To account (and should not show that to the user). Is the balance of the TO account is required in this case?

If the account is external to this membership, the amount information in the TO account must be present (with 0's), but will be ignored and is not displayed.

Inter-institution transfers

With the support of inter-institution transfers, will the *MemberDirect*® system accept and support different BINs under one PAN login – could a user log in with a PAN and the host would return multiple memberships with different IDs?

External accounts are sent to the *MemberDirect* system without the BIN in Canadian Payments Association Route Transit Account (RTA) format because other institutions (such as the large banks) do not recognize *MemberDirect* BINs. Some transfers for institutions using the *MemberDirect* system will be real time, while transfers from institutions that do *not* use the *MemberDirect* system will be performed by the AFT system.

Inter-member transfers

Can the memo field be disabled for inter-member transfers?

Yes, the field can be disabled via a flag set in a property file.

Recurring transfers and bill payments

What is the maximum interval (start date to end date) for recurring items that the *MemberDirect* system will accept?

The maximum interval is flexible by institution. There are drop-down boxes for the years, months and days, so the user can select the final date for the interval. The institution can limit the term through the values allowed in the drop-down box via flags set in a property file.

Scheduled transfers and bill payments

Do scheduled transfers and bill payments show the start and end date, frequency and period on the Scheduled Transfers and Bill Payments lists? These lists show the "from" account, "to" account/payee, next scheduled date and amount.

The above information appears on the summary page. The Scheduled Bill Payments page shows more information, including the start and end dates and the frequency and period.

What happens if the expiry date is not available from the host?

If the expiry date is not shown, it could be problematic on the Scheduled Transfers or Schedule Bill Payments. A date far in the future could be shown, but members may become confused if they see a dates such as 50 years in the future, resulting in concerned, if not frantic, calls to the institution's call centre. Currently, we do not suppress the expiry date.	

Validation

Does the *MemberDirect*® system perform some validation based on some fields to allow a certain amount in fund transfers? For example, are the line of credit, hold amount and balance used to control the maximum amount that can be transferred to another account?
The *MemberDirect* system makes no assumptions about whether the balance has changed on the host during the time the member has been logged in and since the last all balances request. Thus the *MemberDirect* system will send the transfer request regardless and the host must validate the transfer amount.

Data elements/Bit maps

Data Element 54 – Additional amounts

Where do the values of account type (2N) and amount type (2N) come from? Should we always use the default values of 00 for account type and 01 ledger for amount type?
Yes – always use the values 00 for account type and 01 for amount type. These values actually come from the ISO8583 standard.
00 for Account Type = This is an arbitrary value we chose since all of the detailed account type information is really in Bit Map 102 and Bit Map 103
01 for Amount Type = Ledger (which is what we want to show the member and is the actual balance in the account)
Others defined by ISO (but are not used in *MemberDirect* Integrated):
02 = Available
03 = Amount Owing
04 = Amount Due
05 = Amount Available Credit
06 – 19 are reserved for ISO, national and private use

Data Elements 123-127

When two forms are defined for Data Elements 123-127 (such as for the Request for Member's Bill payment Vendor list), which one should the host return? What are the conditions favouring one or the other?
In PAN Login: the forms that have Vendor ID = 9N and Vendor Account Number = 30AN
In Member Login: If the 9/30 sizes of the Vendor ID/Account Number are required, the forms that are used are the same as in PAN Login. If the 5/20 sizes are required, then the 000xx forms will be used.
For further information, see the *Data Element Usage* on Page 4-1.

Are there cases where only two fields (123 and 124) are used instead the regular five fields?
There may be 0 to 5 of these fields and are noted as 123 – 127 in the specification as they all have the same format.

Login/Logout

Logout

Is the logout message displayed only by the member or by the session timeout as well?
The logout message is triggered only when the member explicitly logs out.

PAC

Is the Request for Personal Access Code (PAC) optional in *MemberDirect*®?
Yes it is. If the financial institution already has a secure way of presenting a PAC to the member, then the whole process of changing the PAC is handled offline and outside of the *MemberDirect* system.
Does the Change Member PAC Update Message contain Bit Map 102?
The message can be sent either with the PAN or with the PAN field *and* Bit Map 102. Note that during a *forced* PAC change during the login process, Bit Map 102 will contain the PAN login ID, rather than any associated member number.

PAN login

When using PAN login method, if Member 1 and Member 2 are returned from the host following login, is a fund transfer between accounts of Member 1 and Member 2 *inter* or *intra* member?
It is considered to be an *inter*-member transfer.
If login with PAN and host responds with several memberships, what is shown on Account Summary? What is used to populate the account? Are the BIN, branch and member number returned by host all used to display the Member field?
Only the Member field is used to identify the groupings of accounts. In any transactions or requests for information about a particular account or membership, the BIN, Branch and Member are used, often along with Category, Currency, Product Type and Product ID (Number).

Branch numbers

Is the branch number shown on several *MemberDirect* Integrated pages? For example, a branch number is shown in the Scheduled Transfers page shown in the *MemberDirect Integrated Online Banking Tour*.
The display of the branch number is flexible and can be turned off so that it does not appear on a specific page.

Members and member numbers

Member numbers

The format for the member number is 12 N. If that is true, will the *MemberDirect*® Integrated system accept a space in the field, such as "20349 123456"?

Generally, a space in *not* accepted. The field is numeric (similar to the CPA 12-digit account number). However, within *MemberDirect* Integrated, the value is treated as a string without numeric validation in all the places we have found so far. It could be problematic in the future.

Membership shares

There is an account category, SHRS, for Membership share, but there is no Appendix B form for SHRS. Does that mean there is no specific inquiry performed for these accounts?

No inquiry is performed because these accounts are for information only – there is no activity (deposits or withdrawals) on these account and, therefore, no details to list in Appendix B.

UMID

How is the UMID used and kept in systems outside *MemberDirect* Integrated to uniquely identify a financial institution's customers?

The UMID is used for Account Plus which includes connection to financial partners, such as Credential, CUETS MasterCard and QTrade. It is also used for real-time payments processing to uniquely identify the individual performing the transaction. UMID is *not* stored at Central 1. It becomes a part of the "FIUserID" at *Interac*® for online payments such as e-Transfers and online international remittances.

The standard definition of the Unique Member Identifier (**UMID**) that *MemberDirect* Integrated and other systems at Central 1 use is 22 digits in length in the following format:

UMID =	Financial Institution ID +	MID
	Financial institution route & transit number of the head office	Defined by financial institution
22 digits	8 digits (example: 678-12345)	14 digits (00-**549991589731**)

Sample UMID Format: 6781234500549991589731

The first eight digits of the UMID will be the financial institution and is the existing institution head office route and transit number (three digits followed by five digits). This format was found to be one of the common schemas that would uniquely identify the institution.

The remainder of the UMID is defined as the member identifier number (MID) and will be 14 digits in length. Because there are differences between banking systems, each banking system provider and its users will be responsible for determining the MID schema that best meets their needs. They will need to determine what will work best with their banking system structure. One suggested MID schema could use the Customer Relationship File (CIF) number to identify individuals on the banking system. The MID must uniquely identify the customer in the financial institution for as long as the person is a customer with the institution.

The UMID is also used in *MemberDirect* Small Business Services as the person's "signature" to identify who performed an action or approved a transaction.

Multiple members

If a member in a membership does not have an account, does the *MemberDirect*® Integrated system support it?

Yes, it will be supported. If there are multiple members, then that one member's accounts would not appear. It may be very odd if it was the only member in the membership that did not have any accounts because, no accounts would be displayed and the member would not be able to perform any account activities.

In the **Select an Account** drop-down list found in the activity requests, payments and transfers, how are accounts from different memberships differentiated? Is the description of the accounts configurable?

The accounts shown in the drop-down lists are listed under the "owning" membership number, that is, the membership that owns the accounts as opposed to having access to them.

Multilingual support

What needs to be done to the *MemberDirect* configuration in order to support French and English languages?

Within the ISO protocol, how is the language transmitted? Is only Bit Map 22 used on every message?

Only Bit Map 22 is used. The *MemberDirect* front-end will be either French or English. For institutions that support both languages, there would be a French or English link that would redirect the member to the proper site that would have either French or English content. French-accented characters can be transmitted in the ISO messaging as previously specified.

Is use of the Brand mechanism the only way to support two languages in *MemberDirect* Integrated?

Yes. However, from the member's standpoint, whether English or French speaking, the member is directed to one URL. On the Login page, the member can either accept the default language or click on a link to the other language (either English or French). The standard for French accented 8-bit characters is found in ISO8859-1 (Latin alphabet No. 1). See http://www.ic.unicamp.br/~stolfi/EXPORT/www/ISO-8859-1-Encoding.html for further information.

BIN

Must the BIN in Bit Map 2 be the same as the BIN found elsewhere such as Bit Map 102? Is there a validation done by the *MemberDirect* system that compares BIN values in different Bit Maps?

The BIN sent in Bit Map 2 is sent on every ISO message request; therefore the *MemberDirect* system has a configuration value stored (for every institution) that is used to initialize the BIN in Bit Map 2 field on every request, correct? This is to verify if we can use the BIN field in bit maps other than Bit Map 2 without being tied with an obligation to have a matching configuration value in Member Direct configuration files.

The BIN in Bit Map 2 is used only for routing. BINs that are reflected elsewhere may be different. There is a particular *caveat*: if the BIN used in Bit Map 102 is different from the BIN used in Bit Map 103 for a transfer, the transaction will be considered an inter-institutional transaction and, currently, will fail.

Appendix B - Product group definitions

The following product group definition tables list the format, attributes and description for each product type by bit within each product. For attributes that are common within the messaging system such as frequency, date, rate or amount, the word Frequency, Date, Rate or Amount appears in the Attribute column. Refer to *Common Attribute Values* in the *Data Element Descriptions* section for information about these common attributes.

> **Note:**   Some fields are mandatory for a particular product group. These fields are shown in boldface type and have an asterisk, such as **Product Type***.

1. Stop payment

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On if there is an extended bitmap
2	Sequence Number	5ANS		An index or occurrence number used to locate a particular stop payment or auto.
3*	**Product Type**	5ANS		The specific product type on which this note has a direct impact. Note that this field must match an existing account that was returned to the *MemberDirect*® system in the All Balances Inquiry.
4*	**Product ID**	5ANS		The occurrence number of the product; works with the Product Type. Note that this field must match an existing account that was returned to the *MemberDirect* system in the All Balances Inquiry.
5*	**Effective Date**	8N	Date	The effective date of this stop payment.
6*	**Expiry Date**	8N	Date	The expiry date of this stop payment; if 0, default is used.
7	Transaction Type	1ANS		The transaction type (W=Withdrawal, D=Deposit, P=Pre-authorized Payment or A= All)
8*	**Stop Reason**	28ANS		The reason for stop payment
9*	**Cheque Number**	2 x 7N		The cheque number range to stop ('from' & 'to' cheque number range – 7 N each)
10*	**Cheque Date**	8N	Date	The date of the cheque

Bit	Name	Format	Attribute	Description
11*	**Cheque Amount**	S+12N	Amount	The amount of the cheque to stop
12	Payee Name (line 1)	28ANS		The payee name line 1
13	Payee Name (line 2)	28ANS		The payee name line 2
14	Re-issued Cheque Number	7N		The number of the re-issued cheque
15	Re-issued Cheque Date	8N	Date	The date that the cheque was re-issued
16	Daytime Phone Number	12N		The member's daytime telephone number

* - Mandatory field

Note the following points about the Stop Payment product:

- For stop payment proposals, the *MemberDirect*® system sends only the account type, account number and two cheque numbers. The first cheque number is always 1, while the second number indicates the number of cheques that the client is requesting to stop. The reply to a stop proposal may contain the above Stop Payment data in Item 123. However, currently, the *MemberDirect* system does not display this data to the member. (It displays only the stop charge, which is taken from Data Item 48, Form 6.)

- For stop payment creation, the *MemberDirect* system sends all the fields except Data Item 2 (Sequence Number). Item 6 (Expiry Date) is always set to zero and Item 7 (Transaction Type) is always set to W.

- For a stop payment deletion, the *MemberDirect* system echoes back the above Stop Payment data that the banking system returns in response to the stop payment inquiry request.

