MMI

2.07 DMXPIM: FUNCTION USER'S GUIDE

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OBJECTIVES OF THIS CHAPTER

The objectives of this chapter are to:

- Give an overview of the Pre-Issuance Messages Between Broker/Dealers and Issuing/Paying Agent Function (PIM) of the DTC Message Exchange System (DMX).
- Illustrate the formats of required records.

THE DMXPIM FUNCTION: OVERVIEW

This document describes the Communication and System Programming Requirements for Participants who wish to use the Pre-Issuance Messages Between Broker/Dealers and Issuing/Paying Agent functions (PIM) of the DTC Menage Exchange System (DMX).

PIM Technical Overview

This document outlines the technical MQSeries requirements and definitions and a sample program flow for the PIM function of the DMX system. The system is based on IBM products, MQSeries, and will be implemented in a "multi-hop" architecture. The system will support both LU 6.2 and TCP/IP Messaging.

To standardize the application and to create an easily maintainable environment for B/Ds and IPAs, the messages will flow from B/Ds via DTC to IPA. DTC will act as a message switching interface, maintaining connections to all parties. Each B/D or IPA will have to maintain and monitor its connections to DTC.

Security and Encryption

We recommend application end-to-end security for this project. In addition, there are a variety of third party vendor products on the market that can be used by MQSeries for data security, encryption and authentication. These products are available for use by those parties that are interested in additional software security for their messages.

BUSINESS FLOW

The following is a sample business flow highlighting the key activities required to pass a message from a Broker/Dealer to IPA with the B/D imitating the message. If the IPA is the initiator of the message the same flow would be used with the roles reversed.

Broker/Dealer (B/D) Setup

1. The B/D contacts the IPA and DTC to have each party define a set of MQSeries definitions. (see **Program Flow - Technical Sample**). A Sample naming standard is included in this document. All MQSeries queue manager names need to be known by all users of the system and must be registered with DTC. All MQSeries channels between DTC and either B/D or IPA must also be registered with DTC. DTC will provide request forms and coordinate their distribution among all parties.
    - The B/D creates an MQ definition that consists of a local queue name at the B/D site that points to the name of the IPA remote queue manager and IPA remote queue, as specified by the IPA.
    - The B/D creates an MQ definition for a transmission queue and send/receive channels to pass messages to DTC. The channel names must match those of DTC.
    - The B/D creates an MQ definition for a MQ process to move the messages off the transmission queue and send them over the channel to DTC.
    - The B/D creates an MQ definition for a local queue that will hold the reply message from the IPA.

Issuing/Paying Agent (IPA) Setup

1. After contact with the B/D and DTC, the IPA creates the necessary MQ definitions.
    - The IPA creates an MQ definition that consists of a local queue name at the B/D site that points to the name of the IPA remote queue manager and IPA remote queue, as specified by the B/D.
    - The IPA creates an MQ definition that points to the name of the B/D remote queue manager as specified by the B/D.
    - The IPA creates an MQ definition for a transmission queue and send/receive channels to pass messages to DTC. The channel names must match those of DTC.
    - The IPA creates an MQ definition for a MQ process to move the messages off the transmission queue and send them over the channel to DTC.

B/D - Initiator (A Possible Sample Flow)

1. The B/D's program builds a message and "PUTS" it to the local queue definition of the remote name. Included in the message is the B/D queue manager name and the name of the B/D's reply queue.
2. B/D's program issues a "GET" with a "WAIT" option for a reply within a specified program.

DTC

3. DTC's system receives the message and forwards it to the IPA. If the remote queue manager is unknown to DTC, and as the B/D must specify the MQSeries reporting option exception with data (return to sender), then the first 100 bytes of the application message is included with the report message that is returned to the B/D by MQSeries.
4. Message arrives at the IPA input queue from the B/D.
5. A program is triggered in the IPA's system to process the message.
6. The IPA program builds a reply message and "PUTS" it to the B/D's reply queue.

DTC

7. DTC's system receives the message and forwards it to the B/D.

B/D

8. The reply message arrives in the B/D's reply queue and the outstanding "GET" is completed. The B/D's program processes the reply and the transaction is complete. The B/D must "GET" all the messages on the queue until a "No Message Available Condition" is returned by MQSeries.
9. If the "GET" times out before a reply is received, the B/D must consider the transaction incomplete and process it accordingly.

If the reply message is not received on the B/D's reply queue within the specified time, it still may be "PUT" on the reply queue at a later time. A delay may be caused by a processing problem at the IPA site and the message may have been sent after the specified B/D wait time has expired.

The B/D program must be prepared to handle this situation. In addition, the B/D program must be able to handle the possibility of receiving more than one reply from the IPA.