2. Future-dated funds transfer

The following symbols indicate when the Future-dated Funds Transfer bits are mandatory:

* = Mandatory field for inter-member (internal) transfers

\# = Mandatory field for inter-member (external) transfers

&=Mandatory when the financial institution supports ORTP

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On if there is an extended bitmap
2*#	**Sequence Number**	5ANS		An index or occurrence number used to locate a particular stop payment or auto.
3*#	**Effective Date**	8N	Date	The effective start date
4*#	**Expiry Date**	8N	Date	The expiry date
5*#	**Amount**	S+12N	Amount	The amount to transfer
6*	**From Product Type**	5ANS		The FROM product type Note that this field must match an existing account that was returned to the *MemberDirect*® system in the All Balances Inquiry.
7*	**From Product ID**	5ANS		The FROM product occurrence number, works with FROM product Note that this field must match an existing account that was returned to the *MemberDirect* system in the All Balances Inquiry.
8*#	**From Currency**	3N		The currency of the from account
9	To BIN	10N		The BIN number of the receiving bank
10	Auto To Branch	3N		The destination account Branch number of the TO product when inter-member transfer is allowed. Currently set to 0 or To Branch of To Member. 0 = Branch of the From Member
11	To Customer	12N		The destination account number of the TO product when inter-member transfer is allowed. Set to 0.

Bit	Name	Format	Attribute	Description
12*	**To Product Type**	5ANS		The TO product type Note that this field must match an existing account that was returned to the *MemberDirect*® system in the All Balances Inquiry.
13*	**To Product ID**	5ANS		The TO product occurrence number, works with TO product Note that this field must match an existing account that was returned to the *MemberDirect* system in the All Balances Inquiry.
14*#	**To Currency**	3N		The TO Account Currency
15*#	**Length**	3N		The frequency length; works in conjunction with the Frequency value (Bit 16).
16*#	**Frequency**	1ANS	Frequency	The frequency code; works in conjunction with the Length value (Bit 15) to form values such as "1-M".
17	Day	2N		The day of the month of the next processing date. Set to 0 for default in creation.
18*#	**Description**	30ANS		The purpose of this transaction
19*#	**Next Transfer Date**	8N	Date	Date for next future dated transfer
20*	**From Category**	4ANS		See Appendix C
21*	**To Category**	4ANS		See Appendix C
22	Can Remove	1 ANS		Enter "Y" or "N" to indicate whether the transfer can be removed from the host via the *MemberDirect* system.
23#&	From Account	42ANS		Per BM 102/3 definition and structure. Supersedes Fields 6, 7, 8, 20 when subscribing to online real-time payments
24#&	To Account	42ANS		Per BM 102/3 Definition and structure. Supersedes fields 9, 10, 11, 12, 13 and 14, when subscribing to online real-time payments
25#	Transaction Type	4ANS		WIRE, AFT, PAYR, RETN, IEMT, EDI, M2MO, M2MR, USDX

Bit	Name	Format	Attribute	Description
26#	Transaction Code	8AN		These codes will be specific to the transaction type, for example, Late AFT will use the existing AFT transaction codes. For Me-to-Me (M2M), see *Transaction Codes* following Form 11*
27#	External Account Description	35ANS		Description of the account, including the institution's short name
28	AFT Transaction Code	3AN		Per Appendix C
29	Transfer Memo	100ANS		

3.   Demand product

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On if there is an extended bitmap
2	Product Type	5ANS		The type of demand products
3	Product ID	5ANS		Product ID of this demand product.
4	Customer Benefit	3ANS		The assigned customer benefit type that applies to the product.
5	LOC Limit	S+12N	Amount	The allowable limit of line of credit for this product.
6	Description	28ANS		The product description as assigned by the user.
7	Category (RSP/RIF)	3ANS		The product category: RSP/RIF/ blank.
8	RSP No. (RSP/RIF)	5N		The RSP contract occurrence number associated with this product.
9	Balance	S+12N	Amount	Display only.
10	Held Balance	S+12N	Amount	The total hold amount for this product.
11	Currency	3N		The currency of the product. Use blanks for creation.
12	Opened Date	8N	Date	The date the product is opened.
13	Current Delinquency Amount	S+12N	Amount	The delinquency amount due for this period.
14	Delinquency Date	8N	Date	The last delinquency date.
15	LOC Interest Rate	S + 6N	Rate	The Line of Credit interest rate.
16	RSP Contract Number	12ANS		The RSP contract number associated with the product.
17	Interest Earned – Year-to-Date	S+12N	Amount	The amount of interest Earned for the current year to date
18	Interest Paid: Year to Date	S+12N	Amount	The amount of interest Paid to date for the current year to date.
19	Length	3N		The frequency length; works in conjunction with the Frequency value. Used for registered products.

(Cont'd.)

Bit	Name	Format	Attribute	Description
20	Frequency	1ANS	Frequency	The frequency code; works in conjunction with the Length value (Bit 15) to form values such as "1-M". Used for registered products.
21	Maturity Date	8N	Date	Used for registered products.
22	Interest Paid: Last Year	S+12N	Amount	The amount of interest paid for the previous year.
23	Interest Charged: Current Year to Date	S+12N	Amount	The amount of interest charged to date for the current year.
24	Interest Charged: Last Year	S+12N	Amount	The amount of interest charged in the previous year.
25	Interest Earned Last Year	S+12N	Amount	The amount of interest earned in the previous year.
26	Payment Due Date	8 N	Date	Next payment due date.
27	Minimum Payment Due	S + 12N	Amount	Minimum payment due.
28	Account ID for this account (in CPA RTA format)	42ANS		This field is mandatory on Proposal and Create replies during the account creation process. It enables funding from external accounts. See Data Element 102 for format definition.
29	Politically Exposed Foreign Person	1A	Boolean	T|F
30	Intended Use Description	60ANS		Text selected for a drop-down list
31	MC/VISA Debit Card Holds	S+12N	Signed Amount	Hold amount on a Mastercard-II or VISA debit card account
32	Linked Accounts	CVar 1..3	15 ANS	Up to three account Numbers of the linked demand accounts. LBC for use with LOC DMDL accounts.
33	Payment Percent	5N	nn.nnn	This is the percentage the minimum payment due is of the outstanding balance
34	Payment Includes	2A		"IO" Interest only "PI" Principal plus interest.
35-51	Reserved (LBC)			
52	Accrued Interest Owing	S + 12N		

4. Term product

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On if there is an extended bitmap
2	Product Type	5ANS		The type of the Term Product.
3	Product ID	5ANS		Product ID for this TERM
4	Series	5ANS		A sub-classification identifier of the term.
5	SubType	5ANS		Sub-Type Classification
6	Customer	3ANS		The customer benefit type.
7	Principal	S+12N	Amount	The principal amount of the term.
8	Balance	S+12N	Amount	The current balance of the term.
9	Original Deposit Amount	S+12N	Amount	The original amount of deposit
10	Total Deposit Amount	S+12N	Amount	The total amount(s) deposited.
11	Rate	CVAR 1..6 Count x S+6N	Rate	The applicable interest rate. Only multiple on an escalator account
12	Currency	3N		The type of funds deposited. (Default to Canadian dollars=124)
13	Interest Currency	3N		The type of funds deposited. (Default to Canadian dollars=124)
14	Start Date	8N	Date	The start date of the term.
15	Cash Date	8N	Date	The first date that the term can be cashed
16	Length	3N		The length of the term; works with Term Frequency
17	Frequency	1ANS	Frequency	The frequency code for term renewal.
18	Interest Length	3N		The length of the interest rate.
19	Interest Frequency	1ANS	Frequency	The frequency code for interest payment.
20	Maturity Date	8N	Date	The maturity date for the term.
21	First Interest Date	8N	Date	The date of the first interest payment.

(Cont'd.)

Bit	Name	Format	Attribute	Description
22	Next Interest	8N	Date	The next interest payment or compounding date.
23	Interest Product Type	5ANS		The product to which the interest is to transfer out.
24	Interest Product ID	5ANS		The product occurrence number for the interest payment transfer.
25	Interest To Indicator	3ANS		Indicator whether the term interest is to be transferred out (TSF), compounded (CMP), paid in a cheque (CHQ). **Note**: If the TSF indicator is used, then Bits 23, 24, 26, 37 and 38 *must* be set.
26	Interest Member ID	12N		The Member ID of the account to which the interest is transferred out at interest date.
27	Maturity Transfer BIN	10N		The transfer-out BIN for the Term Maturity Transfer Account.
28	Maturity Transfer Branch	3N		The transfer-out branch at which the Term Maturity Transfer Account resides.
29	Maturity Transfer Member ID	12N		The account to which the principal is to be transferred at maturity.
30	Maturity To Indicator	5ANS		Indicator of the method of disposition at maturity: MAT – Term has matured, waiting for instructions REN – Renew RNU – ReNew Until date set in Bit 47 ROL – Rollover to a new series TSF – Transfer out **Note**: If the TSF indicator is used, then Bits 27, 28, 29, 31 and 32 *must* be set. EFT - Electronic Funds Transfer This is a display only value on the Term Details Reply.
31	Maturity Product Type	5ANS		The product to which the funds are transferred to at maturity.

Bit	Name	Format	Attribute	Description
32	Maturity Product ID	5ANS		The product occurrence number for term.mat.acct.
33	RSP Number (RSP/RIF)	12ANS		The RSP contract number this term is associated with. Valid no. or zero
34	Renew Rate	S+6N	Rate	The promised interest rate the term is to be renewed at maturity.
35	Split	1ANS		Indicator whether the rate is a split or step rate.
36	Primeplus	1ANS	Y/N	Indicator whether the rate is prime-related
37	Transfer BIN for Interest	10N		The BIN of the Receiving Institution for Interest if not the same as Principal Receiving BIN
38	Transfer Branch for Interest	3N		The branch of the term.int.cust.tsf if not the same branch.
39	Rollover Type	5ANS		The type of term to rollover at maturity.
40	Rollover Series	5ANS		The series of term to rollover at maturity.
41	Is Market Indexed	1ANS	Y/N or valid value	Indicator whether the product is market-index linked. Blank for "PRO", else must be "N" or "Y"
42	Participation Percent	3N		The percentage of participation in a market-index linked situation.
43	Begin Market Index	S+12N	Amount	The market index at the beginning of the term.
44	End Market Index	S+12N	Amount	The market index at the end of the term or at the time the index is capped
45	Description	28ANS		The user-specified description for the product.
46	Allows Multiple withdrawals	1 ANS		Whether this product allows multiple withdrawals.
47	Renew Until Date	8 N	Date	The Renew Until Date used by the RNU option in Bit 30 – Maturity To Indicator.

Bit	Name	Format	Attribute	Description
48	Renewal Transfer Amount	S + 12N	Amount	If the amount is *negative*, this bit indicates the amount to transfer on the renewal date before renewing the term.
				If the amount is *positive*, it indicates an amount to add to the term before renewing it.
				In both cases, the account identified by Bits 27, 28, 29, 31 and 32 will indicate where the amount is be transferred to or from.
49	Interest Earned – Current Year to Date	S+12N	Amount	The amount of interest earned on the term deposit.
50	Interest Paid – Current Year to Date	S+12N	Amount	The amount of interest paid for the current year to date.
51	Interest Earned – Last Year	S+12N	Amount	The amount of interest paid in the previous year.
52	Account ID for this account (in CPA RTA format)	42ANS		This field is mandatory on proposal and create replies during the account creation process.
53	Politically Exposed Foreign Person	1A	Boolean	T|F
54	Intended Use Description	60ANS		Text selected for a drop-down list
55	Extended Description	65 ANS		For name changes

Term product proposal message contents

The following table shows the bits contained in term product proposal messages along with their values and origins.

Bit Number	Value and Origin
2	Product type from Investment Product Reply, Bit 123, Form 14.
4	Product ID from Investment Product Reply, Bit 123, Form 14.
5	Product subtype from Term Rates Reply, Bit 123, Form 6.
6	First three characters of benefit/class from Investment Product Reply, Bit 123, Form 14
7	The amount as entered by user.
12	The currency from Investment Product Reply, Bit 123, Form 14.

16	The term length as entered by user.
17	The minimum frequency code from Term Rates Reply, Bit 123, Form 6
20	The maturity date (current date + (length * frequency)).
23, 24	The product type and ID of the account from which funds are to be withdrawn to set up the term.
33	The RRSP or RRIF contract number. (This bit is set only for RRSP/RRIF products.)
45	The term description as entered by the user.

5. Loan product

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On (1) if there is an extended bitmap, else Off (0)
2	Product Type	5ANS		The type of loan product. Institution defined. Currently used values are: MTG, PER, DEM, LEG, INF, GOV, CST, LOC, SL1, SL2, SL3, SL4, SL5, BUS, FRM.
3	Product ID	5ANS		Product ID for this Loan.
4	Balance	S+12N	Amount	The current balance of the loan product.
5*	**Next Due**	8N	Date	The date the next loan payment is due.
6	Customer Benefit	3ANS		The customer benefit that applies to the product.
7	Rate	CVAR 1..5 Count x S+6N	Rate	The applicable loan rate(s) Note that multiple rates apply only to split-level loans.
8	Level	CVAR 1..5Count x S+12N	Amount	The split loan level(s) Note that there must be a split loan level specified for each loan rate (Bit 7).
9	Pay Type	3 N		The repayment type (0=OPEN, 1=CLOSED, 2=FIXED, 3=PRECMP).
10	Payment	S+12N	Amount	The regularly scheduled loan payment to retire the loan.
11	Opened Date	8N	Date	The date the product was opened.
12	Maturity Date	8N	Date	The date the loan will be paid out.
13	Length	3N		The length of the current interest term
14	Frequency	1ANS	Frequency	The frequency code for the interest term
15	Amortization Periods	3N		The total amortization periods
16	Pay Length	3N		The length of the payment in units of loan pay.freq

(Cont'd.)

17	Pay Frequency	1ANS	Frequency	The frequency code for the payment
18	Disbursement Date	8N	Date	The date the loan was disbursed
19	Advanced Amount	S+12N	Amount	The total amount of loan disbursement
20	Is Blended	1ANS	Y/N	Indicator whether the loan is blended with principal & interest, interest only
21	Is Primeplus	1ANS	Y/N	Indicator whether the loan is prime-related
22	Schedule	3ANS	Blank/ TEN	Indicator whether the loan payment is scheduled for ten months/year
23	Delinquency Date	8N	Date	The date the product was in delinquency
24	Current Delinquency Amount	S+12N	Amount.	The current amount of delinquency due
25	Currency	3N		The currency code for the loan
26	Original Amount	S+12N	Amount	The original amount of the mortgage should it come from another inst.
27	Description	28ANS		The user-defined description
28	Accrued Interest	S+12N	Amount	The current amount of accrued interest on a loan.
29	Interest Charged: Current Year to Date	S+12N	Amount	The amount of interest charged on the loan for the current year to date.
30	Interest Charged: Last Year	S+12N	Amount	The amount of interest charged on the loan in the previous year.
31	Remaining Amortization	YYMM		The number of years and months remaining to amortize the loan.
32	End of Term Balance	S+12N	Amount	
33	Total Principal Paid	S+12N	Amount	The total paid on the loan principal since last renewal [current term only]
34	Politically Exposed Foreign Person	1A	Boolean	T|F
35	Intended Use Description	60ANS		Text selected for a drop-down list
36	Save and Take Balance	S+12N	Amount	
37	Percentage of the Outstanding Balance Due	5N	Percentage	nn.nnn (assumed decimal)
38	Payment Includes	2A		IO – Interest only PI – Principal plus interest
39	Date of Last Payment	8N	Date	

40	Principal	S+12N	Amount	
41	Interest	S+12N	Signed Amount	
42	Account to Debit	15 ANS		
43	Multifunction Loan	1A	Y/N	
44	Address of Property	Cvar 1..n	40 ANS	
45	Taxes	S+12N	Amount	
46	Insurance Premium	S+12N	Amount	
47	Interest Rate Type	1 N		Index to Labels 1="Fixed" 2="Variable"
48	Payment Method	1 N		Index to a table of text labels. See values below
49	Extended Description	65 ANS		For Name Changes
50	Balance in Taxes	S+12N	Amount	Tax Savings/Trust Account
51	Estimated Taxes	S+12N	Amount	Tax Savings/Trust Account
52	Taxes Paid to Date	S+12N	Amount	Tax Savings/Trust Account
53	Tax Portion of Payment	S+12N	Amount	Tax Savings/Trust Account
54	Balance to be Paid in Taxes	S+12N	Amount	Tax Savings/Trust Account
55	Next Payment in Taxes	S+12N	Amount	Tax Savings/Trust Account
56	Future Recovery Payment	S+12N	Amount	Tax Savings/Trust Account
57	Interest Rate on Tax Account	S+6N	Rate nnn.nnn	Tax Savings/Trust Account
58	Copy of Tax Account is Available	1A	Boolean	Tax Savings/Trust Account
59	Available Funds	S+12N	Amount	Commercial LOC
60	Interest Previous Month	S+12N	Amount	The amount of interest charged on the loan in the previous month.

6. RSP/TFSA Contract inquiry - all

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On if there is an extended bitmap
2*	**Contract No.**	12ANS		The contract number assigned by the institution
3	Contribution YTD	2x S+12N	Amount	The contribution made year-to-date Only the first amount is used.
4	Contribution PTD	2x S+12N	Amount	The contribution made since registration of the plan Only the first amount is used.
5	Balance	S+12N	Amount	The current plan balance
6	Opened	8N	Date	The date the contract was opened
7*	**Type**	3ANS		The type of contract (RSP/TFA/..)
8	Holder's Honorific	3ANS		The title used for the planholder. (Mr/Mrs/Ms/...)
9*	**Holder's Name**	28ANS		The name of the planholder
10*	**Holder's SIN**	9N		The social insurance number of the planholder
11	Holder's DOB	8N	Date	The date of birth of the planholder
12	Hold DOD	8N	Date	The date of death of the planholder
13	Alternate's Honorific	3ANS		The title used for the alternate contributor
14	Alternate's Name	28ANS		The name of the alternate contributor
15	Alternate's SIN	9N		The Social Insurance Number of the alternate contributor. If this value is non-zero and is different from Bit 10 - Holder's SIN, the plan is assumed to be a spousal plan.
16	Alternate's DOB	8N	Date	The date of birth of the alternate contributor
17	Alternate's DOD	8N	Date	The date of death of the alternate contributor
18	Beneficiary	28ANS		The designated beneficiary of the contract
19	Is Locked In	1ANS	Y|N	Locked-in indicator

Bit	Name	Format	Attribute	Description
20	Beneficiary/Successor Relationship	25ANS		Relationship of Beneficiary/Successor to the Holder of the contract (must be spouse or common-law spouse
21	Withdrawals YTD	S+12N	Amount	Total Withdrawals from this Plan YTD
22	Contribution Room, this year	S+12N	Amount	Amount that can still be contributed to this PLAN

Note: Bits 13-17 inclusive *only* apply to RSP contracts.

Mandatory fields

The banking system can return any of the data elements to the *MemberDirect*® system with the exception of the following elements, which are mandatory and must be present in every RRSP and TFA contract reply:

2 Contract Number
7 Type
9 Holder's name
10 Holder's SIN

For RSP contracts, if the contract has an alternate, Data Element 14 - Alternate's Name and Data Element 15 - Alternate's SIN is also mandatory.

7. RRIF Contract inquiry - all

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On if there is an extended bitmap
2*	**Contract Number**	12ANS		The RRIF contract number
3*	**RIF Type**	3ANS		'REG', 'SPO' or 'LIF'
4*	**Plan Holder's Name**	28ANS		The name of the plan holder
5	Alternate's Name	28ANS		Spouse's name, if type is 'SPO'.
6	Payment Amount	S+12N	Amount	Amount to be paid out
7	Payment Date	8N	Date	Date of the next payment
8	Last Payment Date	8N	Date	Date of the previous payment
9	Frequency	1ANS	Frequency	Frequency and length for RRIF payments
	Length	3N		
10	Payment To Indicator	3ANS		TSF, CHQ or AFT
11	Payment BIN	10N		BIN, branch, Member ID, Product Type and ID for RRIF payments
	Payment branch	3N		
	Payment Member ID	12N		
	Payment Product Type	5ANS		
	Payment Product ID	5ANS		
12	Payment Basis	3ANS		MIN for minimum payout or SPE for specified payment.
13	Balance	S+12N	Amount	Current plan balance
14	Beneficiary's Name	28ANS		
15	Maximum Annual Payment	S + 12N	Amount	Maximum payments that the client can take in the year - LIF & LRIF only
16	Funds Origin	10 ANS		Originating province of the funds (such as BC, AB, etc.).

* - Mandatory field

Mandatory fields

The banking system can return any of the data elements to the *MemberDirect*® system with the exception of the following elements, which are mandatory and must be present in every RRIF Contract reply:

2   Contract Number
3   Type
4   Holder's name

8. Member profile inquiry

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On if there is an extended bitmap
2*	**Given Names**	CVAR 1..6 Count x 20ANS		The member's given names
3	Surname	60ANS		The member's surname
4*	**Date of Birth**	8N	Date	The member's date of birth
5	Sex	1ANS		'M' or 'F'
6*	**Address Lines**	CVAR 1..4 Count x 30ANS		The member's street address
7*	**City**	30ANS		The member's city or town
8*	**Province/State**	30ANS		The member's province or state
9*	**Postal Code**	10ANS		The member's postal code
10*	**Country**	30ANS		The member's country
11	Home telephone	12N		The member's home telephone number
12	Work telephone	12N		The member's work telephone number
13	Work tel. extension	4N		The member's work telephone extension
				Note: Phone numbers must be only numeric and left-padded with zeros. If a number does not exist, only blank spaces should be sent.
14	FAX	12N		The member's FAX number*
15	SIN	9N		The member's SIN*
16	E-mail	60ANS		The member's E-mail address
17*	**Permission Flags**	16ANS	Y/N * 16	The following permission flags have currently been defined: 1. Opt in/out of E-statements Values: Y|N 2. E-statement notification - allows members to control when to notify them that E-statements are available. The notification values are: 0 = No email

Bit	Name	Format	Attribute	Description
				1 = Send notification to Primary email
				2 = Send notification to Secondary email
				B = send notification to *both* email addresses
				Promotional communications flags
				Values for 3 – 7 Y||N 3 = Mail 4 = Inserts in Administrative Communications
				5 = Telephone 6 = Email 7 = Message Box 8 = Mandatory notification Y||N N = Not mandatory for the member to receive e-Statement notifications from the institution Y = It is mandatory for the member to receive e-Statement notifications from the institution
				If permissions are not used, they should be represented by space characters or the corresponding bit should be turned off in the Display bitmap.
18	Secondary Email	60ANS		The member's secondary email address
19	External System Access	LLvar	ANS	2 length bytes – "NN" followed by "NN" characters. The data in this field will be used as an access code to external systems.
20	Job title	35ANS		The member's job title
21	Politically Exposed Foreign Person	1A	Boolean	T | F (a blank space indicates that this value has not been set yet)
22	Remote Deposit Capture (RDC) Profile	2N		A value to indicate the risk profile of the member 00 – 99. The higher the value, the higher the risk is, while the lower the value of cheques that can be deposited by the member by RDC.
23	ePost Customer ID	36 ANS		
24	Reserved Field			
25#	Card PANs and Info (used by digital card services)	CVar 0..9	Variable ANS	0 to 9 fields variable length of from 0 to (n * 25)

Bit	Name	Format	Attribute	Description
				List of Cards – 0 is the minimum and 9 is the maximum number. Formatted as: Card Type 1A "D" = Debit, "C" = Credit Card PAN 19N Left justified, space filled on the right Expiry Date 4N YYMM Filler 1N value=0
	If no cards are available for digital card services, *either* the bit in the Parsing Bitmap in BM48 Form 00014 can be set with a value of 0 and no data *or* the bit can be set with the Cvar field value set to 0 (no cards).			

* - Mandatory field

\# - Mandatory field for a request for/reply with card PANs

Use of the member profile in a digital card services environment

The member profile (ISO8583 bitmap field 123 Form xxx13 Appendix B:8) is used to pass card PAN information from the banking host to the MemberDirect system for digital card services such as mobile payments and card lock.

An ISO8583 Member Profile Request is sent to the banking system to retrieve the card PANs associated with the customer when the customer begins the registration process for digital card services.

> **Note**: There are no changes to the Terms and Conditions processing. When a financial institution turns on digital card services feature, the Disclaimer Flag for all its customers is set to *Not Read* for all customers. This forces the process to indicate to the *MemberDirect*® system to display the new Terms and Conditions to the customer at their next login.

Member profile inquiry

The *MemberDirect* system in digital card services uses this message to pre-populate digital card services app with the list of debit cards available to the customer for payments. If there is more than one card returned from the banking system, the customer will select one of them to become the default card for making digital card services. The *MemberDirect* mobile app will request the member profile when the customer registers, deregisters or changes the default card to use.

The display bitmap in Data Element 48 Form 00012 will be set to Bit 25 to indicate that *only* the card PAN information is being requested.

Process flow details

The process flow is shown below for the following messages:

- Request for Member Profile (PAN List)
- Reply with Member Profile (PAN List)

Request for Member Profile - PAN List

When a customer selects **Mobile Pay** from the Mobile App Home page (possibly following a log in), the Mobile App will request the Member Profile and PAN list. In this case, *only* Bit 25 will be set in the display bitmap in BM 48 Form 00012.