PROGRAM FLOW - TECHNICAL FLOW

The following is a sample skeleton flow of a series of programs that highlight the key activities required to pass a message, via MQSeries, from B/D to IPA. This system is based on all users sending and receiving **PERSISTENT** messages.

The code is a combination of actual MQSeries commands, relating to using the MQSeries API, and pseudocode which indicates the sequence of data transmitted over the communication lines.

The sample is based on sending and receiving a single message at a time. There are other possibilities with MQSeries such as sending multiple messages at a time (batching). Users of the system will have to take this into account when designing their individual application programs.

MQSeries provides report options such as expiration of messages, confirmation on arrival (COA) and confirmation on delivery (COD). These options can be used within this system if desired. However, they **are not** required. MQSeries also provides a report option called exception notification. Exception notification will tell the sender, via a report message, if their message has failed and has been put on a MQSeries Dead Letter Queue. Use of the MQSeries option **EXCEPTION_WITH_DATA** will return to the sender the MQSeries header as well as the first 100 bytes of the application data. This will allow the sender to account for the message. **This option is required.**

MQSeries will send any notifications to the queue and queue manager that the program specifies in the MSGDESC of the MQSeries header of a MQPUT or MQPUT1 command. These are the same queue and queue manager fields that will be used by the receiving party to send reply-messages to the sender. The software that processes the reply queue will have to correctly handle the different message types.

If a message from either party is delivered to the proper queue manager, but the message queue specified does not exist, MQSeries will place the message on the Dead Letter Queue (an MQSeries facility). It is up to both parties to monitor the Dead Letter Queue for undelivered messages.

Broker/Dealer

1. Establish the MQ connection. This is required in CICS and IMS.

   CALL "MQCONN" USING NAME, HCONN, COMPCODE, REASON.

   Declare the parameters as follows:

NAME	=	Queue Manager Name
HCONN	=	Connection Handle
COMPCODE	=	Completion Code
REASON	=	Reason Code qualifying Completion Code

2. The Broker/Dealer's program issues an MQPUT1 command. This is a combination command consisting of a MQOPEN, MQPUT and MQCLOSE. It is used to "put" a single message to a queue. In the MSGDESC the program specifies the B/D queue and queue manager that is to receive the IPA reply.

   CALL "MQPUT1" USING HCONN, OBJDESC, MSGDESC, PUTMSGOPTS, BUFFERLENGTH, BUFFER, COMPCODE, REASON.

   Declare the parameters as follows:

HCONN	=	Connection Handle
OBJDESC	=	Object Descriptor
MSGDESC	=	Message Descriptor
PUTMSGOPTS	=	MQPUT1 options
BUFFERLENGTH	=	Length of message in buffer
BUFFER	=	Message data
COMPCODE	=	Completion code
REASON	=	Reason Code qualifying Completion Code

3. Upon successful completion of the MQPUT1 the program issues a MQGET with a wait. The program specifies a wait time (as part of the GETMSGOPTS) greater than the desired return time. If the message is received before the time value, the MQGET is completed and the program can process the reply. If the message is not received within the time desired, a return code of no message available is supplied by MQSeries.

   CALL "MQGET" USING HCONN, HOBJ, MSGDESC, GETMSGGOPTS, BUFFERLENGTH, BUFFER, DATALENGTH, COMPCODE, REASON.

   Declare the parameters as follows:

HCONN	=	Connection Handle
OBJDESC	=	Object Descriptor
MSGDESC	=	Message Descriptor
PUTMSGOPTS	=	MQPUT1 options
BUFFERLENGTH	=	Length of message in buffer
BUFFER	=	Message data
DATALENGTH	=	Length of the message
COMPCODE	=	Completion code
REASON	=	Reason Code qualifying Completion Code

4. Upon successful receipt of a reply the program can either loop back to Step 2 or disconnect from MQSeries and restart the process when desired. A disconnect is not required in CICS or IMS.

   CALL "MQGET" USING HCONN, COMPCODE, REASON.

NAME	=	Queue Manager Name
HCONN	=	Connection Handle
COMPCODE	=	Completion Code
REASON	=	Reason Code qualifying Completion Code

Issue Paying Agent

1. The IPA has to either set up a program that is waiting for a message to arrive on the B/D target queue, or use an MQSeries facility known as triggering to start the program that will process the message. (Triggering is a platform specific facility. Its use must be reviewed on a platform basis). The program must establish an MQ connection. This is not required in CICS or IMS.

   CALL "MQCONN" USING NAME, HCONN, COMPCODE, REASON

   Declare the parameters as follows:

NAME	=	Queue Manager Name
HCONN	=	Connection Handle
COMPCODE	=	Completion Code
REASON	=	Reason Code qualifying Completion Code

2. Upon successful completion of the MQCONN, the program issues a MQGET with a wait. The program specifies a wait time greater than the desired return time. The wait time is specified when using MQSeries triggers to account for any network delays. If the message is received before the time value specified, the MQGET is completed and the program can process the reply. If the message is not received within the time desired, a return code of no message available is returned by MQSeries.