A list of 0 to 9 card records in the same format will be returned to this request. If 0 cards are returned, either:

- Bit 25 will be set to zero and BM123 Formxxx13:B08 will *not* be returned OR
- Bit 25 will be set to "1" and returned with a CVar value of "0"

Reply with Member Profile – PAN List

The *MemberDirect*® server will expect that Bitmap 123 Form xxx13:B8 Bit 25 will be sent with the Number of Cards set to "0" (or higher) with the other fields set appropriately. It is appropriate to return no cards to the mobile device if none have been activated for digital card services use. If there are zero cards, *either* return the Member Profile with Bit 25 CVar value set to "0" (zero cards) and no content *or* do not set Bit 25 in the Display Bitmap in BM48 of the Reply message. Otherwise, CVar will contain the count of cards and the record values will be:

T = Card Type (C|D for Credit |Debit respectively)

pppppppppppppppppppp = the 19-digit PAN field left justified and space filled on the right
xxxx = the expiry date in the format YYMM followed by a filler character = "0"

9. RESP contract inquiry – all (currently not implemented)

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	0N		On if there is an extended bitmap
2*	**Subscriber #1 Number**	14N		Subscriber #1 member number
3*	**Subscriber #1 Name**	40 A		Subscriber #1 name
4	Subscriber #1 Address Lines	CVA 1..3 Count x 30ANS		Subscriber #1 street address
5	Subscriber #1 City	30ANS		Subscriber #1 city or town
6	Subscriber #1 Province/State	30ANS		Subscriber #1 province or state
7	Subscriber #1 Postal Code	10ANS		Subscriber #1 postal code
8*	**Subscriber #2 Number**	14 N		Subscriber #2 member number
9*	**Subscriber #2 Name**	40ANS		Subscriber #2 name
10	Subscriber #2 Address Lines	CAR 1..3 Count x 30ANS		Subscriber #2 address
11	Subscriber #2 City	30ANS		Subscriber #2 city or town
12	Subscriber #2 Province/State	30ANS		Subscriber #2 province or state
13	Subscriber #2 Postal Code	30ANS		Subscriber #2 postal code
14	Contract Number	12N		The RESP contract number
15	RESP Type	6ANS		Family 'FESP' or individual 'RESP'
16	Plan Maturity	8N	Date	The maturity date of the plan
17	Plan Inception	8N	Date	The inception date of the plan
18	Beneficiary Number	CVAR 1..10 Count x 12N		A list of beneficiary member numbers
19	Beneficiary Name	CVAR 1..10 Count x 40ANS		A list of beneficiary names for the plan. Note that there must be a beneficiary name specified for each beneficiary number (bit 12).

(Cont'd.)

Bit	Name	Format	Attribute	Description
20	Plan Holder Message Key	3ANS		This three-letter key is to look up a message from a properties file. The primary purpose of this mechanism is to provide a means to tell the member that there are more beneficiaries than can be displayed.
21	Room	S + 12N	Amount	CESG room available
22	YTD Contributions	S + 12N	Amount	The contributions received year to date
23	Lifetime Contributions	S + 12N	Amount	The contributions since inception of plan
	Contribution Balance	S + 12N	Amount	The contribution receipts less withdrawals
25	Lifetime Contribution Withdrawal	S + 12N	Amount	The contribution withdrawals paid to date
26	Lifetime CESG	S + 12N	Amount	The CESG received since inception of plan
27	Balance CESG	S + 12N	Amount	The current CESG balance in the plan
28	YTD CESG	S + 12N	Amount	The CESG received year to date
29	Rep aid CESG	S + 12N	Amount	The CESG returned to HRDC since inception date
30	Lifetime EAP	S + 12N	Amount	The EAP paid to date
31	YTD EAP	S + 12N	Amount	The EAP paid year to date
32	Lifetime AIP	S + 12N	Amount	The AIP withdrawals paid to date

Mandatory Fields

The banking system can return any of the data elements to the *MemberDirect*® system with the exception of the following elements, which are mandatory and must be present in every RESP Contract reply:

2   Subscriber #1 Number
3   Subscriber #1 Name
8   Contract Number
9   RESP Type

10. RESP Beneficiary inquiry (currently not implemented)

Bit	Name	Format	Attribute	Description
1	Next Bitmap Exists	1N0N		On if there is an extended bitmap
2*	Contract Number	12N		The RESP contract number
3	Beneficiary Number	12N		The beneficiary's member number
4	Beneficiary Name	40 ANS		The beneficiary's name
5	Beneficiary Address Lines	CVAR 1..3 Count x 30ANS		The beneficiary's address
6	Beneficiary City	30ANS		
7	Beneficiary Province/State	30ANS		
8	Beneficiary Postal Code	10ANS		
9	Date of Birth	8N	Date	The beneficiary's date of birth
10	SIN	9N		The beneficiary's social insurance number
11	21st Year	8N	Date	The date that the beneficiary turns 21
12	Tainted Until	8N	Date	The beneficiary is not eligible for CESG until after this date
13	EAP Eligible	1ANS		Indicates if beneficiary is eligible for Education Assistance. 'Y' or 'N'
14	CESG Applied	1ANS		Indicates if CESG has been applied for. 'Y' or 'N'
15	CESG Eligible	1ANS		Indicates if beneficiary is eligible for CESG. 'Y' or 'N'
16	Room	S + 12N	Amount	The CESG room available
17	YTD Contributions	S + 12N	Amount	The contributions received year to date
18	Lifetime Contributions	S + 12N	Amount	The contributions received since inception of plan
19	Contribution Balance	S + 12N	Amount	The contribution receipts less withdrawals

(Cont'd.)

20	Lifetime Contribution Withdrawal	S + 12N	Amount	The contribution withdrawals paid to date

21	Lifetime CESG	S + 12N	Amount	The CESG received since inception of plan
22	Balance CESG	S + 12N	Amount	The current CESG balance in the plan
23	YTD CESG	S + 12N	Amount	The CESG received year to date
24	Repaid CESG	S + 12N	Amount	The CESG returned to HRDC since inception date
25	Lifetime EAP	S + 12N	Amount	The EAP paid to date
26	YTD EAP	S + 12N	Amount	The EAP paid year to date
27	Lifetime AIP	S + 12N	Amount	The AIP withdrawals paid to date
28	Pre 98 Contributions	S + 12N	Amount	
29	Post 97 Unassisted Contribution	S + 12N	Amount	
30	Post 97 Assisted Contribution	S + 12N	Amount	
31	Income Portion EAP	S + 12N	Amount	
32	CESG Portion EAP	S + 12N	Amount	
33	Pre 98 Contribution Withdrawal	S + 12N	Amount	
34	Post 97 Unassisted Contribution Withdrawal	S + 12N	Amount	
35	Post 97 Assisted Contribution Withdrawal	S + 12N	Amount	

Mandatory fields

The banking system can return any of the data elements to the *MemberDirect*® system with the exception of the following elements, which are mandatory and must be present in every RESP Contract reply:

2 Contract Number

11: Credit/debit transaction (for real-time payments)

Bit	Name	Format	Attribute	Description
1*	Next Bitmap Exists	0N		On if there is an extended bitmap If Next Bitmap Exists is on, it will be located in Field 65.
2*	Transaction Type	4AN		AFT — AFT B2BO — My Business-to-My Business Originator B2BR — My Business-to-My Business Receiver CDCO — Corporate Deposit Capture EDI — EDI Straight-through IEMT — Interac® e-Transfer IOPO — Interac Online Payment Originator IOPR — Interac Online Payment Return/Refund LAFT — Late AFT M2MO — Me-to-Me Originator Transaction M2MR — Me-to-Me Receiver Transaction OIRO — Online International Remittance PAYR — Payroll RDCO — Remote Deposit Capture RETN — AFT Return Item RFMO — Request for Money Originator RFMR — Request for Money Receiver USDX — US Dollar Transfer WTXI — Wire Transfer International WTXD — Wire Transfer Domestic WTXU — Wire Transfer US Other transaction types will be added as necessary
3*	Transaction Code	8ANS		These codes will be specific to the Transaction Type. For example, Late AFT will use the existing AFT transaction codes. For Me-to-Me (M2M), see the *Transaction Codes* following this form description.
4*	AFT Code	3ANS		AFT Codes as defined in Appendix C or blank
5*	Item Trace Number	30ANS		
6*	Payer Name	35AN		

Bit	Name	Format	Attribute	Description
7*	Payee Name	35AN		
8*	Hold Flag	1A	Y|N	
9*	Hold Amount	12N	Amount	Two decimal places implied
10*	Description	40ANS		Transaction Description field
11*	Proposal Flag	1A	Y|N	
12	Ordering Customer	4 * 35 ANS		For MTS
13	Ordering Institution	4 * 35 ANS		For MTS
14	Beneficiary Customer	4 * 35 ANS		For MTS
15	Details of Payment	4 * 35 ANS		For MTS
16	Return Reference Number	7N		For items returned within AFT.
17	Originator Direct Clearer User ID	10AN		For returned items
18*	Validate Flag	1A		"V" = validate this transaction " " = validated by originator
19	Tier Level	2N		Indicates the tier level of fees that will be charged for the transaction. Currently for e-Transfer transactions only, but may be used for other transaction types in the future.
20	Sender's eMail Address	60ANS		The sender's e-mail address
21	Recipient's eMail Address	60ANS		The recipient's e-mail address
22	Sender's phone number	15ANS		
23	Recipient's phone number	15ANS		

Note: 1. * - Bits 1 through 11 are Mandatory.

2. Bits 12 through 17 are conditional on the type of transaction.

3. Bits may be added from time to time as transaction types are added or additional information is required

The content and inclusion of Fields 6, 7 and 20-23 can be explicitly managed in the *MemberDirect*® at the brand level as follows:

eTransfer Sender Name Fill
Use current behaviour, fill on Debit only, fill on Credit Only or fill on both **eTransfer**

> **Recipient Name Fill**
> Use current behaviour, fill on Debit only, fill on Credit Only or fill on both
>
> **eTransfer eMail Addresses Fill**
> Don't fill, Don't Send (Default Value) or fill in both fields and Send
>
> **eTransfer Cell Phone Number Fill**
> Don't fill, Don't Send (Default Value) or fill in both fields and send

Transaction codes

The Transaction Code (Field 3 above and Field 26 in Form 2 – Future-dated Funds Transfer) indicates which channel the transaction originated in, whether the transaction completed via real-time or AFT and what the settlement channel is. The code may be used to determine fees for the transaction.

The Transaction Code format is DDSRCCSO. The following table shows how and where the transaction codes are used:

DD Receiver Channel	SR Settlement Type (Receiver)		CC Originator Channel		SO Settlement Type (Originator)	
	Code	Receiver Is	Code	Channel Is	Code	Originator Is
AF = AFT	BC	BC CU	WB	Generic Web Banking	BC	BC CU
RT = Real-time	AB	AB CU	MI	MDi	AB	AB CU
	SK	SK CU	MR	MDO	SK	SK CU
	MB	MB CU	MB	MDB	MB	MB CU
	ON	ON CU	IV	Touch-Tone Telephone	ON	ON CU
	NS	Eastern CU	IC	Inter-CU	NS	Eastern CU
	BT	Bank /Trust	TL	Teller Interface	BT	Bank/Trust
	OI	Other FI	MW	Mobile Web		
			Others	Others as required		

12: External accounts (for real-time payments)

Bit		Name	Format	Description
1		Next Bitmap exists	0N	
2*		External Account	42ANS	
		{		
	1	External Account ID	1N	"0"
	2	Account Format Code	2N	"00" = CPA
	3	Occurrence Number	5ANS	
	4	Account Number	34ANS	
		{		The following fields (A, B, C) will vary, depending on what format code is present. Currently described is the CPA account format.
	A	Route	4N	Per CPA begins with 0 as in 0809
	B	Transit	5N	Per CPA
	C	Account	25AN	Left-justified, right-padded with spaces or following CPA STD006 for MICR Account. Format may contain embedded spaces or dashes.
		}		
		}		
3*		Currency Code	3N	
4*		Description	40ANS	
5*		Transfer To Flag	1A	
6*		Transfer From Flag	1A	
7		Payee Name	35ANS	
8		Filler LINES FOR ADDRESS 1	35ANS	
9		Filler LINES FOR ADDRESS 2	35ANS	
10		Filler lines for address 3	35ANS	
11		Filler lines for address 4	35ANS	
12		Filler lines for address 5	35ANS	

Bit		Name	Format	Description
13		Account Status flag	1A	(P)ending, (A)ctive – Optional Field
14		Account Type	1A	(B)usiness, (P)ersonal

      * = Mandatory field

CPA transaction codes

The following table shows more specific values that can be associated with Appendix B 11, Field 4 – CPA Transaction Code for inter-institution transactions. Initially, only two of these codes will be used.

Note: *Debit* transactions originating via the *MemberDirect*® online system will carry a CPA Transaction code of 650 – Inter-FI Funds Transfer Debit, while *credit* transactions originating via the *MemberDirect* system will carry a CPA transaction code of 450 (Miscellaneous Payments).

Tran Type	Description
450	Misc. payments (used in real-time credits)
650	Inter-FI funds transfer debit (used in real-time debits)

Appendix C – Customer benefit types and product categories

This appendix explains how customer benefit types are used to determine the foreign exchange rates. It also describes and lists the product categories used in the *MemberDirect*® system.

Using the benefit type to determine the foreign exchange rate

The *MemberDirect* system uses the customer benefit type to determine the foreign exchange rate. The rules for determining the foreign exchange appear below, where XXX is the benefit type.

1. If the foreign exchange rates list contains a rate for the XXX benefit type, then the system uses the XXX rates.

2. If there are no rates in the rate list for the XXX benefit type, then the system uses the rates for the REG benefit type.

3. If there are no rates in the list for either XXX or REG, then the system cannot make any foreign exchange calculations.

Product categories

Product categories are a top-level classification schema. All products and services are classified in one or more of these categories. The *MemberDirect* system applies some inherent banking rules based on the categories. For instance, in the Funds Transfer window, the system does not display products classified as LOAN, TERM, SHRS and RSPx in the Transfer From list box. The "descriptors" of a product category (Product Description, Product Type and Product ID) are institution defined.

The product type and ID uniquely identify a product within a membership, while the business rules shown below use the product categories.

Each institution defines the values in the:

- Product Description (40 ANS)
- Product Type (5 ANS)
- Product ID (5 ANS)

ISO4217 Currency Code is used in Currency (3 N); 124 = Canadian Dollar; 840 = US Dollar.

Product category business rules

The *MemberDirect* system uses the following generic business rules, based on the four-character product category and the three-character customer benefit type.

Valid product categories

The valid product categories are:

DMDS – Demand savings
DMDC – Demand chequing
DMDF – Demand foreign funds
DMDB – Business accounts (may have chequing privileges)
DMD? – Miscellaneous demand ("?" represents any character other than S, C, B or F)
RSPV – Demand RRSP
RSP? – Term RRSP ("?"= any character other than V)
RSIB – Bond RRSP
RSIM – Mutual Fund RRSP
RSIE – Equity RRSP
RIFV – Demand RRIF
RIF? – Term RRIF ("?"= any character other than V)
RIIB – Bond RRIF
RIIM – Mutual Fund RRIF
RIIE – Equity share RRIF
ESPV – Dand RESP
ESP? – Term RESP
ESIB – Bond RESP
ESIM – Mutual Fund RESP
ESIE – Equity RESP
TERM – Term deposit
LOAN – Loan account
SHRS – Shares account
BOND – Bond account
FUND – Mutual fund account
EQTY – Equity share account
TFAV - Tax Free Savings Account (variable/demand type)
TFA? - Tax Free Savings Account (fixed/term type)

The following categories apply only to all-in-one combination accounts:

ONEG   – Account group summary
ONEV   – Variable portion of account
ONEF   – Fixed portion of account
*ONEC   – Chequing portion of account
*ONES   – Savings portion of account
*ONET   – Term portion of account
*ONEL   – Fixed loan portion of account
*ONEM   – Fixed mortgage portion of account
* - Not currently supported as categories

Business rules

The business rules for use of the above product categories are:

1. The valid product categories for bill payment accounts are DMDS, DMDC, DMDB and DMD? and ONEV.

2. The valid product categories for the transfer funds are:
    - From DMDS, DMDC, DMD?, TFAV or ONEV to any DMDS, DMDC, DMD?, TFAV or ONEV account; to LOANS, ONEF or RSPV account (if the function is turned on in the profiles.properties file in the *MemberDirect*® system); or any newly created account.
    - From DMDF: any DMDF with the same currency type and from DMDF to any DMD? account (if configured to do so in the profile.properties files)
    - From an RSPV TFAV or RIFV to any RSPV, RIFV, TFAV, RSP? or RIF? with the same contract number.

3. Stop payments can be made only on DMDB, DMDC and ONEV accounts.

4. The ONEG category defines a Summary account. The ONEG account is a view of summary information about any ONEF, ONEV, ONEC, ONES, ONEL, ONEM or ONET category of account.

5. The rules for LOANS, TERMS, CHEQUING and SAVINGs categories of accounts apply to their ONE? account category counterpart (that is, ONEF, ONEL, ONET, ONEC, ONES and ONEM).

> **Note:** There are currently no business rules that apply to the RESP products as they are currently non-transactional.

Product category examples

The following tables contain *examples* of how products are grouped into each category.

> **Note**: The banking system determines the content of the Product Type and Product ID. In general, the Product Type contains information about the product type. Some banking systems use the Product ID as an instance identifier. However, the *MemberDirect* system does *not* impose any restrictions provided that the pair of values persists over time within a membership.

Demand products

DMDC (Chequing Account) Examples

Product Description	Category	Currency	Product Type	Product ID
Chequing	DMDC	124	C	blank
Package	DMDC	124	Z	blank
Chequing/Savings	DMDC	124	Z	blank

DMDS (Savings Account) Examples

Product Description	Category	Currency	Product Type	Product ID
Plan 24	DMDS	124	P	blank
Daily Interest	DMDS	124	N	blank
Chequing/Savings	DMDS	124	Z	blank
T-Bill Savings	DMDS	124	B	blank

DMDB (Business Account) Examples

Product Description	Category	Currency	Product Type	Product ID
Independent Business	DMDB	124	Z	blank
Prime Business	DMDB	124	Z	blank
Community Service	DMDB	124	Z	blank

Note: Business accounts (DMDB) may include chequing privileges.

DMDF (Foreign Fund Account) Examples

Product Description	Category	Currency	Product Type	Product ID
US Dollar Savings	DMDF	840	M	blank
US Dollar Chequing	DMDF	840	J	blank

Loan products examples

Product Description	Category	Currency	Product Type	Product ID
Residential Mortgages	LOAN	124	MTG	1 or 2
Floating Rate Mortgage	LOAN	124	FRM	1 or 2

Note: 1 in **Product ID** means 1st mortgage and 2 means 2nd mortgage.

Term products examples

Product Description	Category	Currency	Product Type	Product ID
Short Term Redeemable	TERM	124	SHR	G…L, Q…V
Long Term Redeemable	TERM	124	FLR	A…E
Long Term Non-Redeemable	TERM	124	DEB	P,U,Q,V,R,S,T
Monthly Income Non-Redeemable	TERM	124	DEB	A…E
Compound Interest Non-Redeemable	TERM	124	DRC	A,B,C
Community Investment Non-redeemable	TERM	124	DEB	G…K

RRSP products examples

Product Description	Category	Currency	Product Type	Product ID
RSP Variable Redeemable	RSPV	124	X	blank
RSP T-Bill Variable Redeemable	RSPV	124	A	blank
RSP Fixed Term Non-redeemable	RSPF	124	RSP	A...G,M,N
RSP Community Investment Non-redeemable	RSPI	124	RSP	O,Q,R,S,T
RSP 3-Year Escalator	RSPW	124	RSP	W
RSP 5-Year Escalator	RSPX	124	RSP	X
RSP Convertible	RSPY	124	RSP	Y
Bond RRSP	RSIB	124	RSP	?
Mutual Fund RRSP	RSIM	124	RSP	?
Equity Shares RRSP	RSIE	124	RSP	?

> **Note:** The above RRSP examples also apply to the RRIF product, where the RRIF categories will be RIFV, etc.

RRIF products examples

Product Description	Category	Currency	Product Type	Product ID
RRIF Variable Redeemable (demand)	RIFV	124	?	
Bond RRIF	RIIB	124	?	
Mutual Fund RRIF	RIIM	124	?	
Equity Shares RRIF	RIIE	124	?	

RESP products examples

Product Description	Category	Currency	Product Type	Product ID
RESP Variable Redeemable (demand)	ESPV	124	?	?
Bond RESP	ESIB	124	?	?
Mutual Fund RESP	ESIM	124	?	?
Equity Share RESP	ESIE	124	?	?

Investment products examples

Product Description	Category	Currency	Product Type	Product ID
Bond	BOND	124	?	?
Mutual Fund	FUND	124	?	?
Equity Share	EQTY	124	?	?

SHRS products (shares) examples

Product Description	Category	Currency	Product Type	Product ID
Membership shares	SHRS	124	S	blank
Investment Shares	SHRS	124	E	blank
Shares Savings	SHRS	124	D	blank
RSP Shares Savings	SHRS	124	U	blank

Appendix D – Function codes

Code	Description
200-299	Used in 2200, 2201 messages
200	Original financial request/advice
280-299	reserved for private use
300-399	Used in 2300 messages
301	Add a record
302	Change record (to be used when fields within a record are being replaced. If the entire record is being changed code 304 is recommended)
303	Delete Record
304	Replace Record
305	Inquiry
306	Replace File
307	Add file
308	Delete file
380-399	Reserved for Private Use
650 – 699	Used in 2600 messages for administrative messages
650	Unable to parse message
689-699	Reserved for private use
800-899	Used in 2804 messages
801	System Condition – Sign On
802	System Condition – Sign Off
803	System Condition – Target System Unavailable
805	System Condition – Special Instruction
811	System Security - Key Change
812	System Security - Security Alert
813	System Security - Password Change
814	System Security - Device Authentication
821	System Accounting - Cutover
822	System Accounting - CheckPoint
831	System Audit - Echo test
880-899	Reserved For Private Use
899	System Status Request - Sent from the *MemberDirect*® server to the Host - Expected Action Code responses are 000, 803, 880 and 881

Code	Description
970-999	Reserved For Private Use

Appendix E - Action codes

Code	Description
000-099	Used in 2210 messages to indicate that the transaction has been approved
000	Approved
007	Approved, Update Integrated Chip Card (SmartCard)
080-099	Reserved For Private Use
100-199	Used in 2210 messages to indicate transaction has been denied (not requiring card pickup)
101	Expired Card (SmartCard)
102	Suspected Fraud
104	Restricted Card (Supervisory ID used for testing purposes)
106	Allowable PIN retries exceeded - No more accesses allowed today
110	Invalid Amount - (too large or negative)
111	Invalid Card Number (For smart cards this is an unknown card for this issuer) and also for invalid member or member not found
115	Requested Function Not Supported
116	Not Sufficient funds
117	Incorrect PIN
118	No Card Record - See 111
121	Exceeds Withdrawal Limit
122	Security Violation
123	Exceeds Withdrawal Frequency Limit
126	Invalid PAC Block
127	PAC Length Error
128	PAC key synch error
129	Suspected Counterfeit Card (SmartCard)
180	Invalid Account
181	Exceeds receiving (deposit) amount limit
182	Exceeds receiving (deposit) frequency limit
183-199	Reserved For Private Use
200-299	Used in 2210 messages to indicate that the transaction has been denied and requires card to be picked up. For Home Banking, the client software should disable itself.
201	Expired Card (SmartCard) - in this case message to cardholder to get a new card

Code	Description
202	Suspected Fraud
280-299	Reserved For Private Use
300-399	Used in 2310 messages to indicate the result of the file action
300	Successful
301	Not Supported by Receiver
302	Unable to locate Record or File
303	Duplicate Record, Old Record Replaced
304	Field Edit Error
305	File Locked Out
306	Not Successful
307	Format Error – Transaction Failed Edit Check
308	Duplicate, New Record Rejected
309	Unknown File
380-399	Reserved for Private Use
400-499	Used in 2410 messages
400	Reversal Accepted
600-699	Used in 2610 messages
600	Accepted
601	Not able to trace back to original transaction
602	Invalid Reference Number
603	Reference Number/PAN incompatible
606	Request Cannot be fulfilled
680-699	Reserved for Private Use
800 - 899	Used in 2814 messages
800	New Key Accepted Accepted
000	OK in Reply to a System Status Request
803	Target System Unavailable
880	Host in writes-off mode: Host disallows database updates. Some *MemberDirect*® functions such as the creation of investment products, stop payment and future-dated funds transfer require the host to be in writes-on mode, when the database can be updated.
881	Host in writes-on mode

Code	Description
880-899	Reserved For Private Use
900 - 949	Used in Request Response messages to indicate transaction could not be processed
902	Invalid Transaction
903	Re-enter Transaction
904	Format Error
905	Acquirer Not Supported By Switch
907	Card Issuer or Switch Inoperative
909	System Malfunction
911	Card Issuer Timed Out
912	Card Issuer Unavailable
916	MAC Incorrect
917	MAC key Sync Error
918	No Communication Keys Available for Use
919	Encryption Key Sync Error
920	Security Software/Hardware Error - Try Again
921	Security Software/Hardware Error - No Action
922	Message Number Out Of Sequence
940	Database failure
941	XML parsing/formatting error
942	Banking system timeout
943	Banking system unavailable
944	FI validation error
945-948	Reserved for private use
949	System error
990-991	Reserved for private use
992	Inconsistent state error
993-999	Reserved for private use

Appendix F - Amount type codes

Code	Description
00-19	Account Related Balances
01	Account Ledger Balance
02	Account Available Balance
03	Amount Owing
04	Amount Due
05	Account Available Credit
16-19	Reserved For Private Use
20-39	Card Relate Amounts
20	Amount Remaining This Cycle
36-39	Reserved For Private Use
40-59	Transaction Related Amounts
40	Amount Cash
41	Amount Goods and Services
56-59	Reserved For Private Use
90-99	Reserved For Private Use

Appendix G – *MemberDirect*® Business Version ISO messaging requirements and suggestions

The *MemberDirect* Business Version adds several features to the retail *MemberDirect* system to facilitate web banking for corporate and business users. Two of these features, Auditing and Membership Aggregation, have some impact on the ISO8583 messaging interface between the banking host and the *MemberDirect* system.