   CALL "MQGET" USING HCONN, HOBJ, MSGDESC, GETMSGOPTS, BUFFERLENGTH, BUFFER, DATALENGTH, COMPCODE, REASON.

   Declare the parameters as follows:

HCONN	=	Connection Handle
HOBJ	=	Object Handle
MSGDESC	=	Message Descriptor
GETMSGOPTS	=	MQPUT1 options
BUFFERLENGTH	=	Length of message in buffer
BUFFER	=	Message data
DATALENGTH	=	Length of the message
COMPCODE	=	Completion code
REASON	=	Reason Code qualifying Completion Code

3. The IPA program processes the message from the B/D. The program formats a response to be returned to the B/D Queue Manager and reply queue as specified in the MQ message header in the B/D message. The IPA's program then issues an MQPUT1 command. This is a combination command consisting of an MQOPEN, MQPUT and MQCLOSE. It is used to "put" a single message to a queue.

   CALL "MQPUT1" USING HCONN, OBJDESC, MSGDESC, PUTMSGOPTS, BUFFERLENGTH, BUFFER, COMPCODE, REASON.

Declare the parameters as follows:

HCONN	=	Connection Handle
OBJDESC	=	Object Descriptor
MSGDESC	=	Message Descriptor
PUTMSGOPTS	=	MQPUT1 options
BUFFERLENGTH	=	Length of message in buffer
BUFFER	=	Message data
COMPCODE	=	Completion code
REASON	=	Reason Code qualifying Completion Code

4. Upon a successful MQPUT the program loops back to Step 2 to get the next message. If no message is in the queue and triggering is being used, the program should disconnect from the MQSeries (this platform and environment dependent and may not be required in a specific installation, i.e. in CICS this is not required) and terminate. If a new message arrives, it will be processed via triggering as in step 1. If triggering is not used, a MQGET with a WAIT option can be specified.

   CALL "MQDISC" USING NAME, HCONN, COMPCODE, REASON

   Declare the parameters as follows:

NAME	=	Queue Manager Name
HCONN	=	Connection Handle
COMPCODE	=	Completion Code
REASON	=	Reason Code qualifying Completion Code

Exception Conditions

In any instance where the B/D does not receive a reply to a message, a duplicate message must be sent. The original reply message may be received after the specified B/D wait time has expired, because of a processing delay. If the B/D responds more than once to a message, the additional response may be saved for reference but should not be processed.

MQSERIES SUGGESTED NAMING STANDARD

Queue Manager (Queue Manager Names will be standardized across the system and registered with DTC).

1. These rules must be followed in assigning a Queue Manager Name:
   a. Names must be in uppercase
   b. First character must be one of the following: T (for test), Q (for QA), or P (for production)
   c. Participant IDs assigned by DTC must consist of:
      - a 1-byte prefix
      - followed by an 8-character Participant number
      - followed by a 2-character MQSeries system

   Example: PP0000099901 - Participant #999 Production Queue Manager system 1 (01).
2. The Queue Manager Name must resolve to a unique value. If there is a collision in the Queue Manager Name assignment with an existing definition, DTC will ask the Participant to select a new name.
3. If Participants have already established an MQSeries Queue Manager, **they will be required to define a standardized Queue Manager Name as an alias to the local queue manager name**.

A Queue Manager Alias is defined as a special remote queue (**QREMOTE**), with the MQM subsystem name specified as the remote name (**RQMNAME**) and the transmission queue name (**XMITQ**) omitted. A Participant may choose to use one MQM subsystem for test and production. In that case, both queue manager aliases will be defined by specifying the same subsystem name as **RQMNAME**.

Example: DTC has assigned Participant 999 two queue manager names TP0000099901 for testing and PP00000099901 to resolve to TMQM and PMQM respectively. Participant 999 must make the following remote queue definitions to define queue manager aliases TP0000099901 and PP00000099901 to resolve to TMQM and PMQM respectively, Participant 999 must make the following remote queue definitions to define queue manager aliases TP0000099901 and PP00000099901.

Participant 999 definitions: DEFINE QREMOTE (TP0000099901), RQMNAME (TMQM), DEFINE QREMOTE (PP00000099901) and RQMNAME (PMQM)

Local Queue Names (These names are determined by the individual users and only have to be known and agreed to by the sender and receiver).

1. Suggested rules for assigning Local Queue Names:
   - Names must be in uppercase
   - Name must start with "From Participant ID"
   - Followed by an underscore "."
   - Followed by "To Participant ID"
   - Followed by a period "."
   - Followed by a DTC provided "function name"
   - Followed by INPxx - where xx is a sequential number

Example: P00000999_P00000888.PIM1.INP01

Local queue defined on P00000888 system. It is defined on P00000999 as part of a remote queue (QREMOTE) definition.