The Auditing functions require changes in a host's implementation as shown below. There are no *required* changes to implement Membership Aggregation, but there are some *suggested* changes.

Audit trail requirements

As part of its Audit Trail feature, *MemberDirect* Business Version keeps a database of all transactions originating from it, including future-dated transactions. Therefore, *MemberDirect* Business Version needs a way to relate future transactions returned by the banking system with future transactions stored in the Business Version's database. To ensure that this relationship is possible, the Business Version requires that the Create Future-dated Funds Reply (Process Code 0111055) in Form 13 B-2 *must* be identical to the Form 13 B-2 in the Future-dated Funds Transfer Inquiry Reply (Process Code 0029055) as shown in the following table.

Future-dated Transfers					
2300	Create Future-dated Funds Transfer	11155	1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, 102, 103, 123-127	4	00013 B-2
2310		11155	1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), (102), (103), 123-127	5	00013 B-2
2600	Future Dated Funds Transfer Inquiry	02955	1, 2, 3, 7, 11, [22], 48, {47|52}, {53}, 62, 63, {72}, {73}, 102	12	-
2610		02955	1, (2), (3), 7, (11), 39, {44}, 48, {53}, (62), (63), [72], 102, 123-127	14	00013 B-2 **Must be identical to 00013 B-2 highlighted above**

Membership aggregation – suggested changes

MemberDirect Business Version allows a user to login to several of their web banking institutions with older implementations of this specification, especially for a user with multiple memberships.

To reduce this login delay, we suggest the banking host implement the latest PAN login as well as all other multi-membership features included in the ISO8583 specification. All messages with type = 2xxx help support multi-membership web banking.

Appendix H – Statement export functionality

This appendix provides information and procedures for implementing statement export functionality using the OFX (Open Financial Exchange Standard). It will allow *MemberDirect*® users to download statement information to third-party applications such as Quicken™, QuickBooks™ and Microsoft Money™.

Implementation procedures

In order to implement this new functionality, you will need to obtain a Bank ID <BANKID> and to download to Quicken™, an <INTU.BID> ID. You will also need to ensure that your host banking system can generate a Financial Institution Transaction Identifier (<FITID>) as described below.

Obtaining a Bank ID (<BANKID>) and <INTU.BID>

The <BANKID> and <INTU.BID> > identify your application as a legitimate OFX client to an Intuit server so that Quicken will be able to import your OFX Statements. These values will be assigned to your institution. Contact Central 1 for further information.

Generating financial institution transaction identifiers (<FITID>)

The OFX <FITID> uniquely identifies each transaction. Using the <FITID>> , OFX applications can ensure that a given transaction is only imported once, thus protecting the user from errors caused by importing a statement twice or importing two statements with overlapping dates. The client's Personal Finance Manager (PFM), such as Quicken or Microsoft Money™, will ignore redundant transactions.

Your institution must implement the Financial Institution Transaction ID on your host system. Each transaction on the host must be logged with a unique identifier (<FITID>) that can be used to trace the transaction. The <FITID> can be up to 255 characters in length, but for performance reasons, we strongly recommend using no more than 32 characters. The <FITID> is included as a Statement Attribute with each statement item. Information on modifying the Statement Attribute appears below.

The <FITID> must be both unique and unchanging. It must be unique within a given account and always be the same for a transaction - it must not change.

Note that a transaction such as a transfer is recorded as *two* transactions, a debit on one account and a credit on another. Both the debit and the credit must have unique <FITID> values.

The required modification is to add a new attribute to the statement transaction bitmap (Data Elements 123-127, Form 15). The new attribute number is 28 and it contains 13 alphanumeric characters. If a host banking system requires more than 13 characters for the <FITID>, it will divide the <FITID> into 13-character segments and include each segment as an instance of attribute 28 in the transaction message. The order of the segments is from the least to the most significant (that is, from right to left). The last segment is right-padded with blanks if the <FITID> length is not a multiple of 13.

For more information on statement transaction bitmaps, refer to description of the Statement Inquiry in *Chapter 2 – Messages Overview*; for information on statement transaction attributes, see *Statement Attribute Codes* in *Appendix J- Statement Attribute Codes*.

Suggestion for Implementing an <FITID>

Host banking systems that do not already have an easy means for generating a unique <FITID> may consider using the following method. Use a combination of the transaction entry and effective dates plus a sequence number. This will allow the *MemberDirect*® system to distinguish between transactions with the same entry and effective dates. If the relative ordering of transactions with the same entry and effective dates is always the same, the sequence number can be calculated on the fly when statements are requested by the front end.

Transaction reversals and exporting statements

Transaction reversals require special attention when implementing OFX. Since the client's PFM imports OFX Statements, a record is kept of each transaction and the PFM keeps track of the current balance. If a user downloads a statement containing transactions that are later reversed, the PFM will be unaware of the reversal and its account balance will no longer coincide with the user's actual account balance. For this reason, it is critical that reversals be included in exported statements, although the user may not see reversals on the statements they receive in the mail or on statements they view through the *MemberDirect* system.

When the *MemberDirect* system retrieves statements from the host, it is not known at that point whether the statement is only for viewing or for OFX downloading. Therefore, it is necessary to include transaction reversals *every time there is a statement request*. The system offers two methods for handling reversals. In the first method, the host system handles reversals, while in the second, the *MemberDirect* system handles reversals.

Reversal handling by the host system

This reversal handling option involves adding a reversing transaction on the host. In this approach, the user will *always* see the reversed and reversing transactions, whether they are downloading the statements for viewing or for OFX export. The reversed transaction remains unchanged. The reversing transaction is a new transaction with a new <FITID> that offsets the transaction to be reversed. In this case, the reversed transaction *cannot* be removed from the host and must continue to be included in all statement downloads. For example, the system downloads the following transactions from the host:

	Effective Date	Posted Date	Transaction	FITID	Amount	Origin	Displayed
Transaction A	01/01/2013	01/01/2013	Deposit	2013010101	$10.00	HOST	Always
Transaction B	01/01/2013	01/01/2013	Interest Deposit	2013010102	$1.00	HOST	Always
Transaction C	01/01/2013	01/01/2013	Withdrawal	2013010103	-$5.00	HOST	Always

On the next day, the interest deposit of Transaction B is reversed and a corrected deposit is made. If the user downloads the statement again, the following transactions should be included from the host:

	Effective Date	Posted Date	Transaction	FITID	Amount	Origin	Displayed
Transaction A	01/01/2013	01/01/2013	Deposit	2013010101	$10.00	HOST	Always
Transaction B	01/01/2013	01/01/2013	Interest Deposit	2013010102	$1.00	HOST	Always
Transaction C	01/01/2013	01/01/2013	Withdrawal	2013010103	-$5.00	HOST	Always
Transaction D	01/01/2013	01/02/2013	Reversing Transaction	2013010104	-$1.00	HOST	Always
Transaction E	01/01/2013	01/02/2013	Interest Deposit	2013010105	$1.10	HOST	Always

Note that Transaction B is not removed. Transaction D reverses the effect of Transaction B and Transaction E is the new corrected amount. The user will *always* see all the transactions shown above.

Also note that the Effective Date for all transactions is the same, but the Posted Date is the date on which the correction is actually made. That is, the posted date for transactions D and E is the reversal date for Transaction D and the entry date for Transaction E.

Reversal handling via the *MemberDirect*® system

The second reversal option is have the *MemberDirect* system to handle the reversals. On the host side, an 'R' is added to the first character of the <FITID> for the original transaction to indicate that it has been reversed (for example, R1999010101). The *MemberDirect* system treats all transactions that have an <FITID> beginning with an 'R' as reversed transactions. In this case, reversed transactions are *not displayed* when the user views statements with the *MemberDirect*. Only OFX downloads display reversed transactions. If the above example used this method, it would appear as:

Original Transactions

	Effective Date	Posted Date	Transaction	FITID	Amount	Origin	Displayed
Transaction A	01/01/2013	01/01/2013	Deposit	2013010101	$10.00	HOST	Always
Transaction B	01/01/2013	01/01/2013	Interest Deposit	2013010102	$1.00	HOST	Always
Transaction C	01/01/2013	01/01/2013	Withdrawal	2013010103	-$5.00	HOST	Always

The next day, the host system reverses the interest deposit of Transaction B and deposits the correct deposit amount. If the user downloads the statement again, the following transactions should come from the host:

	Effective Date	Posted Date	Transaction	FITID	Amount	Origin	Displayed
Transaction A	01/01/2013	01/01/2013	Deposit	2013010101	$10.00	HOST	Always
Transaction B	01/01/2013	01/02/2013	Interest Deposit	R2013010102	$1.00	HOST	OFX Only
Transaction C	01/01/2013	01/01/2013	Withdrawal	2013010103	-$5.00	HOST	Always
Transaction E	01/01/2013	01/02/2013	Interest Deposit	2013010105	$1.10	HOST	Always

In this case, when viewing statements, the user would see only Transactions A, C and E. However, if the user were to download the statements to Quicken, the following transactions would be included:

	Effective Date	Posted Date	Transaction	FITID	Amount	Origin	Displayed
Transaction A	01/01/2013	01/01/2013	Deposit	2013010101	$10.00	HOST	Always
Transaction B	01/01/2013	01/02/2013	Interest Deposit	2013010102	$1.00	HOST	OFX Only
Reversal B	01/01/2013	01/02/2013	Interest Deposit	R2013010102	-$1.00	HOST	OFX Only
Transaction C	01/01/2013	01/01/2013	Withdrawal	2013010103	-$5.00	HOST	Always
Transaction E	01/01/2013	01/02/2013	Interest Deposit	2013010105	$1.10	HOST	Always

Note that the *MemberDirect*® system divides Transaction B into two separate transactions. These two transactions reflect the original effective date, but their posted date is the reversal date of Transaction B. During an OFX download, when the system encounters a reversal indicated by the 'R' at the beginning of the <FITID>, the server generates the following transactions:

1. The *MemberDirect* system first generates the original transaction in case the user has not downloaded the original transaction already, since that would mean the system is trying to reverse something that has not happened. If the user has already downloaded the original transaction, the client's PFM ignores the transaction.

2. The *MemberDirect* system generates the reversing transaction. It is important that only the <FITID> of the original transaction is modified. The system will offset the amount and modify the transaction description so that in Quicken or Microsoft Money, it appears as a reversal of the previous transaction.

> **Note**:　The *MemberDirect*® system *always* treats transactions as a reversal where the <FITID> begins with an 'R'. Therefore, an 'R' should *never* be the first character of an <FITID> unless it is the <FITID> of a reversal and the system is the selected approach to handling reversals. Note that the 'R' is case sensitive and should always appear in upper case.

Supplementary information

The Account ID <ACCTID>

Each account must have a unique OFX account identifier. OFX specifies that the <ACCTID> is a 22-character field. *MemberDirect* generates the <ACCTID> by compressing the following account information:

- B.I.N.
- Member Account # and, if required, Branch #
- Product Category
- Product Type
- Product Number

Central 1 will supply a default mapping for the <ACCTID> with the release in a new file, ofx.properties that resides on the *MemberDirect* server. Individual institutions may require customization of this mapping in order to identify accounts uniquely within their institution. Central 1 will supply configuration instructions with the release.

Further information

For information about OFX standards and specifications, visit the OFX web site at www.ofx.net.

MemberDirect®

Appendix I – Statement filtering

Statement filtering allows the client to select from the following filtering options when retrieving a statement. It can be performed either by the *MemberDirect*® system or the host system.

Statement filtering via the *MemberDirect* system

Clients can search for statement items as shown below while signed on to *the MemberDirect* system:

- Show All Statement Items
- Show Deposits Only
- Show Withdrawals Only
- Show Cheques Only
- Show Bill Payments Only
- Search by Cheque Number
- Search by Amount
- Search by Description
- Search by Confirmation Number

The default filtering option is Show All Statement Items. However if, for example, a client selects Show Deposits Only, then only deposits would be returned from the *MemberDirect* server to the client. If any of the Search by options is selected, the user must also include search criteria such as a cheque number or bill payment confirmation number. Only statement items that match the search criteria are returned from the *MemberDirect* server to the client.

The implementation of these filters depends upon the statement implementation for a given host banking system. Several of the statement filters use the statement attributes described in the previous section. Thus, it is critical that the required statement attributes are available for each statement filter to operate correctly. The implementation of each filter is discussed below. The filter implementations should be reviewed to ensure compatibility with the host banking system. If a filter is incompatible, it should be removed from the user interface.

Implementing statement filtering

The implementation for each statement filter option is described below, including the use of statement attributes where applicable.

Show all statement items
The *MemberDirect* server returns all statement items to the client.

Show deposits only
The sign of the transaction amount is used to filter the transactions. Only transactions with a positive transaction amount (deposits) are returned from the *MemberDirect*® server.

Show withdrawals only
The sign of the transaction amount is used to filter the transactions. Only transactions with a negative transaction amount (withdrawals) are returned from the *MemberDirect* server.

Show cheques only

If any of the following attributes are present, the statement item is considered to be a cheque and passes the filter. All statement items that pass the filter (that is, are cheques) are returned to the client.

ISO8583 Attribute Code	Description
16	cheque number (posted via the branch)
17	cheque number (posted via clearing)
18	US$ cheque number

Show bill payments only

If the following attribute is present, the statement item is considered a bill payment and passes the filter. The *MemberDirect*® server returns statement items that pass the filter to the client.

ISO8583 Attribute Code	Description
19	bill payment confirmation number

Search by cheque number

Each of the following attributes is compared (using the integer value) to the search criteria. If any of the attributes matches the integer value of the search criteria, the statement item passes the filter. The *MemberDirect* server returns statement items that pass the filter to the client.

ISO8583 Attribute Code	Description
16	cheque number (posted via the branch)
17	cheque number (posted via clearing)
18	US$ cheque number

Search by amount

The search criteria is converted to a decimal number and compared to the transaction amount of each statement item. The comparison does not consider sign, so that –32.01 and 32.01 are considered the same. If the amounts are the same, regardless of sign, the statement item passes the filter. The *MemberDirect* server returns statement items that *pass the filter to the client.*

Search by description

The search criteria is treated as a substring and used in a substring search of the first field of the three description fields only. The search is case independent and the search criteria can be all or part of the first description field. For example, if the search criteria were "BILL", the following two statement entries would pass the filter:

03-May-1999 DIRECT BILL PAYMENT TO *VISA ACCT# 123123123*	*–$100.00*	*$484,343.11*
04-May-1999 Transfer to Bill's account	–$100.00	$484,243.11

However, the following statement entry would not pass the filter since "BILL" is in the second description field, not the first.

```
04-May-1999 DIRECT TRANSFER TO        -$32.00     $484,211.11
RRSP T-BILL SAVINGS # 5
```

Search by confirmation number
If the following attribute is present, it is compared to the search criteria using a string comparison. If the confirmation number and search criteria match exactly, the statement item passes the filter. The *MemberDirect*® server returns statement items that pass the filter to the client.

ISO8583 Attribute Code	Description
19	bill payment confirmation number

Statement filtering by the host

Statement filtering can be performed using the host and not just through the *MemberDirect* system, as described above. When the host is used, the *MemberDirect* system will request a particular item search or filter feature from the host. Data Element 48, Forms 00008 and 00009 will contain query items that will enable the host to retrieve and return quickly one or more items based specified criteria.

Item retrieval option

In addition to Date options (oldest to newest and newest to oldest) for item retrieval, there also F for Filter and S for Search. If either one of these is the value set, the Search Criteria field will be formatted containing the particular criteria.

The following options available under this Search/Filter messaging method:

Search by type of item (find one or more items)
1 A = Type of Item to Retrieve

      B =   Bill payment   by confirmation number
      C =   Cheque   by cheque number
      X =   Transaction   by amount
      X =   Transaction   by description

Filter by type of item (show only – show all that fit the category)
1 A = Type of Item to Retrieve

      B =   Bill payments   Show only bill payments
      C =   Cheque   Show only cheques
      D =   Deposit   Show only deposits (ABM and cheques)
      E =   Interest earned   Show only interest earned
      F =   Fees   Show only fees

(Cont'd.)

N =	Interest paid	Show only interest payments
O =	Transfer out	Show only transfers out
P =	POS	Show only POS
T =	Transfer in	Show only transfers in
W =	Cash withdrawals	Show only cash withdrawals (incl. ABM)
Z =	Other (client defined)	Show other item

Search criteria descriptor (only valid if the retrieval option = "S")

1 A = Search Criteria Descriptor
      A = Amount
      C = Cheque number
      D = Description
      N = Confirmation number

Information retrieval mechanism

This mechanism, commonly found in Data Element 48, is used for retrieving extensive amount of information such as that required for statement transactions. The process involves the following variables:

Items requested

This is a counter used in the request message only. The server recommends to the host the number of items it expects in the reply message. The host has the option to return the number of items as requested or, individually quantify processing within its own parameters. This data item is used to optimise the amount of message flow in a session and to circumvent system constraints of both systems, such as buffer-size limitations. The value in this field originated at the server is usually agreed upon bilaterally between the server and the host at start-up. Currently, the server requests five items for account-balances and ten transactions for statement inquiries.

Items received

This accumulator is used in the request message only. This carries the accumulated number of items received from the host. The server is responsible for maintaining the accumulated value throughout the retrieval process. This field works in co-ordination with the Items Sent variable in the host reply. The current value of this field is added by the value of Item Sent in the reply before forwarding it to the host in a subsequent request.

Items sent

This counter is used in the only reply message. If informs the server the number of items in the current message.

Items remaining

This counter indicates the number of items remaining to be sent (if known). It the number of remaining items is not known, this value can be zero (0).

More flag

This is an indicator used in the reply message only. When this indicator has a numeric value of 0, it means the host has no more items to retrieve. If the value is 1, the host detects more items for possible retrieval.

Example

An example of the interaction between "Item Received" and "Items Sent" is shown below.

1. In the initial request, the server sends "Item Received" with zeros.

2. The host returns "10" in "Items Sent" with "1" in the More flag.

3. The server adds the value of "Items Sent" (10) to "Items Received" (0), which is now 10, in the next request.

4. The host returns "10" in "Items Sent" with "1" in the More flag.

5. The server adds the value of "Items Sent"(10) to "Items Received"(10), which is now 20, in the next request.

6. The host returns "10" in "Items Sent" with "1" in the More flag.

7. The server adds the value of "Items Sent"(10) to "Items Received"(20), which is now 30, in the next request.

8. The host returns "5" in "Items Sent" with "0" in the More flag.

9. The server terminates the retrieval process, which nets a total of 35 items.

Filter codes

The following table shows the statement filter codes by transaction type. It also includes the items returned with the filter codes.

Filter Code	Transaction Type	Items Returned With Filter Code
B	Payments	271 – Payment
		985 – Backdated payment interest adjustments
F	Account Charges	900 – Finance charge (item charge)
		961 – Late charge
		962 – Credit insurance charge
		963 – Finance charge (cash or merchandise)
		964 – Merchandise finance charge
		987 – Merchandise item charge
		988 – Overlimit charge
		989 – Interest earned or credit interest
		990 – Service charge or statement charge
		992 – Fee or finance charge rebates
P	Purchases	253 – Merchandise sale
R	Returns	255 – Merchandise return
T	Transfers	254 – Cash advance
		400 – Account transfer
		984 – Backdated cash advance finance charge
		986 – Cash advance item charge
		991 – Cash advance item charge
		993 – Backdated payment or cash advance adjustments

Filtering by merchant category

The following merchant categories can be used in statement filtering.

1   Restaurant

2   Gas, Car, Transportation

3   Travel

4   Electronics/Computers

5   Books, Newspapers, Magazines

6   Groceries

7   Pharmacy

8   Telecommunications

9   Home/Household

10   Other

Search and filter samples

For BM48 Form 00008, BM 48 Form 00009 will be returned the same except with the 28 characters of Search Item filled in as necessary and with the Items Requested/Items Sent and the More Flag also filled in. In the samples below, "~" is the space character and XXX… is the last Search Item in a multi-message conversation. It will be initialized in the first message to all Spaces.

Search all account types – except TACT, GIC, mortgage and credit card

```
~~~~~~~~~1~~~~~~~~~2~~~~~~~~~3~~~~~~~~~4~~~~~~~~~5~~~~~~~~~6~~~~~~~~~7~~~~~~~~~8~~~~~~~~~9~~~
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123


Search for Bill Payment Confirmation # 123456

00008SA2013010120130331099990000BN000000123456~~~~~~~~~~~~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXX


Search for all Transactions with Amount 123.45

00008SA2013010120130331099990000XA000000012345~~~~~~~~~~~~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXX


Search for Cheque Number 105

00008SA2013010120130331099990000CC000000000105~~~~~~~~~~~~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXX


Search for all transactions with Description "THE BAY"

00008SA2013010120130331099990000XDTHE~BAY~~~~~~~~~~~~~~~~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

Filter all account types – except TACT, GIC, mortgage and credit card

```
Filter = All Bill Payments

00008SA2013010120130331099990000B~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

Filter credit card accounts

```
Filter = All Transactions

00008FA2013010120130331099990000ZZ000000000000099999999999~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
Filter = Transactions between $123.45 and $99,999.99

00008FA2013010120130331099990000ZZ000000012345000009999999~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
Filter = Purchases between $5,000.00 and $100,000.00

00008FA2013010120130331099990000SZ000000500000000010000000~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
Filter = Cash Advances Transaction

00008FA20130101201303310999900000CZ00000000000000999999999999~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
Filter = Cash Advances Category

00008FA20130101201303310999900000Z700000000000000999999999999~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
Filter = Purchases in the Pharmacy Category

00008FA20130101201303310999900000S500000000000000999999999999~~~~~~XXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

Note:

1. If the customer does not set the amount fields, the *MemberDirect*® system will fill them in with 0's in the From Amount and 9's in the To Amount.

2. There is a transaction selection called *Cash Advanc*e and a category selection also called *Cash Advance*.

Filter all accounts - except credit card accounts

If a customer selects "*show all transactions*", BM48 will appear similar to:

```
00008LA20130219201303210999900000~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

Search criteria usage

This commonly referenced field in Data Element 48 has two variations: 12 ANS and 60 ANS. For search criteria, such as product or service identifiers, the shorter length is used. To uniquely identify a transaction, the longer 60 ANS length may be applied. The host solely determines the data items, values and usage embedded in this set of search criteria. The server returns the entire set of criteria, without any modification, to the host in the subsequent requests. (Naturally, in the first request, the entire field is blank-filled.)

Note:	Why not use a transaction counter instead? In the real-time, online environment, account information may be in a state of flux and new transactions may be inserted at any time. In the above situations, a counter will be rendered invalid and the running balance out of sync. For greater accuracy, a set of search criteria is used to identify a data item uniquely.

Appendix J – Statement attribute codes

Statement Attribute codes are used to enhance the meaning of statement transactions. They are appended to the transaction description if the member selects the *Detailed Display* option in *MemberDirect®*'s Statement Display function. If an attribute is not set, it will not be displayed. Note that use of the attribute codes does not affect the downloading of statement information to financial applications, such as Quicken™ or Money™.

If the Attribute Indicator is set to A in the request, the host returns the attributes and its associated data items. If not required, the server should set the Attribute Indicator to 0.

The data item consists of a two-digit code, followed by its associated data items:

Note: S+12N is Sign + 12 Numeric.

Attribute Code	Format	Explanation
01	S+12 N	Exchange Amount
02	8N + 5 blanks	Exchange Rate – for format, see definition of exchange rates in Data Elements 123-127, Form 3
03	S+12 N	Transaction Charge Amount
04	S+12 N	Interest Amount
05	S+12 N	Dividend Amount
06	S+12 N	Interest Charge Amount
07	S+12 N	Non-Resident Tax Amount
08	S+12 N	Enclosure Charge Amount
09	S+12 N	Fixed Charge Amount
10	S+12 N	Service Charge Amount
11	S+12 N	Line Of Credit Charge Amount
12	S+12 N	Personal Access Charge Amount
13	S+12 N	Loan Principal Reduction Amount
14	S+12 N	Pre-Payment Penalty Amount
15	S+12 N	Market Gain Amount
16	13 ANS	US$ Cheque Number
17	13 ANS	Cheque Number (Posted Via The Branch)
18	13 ANS	Cheque Number (Posted Via Clearing)
19	13 ANS	Bill Payment Confirmation Number
20	13 ANS	Other Reference Number
21	4ANS+9 blanks	One of the Self Directed RSP transaction codes: 4 blanks PURC (Units Purchased) SELL (Units Sold) DIVD (Dividends paid) INTR (Interest Paid) SPLT (Split Stock) CONS (Consolidation Stock) SPCO (Special Contributions) ANFE (Annual Fee) OTDP (Deposit Taxable) OTWD (Withdrawal Taxable) TFIN (Tax Free transfer In) TFOU (Tax Free Transfer Out) STCL (Stock Dividend Claimed) TSFR (Transfer Out)
22	S+12 N	SDR units purchased
23	3 ANS+10 blanks	One of the transfer-out account categories: 3 blanks RSP RIF

(Cont'd.)

Attribute Code	Format	Explanation
24	3 ANS + 10 blanks	One of the RSP transaction types:
		3 blanks / PEN (Pension) / PUR (Purchase of Annuity, RRIF) / CAN (Cancellation) / ROP (Refund of Premium / ROD (Refund of Direct Transfer) / TXF (Tax-free Transfer) / ROE (Refund of Excess Contrib.) / RET (Retirement Allowance) / DEC (Deceased) / TSF (Transfer Out) / SDR (Self Directed RRSP)
25	3 ANS + 10 blanks	One of the RSP contribution categories:
		3 blanks / ALT (contributions made by alternate contributor)
26	S+12 N	Insurance Premium Deduction
27	S+12 N	Escrow Account Deduction
28	13ANS	Statement Transaction ID (FITID) (See **Note 1** below)
29	13ANS	Transfer Memo (See **Note 2** below)
30	8N + 5 blanks	Cheque Date
31	13ANS	MICR Account Number (See **Note 2 and 3** below)
32	13ANS	Item Trace Number (See **Note 2 and 3** below)
33	4N + 9 blanks	Route, currently leading zero (See **Note 3** below)
34	5N + 8 blanks	Transit (See **Note 3** below)
35	S+12 N	Late Charge Amount

Note 1:   To handle values that require more than 13 characters, multiple occurrences of this attribute are allowed and will be concatenated into a single value field. Following the first occurrence of the attribute, all subsequent occurrences will be *prepended* to the field and should be padded with leading spaces (on the left). The *MemberDirect*® system will remove the leading spaces.

Note 2:   To handle numbers that require more than 13 characters, multiple occurrences of this attribute are allowed and will be concatenated into a single value field. Following the first occurrence of the attribute, all subsequent occurrences will be *appended* to the field. The final appended field must be padded on the right with spaces if necessary. The *MemberDirect* system will remove the trailing spaces.

Note 3:   Attributes 31, 32, 33 and 34 are available primarily (but not exclusively) for cheque image retrieval. The use of these attributes is specific to the image provider or requirement.

Appendix K – User and account identification

The information sent to the banking system to identify a user and an account depends on the method chosen to identify the user: PAN or member number.

PAN method

If this method is used, every request message will contain the PAN in data element 20. When logging in, the banking system replies to the Access Authentication message with a list of memberships associated with the user. *The MemberDirect*® system then queries the banking system for the accounts under each membership. In subsequent transactions (such as transfers or bill payments), data element 102 will contain:

- The BIN from the institution's *MemberDirect* server configuration,
- The branch and member numbers from data element 123, form 202, returned by the host banking system in the 2600 series Access Authentication reply
- The product type and ID from data element 123, form 201, returned in the 2600 series Product Balances Inquiry reply.

PAN method message flow

Below is an example message flow. (Note that these message flows have been manually edited and do not necessarily represent correct messages.)

→ 2600 Access Authentication Request
← 2610 Access Authentication Reply

→ 2600 Product Balance Inquiry Request
← 2610 Product Balance Inquiry Reply

If the user pays a bill using the first account in the list returned for branch 001, member 123456789012, the request message will be similar to:

→ 2200 Immediate Bill Payment Request

Member and branch number method

This method conforms to the only supported option prior to *MemberDirect* Release 5.0. Users wishing to use this method should include element 48 with the UMID in the Access Authentication reply message. Here is an example message flow. (Note that these message flows have been manually edited and do not necessarily represent correct messages.)

→ 2600 Access Authentication Request
← 2610 Access Authentication Reply

→ 2600 Product Balance Inquiry Request
← 2610 Product Balance Inquiry Reply

→ 2200 Immediate Bill Payment Request

Error codes and strikeouts

Whenever a client enters an incorrect PAC, the host banking system returns an error code that indicates the entry of an invalid PAC. Each entry of an invalid PAC is termed a strike. After three strikes, the customer has "struck out", which means he or she cannot sign on again after 24:00 of the current day. In ISO 8583, Action Code 117 indicates a strike out. (Refer to Appendix E for a list of valid action codes.)

Appendix L – Transaction source codes

Some host banking systems have three-digit, transaction source codes that identify specific types of fees, service charges, withdrawals, deposits, etc. Although these codes may have existed on the host prior to the availability of OFX, institutions may use them for exporting OFX data to personal financial managers (PFM) for automatic reconciliation. These PFM applications include Microsoft Money99™, Intuit Quicken99™ and Simply Accounting™, Version 7 and are the accounting packages that the *MemberDirect*® system supports for processing the extracted transactions.

The following are relevant source codes that can be used in the *MemberDirect* context:

Source code	Transaction type	Explanation
000	Withdrawal	Cheque
002	Withdrawal	Deposited cheque returned
003	Withdrawal	Official cheque
004	Withdrawal	Certified cheque
008	Withdrawal	Cheque
081	Withdrawal	Returned cheque
082	Deposit	Cheque deposited
125	Withdrawal	US Cheque cleared
900	Withdrawal	Bill payment
901	Withdrawal	Cheque
902	Deposit	Deposit
904	Withdrawal	Fees
905	Withdrawal	Interest paid
906	Deposit	Interest earned
907	Deposit	Transfer in
908	Withdrawal	Transfer out
909	Withdrawal	Cash withdrawal (incl. ABM)
910	Withdrawal	Other item
998	Withdrawal	ATM
999	Withdrawal	POS

> **Note:** The 900-level source codes are reserved for all-in-one combination accounts.

The entries in the ofx.properties file are used to map the highly specific host transaction codes to the more generic OFX transaction codes. The OFX transaction codes are quite limited. Currently, Quicken and MS Money only support the following codes:

- DEBIT (generic debit)
- CREDIT (generic credit)
- ATM (for ATM transaction)
- FEE (for any fee or service charge from the financial institution)
- INT (for Interest deposits or payments)

The *MemberDirect* server looks in the ofx.properties file for any transaction codes that have been entered for a specific host. If the server does not find an entry for the transaction code sent by the host, it uses either the generic DEBIT or CREDIT transaction codes, depending upon whether the transaction has a positive or negative amount. Most transactions are given either the DEBIT or CREDIT transaction codes in OFX.

In other words, you do not need to send a transaction code from the host if your host does not support this functionality. If you were to fill that field with all zeros (000) and then ensure that there is *not* an entry in the ofx.properties file with the zeros (000=...), then the *MemberDirect*® server will handle assigning the debit or credit transaction types for OFX.

Note that if your host does support the transaction codes, it is recommended that the code sent through, even though it may not currently be supported.

What's new?

This section lists the most recent changes to the document as well as those for the preceding 12 months.

April 2017	Page	Revision
	B-15	▪ Added Bit 60 – Interest Previous Month to B5 – Loan Product
January 2017	**Page**	**Revision**
	B-21	▪ Added new flag to Bit 17 – Permission Flags: 8 = Mandatory notification Y||N
	B-22 & B-23	▪ Revised description of use of the member profile to state that it is "*…used to pass card PAN information from the banking host to the MemberDirect® system for digital card services such as mobile payments and card lock*."
		▪ Removed reference to, upon registration, the member profile being returned to the banking system in an ISO8583 Update Mobile Profile message and the Default Card flag being returned in an Update Member Profile message for the selected card
	Various pages	▪ References to *mobile payments* have been changed to *digital card services*
December 2016	**Page**	**Revision**
	2-29	▪ Revised the 00013 data element for the Member Profile Inquiry – Request under **D/E 123-127 Form Used** to *00013 B-8*
	B-21	▪ Added Bit 24 – Reserved field
	B-21 & B-22	▪ Added Bit 25 – Card PANS and info. This field is used *only* for mobile payments.
	B-22 & B-23	▪ Added new section to B8 Member profile inquiry: *Use of the member profile in the mobile payments environment*
July 2016	**Page**	**Revision**
	Section 2 various pages	▪ Replaced occurrences of *{52}* with *{47|52}* ▪ Removed occurrences of *{47}*
	2-15	▪ Clarified that Process Code for the Logout process is "0991000"
	2-18	▪ Removed data elements 39 and {44} from the Investment Products - Request
	2-27	▪ Noted that the reply for Options 1 and 3 is Data Element 123, Form 00016 and for Option 2 the reply is Data Element 123, Form 00014 ▪ Added message flows for Options 1 and 2
	2-26 & 2-27	▪ Revised the data elements for the Inter-member transfer inquiry: different elements are used for Options 1, 3, 5 and 2 and 5 ▪ Re-located the Institution Biller List Request/Reply to follow the Member Profile Inquiry on page 2- 30
	2-28	▪ Added that Option 3 uses the message flow for Option1, no messages are sent or received with Option 4 and Option 5 uses both the message flows for Options 1 and 2. ▪ Added data elements present

2-31 and 2-32	▪	Re-located the System Handshake to follow the eStatement Access ID Inquiry
2-32	▪	Removed Action Codes 916-921 after Action Code 881 under **Action Codes Data Element 39**
3-6 & 3-7	▪	Added the following note to Data Elements 47 and 52:

Note: Only *one* of Field 47 or 52 is used. Field 47 is used if the Extended PAC is implemented. If the standard PAC is implemented, Field 52 is used.

3-10	▪	Added 009 External Accounts for real-time payments and 033 eSAID eStatement Access ID
	▪	Removed Action 032 – Transfer Inter-institution from Data Element 62 Processing Code
3-13	▪	Added description of the use of Data Element 102 – Account Identification 1 with real-time payments
4-1 to 4-3	▪	Added Processing Code to each form of Data Elements 48 and 123-127
4-19	▪	On Data Element 123-127, Form 20001, redefined True/False and Allow/Deny values for override restricted transfers (to/from) on as:

T (True) = override property-driven transfer restrictions

F (False) = follow standard transfer rules

A (Allow) = absolute allow transfer to/from

D (Deny) = absolute deny transfer to/from

4-24	▪	Added braces ({}) to Data Elements 123-127 Form 00004 from "12 N = min. balance" to end
4-31	▪	Under the Notes for Data Elements 123-127 Form 21013, removed "2 N = Appendix B Form (varied)"
4-32	▪	Under the Notes for Data Elements 123-127 Form 00015, added reference to *Transaction Source Codes* in *Appendix L*
4-37 & 4-38	▪	Added Data Elements 123-127 Forms 00027 and 20027
5-1 to 6-12	▪	Added the following new sections that previously resided in the *MemberDirect® Integrated Services Real-time Payments ISO8583 Message Specification and Implementation Guide*:

- Real-time Payments Messaging Specification
- Real-time Payments Message Descriptions

A-3	▪	Added cross-reference to *Appendix J - Statement Attribute Codes* for additional relevant formatting information
B-7	▪	Revised description of Bit 28 as follows:

- Added that this field enables funding from external accounts
- Added reference to Data Element 102 for the format definition for the field

	▪	Added Bit 52 – Accrued Interest Owing to B3 – Demand Product
B-26 to B-30	▪	Added descriptions of the product definitions *B11: Credit/debit transaction (for real-time payments)* and *B-12: External Accounts (for real-time payments)*.

These product definitions were previously in the *MemberDirect Integrated Services Real-time Payments ISO8583 Message Specification and Implementation Guide*.

- Added the following transaction types to Bit 2 – Transaction Type for B11:
  - CDCO Corporate Deposit Capture
  - IOPO – Interac® Online Payment Originator
  - IOPR – Interac Online Payment Return/Refund
  - OIRO – Online International Remittance
  - RFMO – Request for Money Originator
  - RFMR – Request for Money Receivor

  Added the following new bits
  - Bit 20 – Sender's email address
  - Bit 21 – Recipient's email address
  - Bit 22 – Sender's phone number
  - Bit 23 – Recipient's phone number

- Added information on Bits 6, 7 and 20-23 to the **Notes**

- Removed *B13: Credit Card Account Details*

C-3
- Added Note stating the banking system determines the content of the Product Type and Product ID and that the Product Type contains information about the product type. Some banking systems use the Product Type as an instance identifier. However, the *MemberDirect* system does not impose any restriction of the pair of values

E-2 to E-4
- Added Action Codes 180-182, 940-944, 949 and 992 from the *MemberDirect Integrated Services Real-time Payments ISO8583 Message Specification and Implementation Guide*

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