Remote Queue Names (These names are determined by the individual users and only have to be known and agreed to by the sender and receiver).

1. **Suggested** rules for assigning Remote Queue Names:
    - Names must be in uppercase
    - Name must start with "From Participant ID"
    - Followed by an underscore "."
    - Followed by "To Participant ID"
    - Followed by a DTC provided "function name"
    - Followed by a period "."
    - Followed by RMTxx - where xx is a sequential number

Example: P00000999_P00000888.PIM1.RMT01

Remote defined on P00000999 system. The queue is used by P00000999 to put data to P00000888. It is defined on P00000999 as part of a remote queue (**QREMOTE**) definition. In the QREMOTE definition on P00000999 the local queue would be P00000999_P00000888.PIM1.RMT01, the remote queue **NAME** (P00000999_P00000888.PIM1.INP01) is located on remote queue manager **RQMNAME** (P00000888). The RMT name is a pointer to the INP name.

Transmission Queue Names (These names are determined by the individual users only).

1. **Suggested** rules for assigning Transmission Queue Names:
    - Names must be in uppercase
    - Name must start with "From Participant ID" + MQ system number
    - Followed by an underscore "_"
    - Followed by "To DTC" + MQ system number
    - Followed by a period "."
    - Followed by XMTxx - where xx is a sequential number

Example: P0000099901_DTC01.XMT01

Message Channels (**These names will be standardized across the system and registered with DTC**).

1. These rules must be followed in assigning Message Channel Names:
    - Names must be in uppercase
    - Name must start with "From Participant" ID + MQ system number
    - Followed by an underscore "_"
    - Followed by "To DTC" + MQ system number
    - Followed by a period "."
    - Followed by Cx - where xx is a sequential number

Example: P0000099901_DTC01.C1 is a channel that moves messages from P0000099901 to DTC01.

DTC01_P000099901.C1 is a channel that moves messages from DTC01 to P0000099901.

Process Names (These names are determined by the individual users only).

1. **Suggested** rules for assigning MQSeries Process Names:
   - Names must be in uppercase
   - Name must start with "From Participant ID" + MQ system number
   - Followed by an underscore "_"
   - Followed by "To DTC" + MQ system number
   - Followed by a period "."
   - Followed by PROCx - where xx is a sequential number

Example: P0000099901_DTC01.PROC01 is a process name to move data from channel P0000099901_DTC01.C1 to DTC.

MQSERIES SAMPLE DEFINITIONS

The following are pseudocoded MQSeries definition statements to define a sample environment to pass messages between B/S and IPA via DTC.

Outgoing to IPA from Broker/Dealer

For Queue Manager PP0000099901 (B/D) to send messages to PP0000088801 (IPA) the following MQSeries definitions are needed:

DEFINE QREMOTE Name (P00000999_P00000888.PIM1.RMT01)
RQMNAME (PP0000088801)
RNAME (P00000999_P00000888.PIM1.INP01)
XMITQ (P0000099901_ DTC01.XMT01)

NAME	Queue name used by P0000099901 to PUT messages to P0000088801
RQMNAME	Name of IPA MQSeries Queue Manager
RNAME	Name of the queue as it is defined on IPA MQSeries
XMITO	Name of transmission queue used by B/D to pass messages to DTC

DEFINE QLOCAL NAME (P0000099901_ DTC01.XMT01)
USAGE (XMITQ)
PROCESS (P0000099901_ DTC01.PROC01

NAME	Name of transmission queue for sending message from B/D P0000099901 to DTC
USAGE	Queue is to be used as a transmission queue
PROCESS	Name of MQ process to start channel

DEFINE PROCESS NAME (P0000099901_DTC01.PROC01)
USERDATA (P0000099901_DTC01.C1)

NAME	Name of process to send data over channel from B/D P0000099901 to DTC
USERDATA	Must be same name as sending channel

DEFINE CHANNEL NAME (P0000099901_DTC01.C1)
CHLTYPE (SDR)
XMITQ (P0000099901_DTC01.XMT01)

NAME	Name of sender channel from B/D P0000099901 to DTC
CHLTYPE	Channel type (Sender)
XMITO	Name of the B/D transmission queue to DTC

Incoming to IPA from Broker/Dealer

Issuing Paying Agent

For Queue Manager PP00000088801 (IPA) to receive messages from PP0000099901 (B/D) the following MQSeries definitions are needed:

DEFINE CHANNEL NAME (DTC01_P0000088801.CH01)
CHLTYPE(RCVR)

NAME	Name of receiver channel from DTC to IPA P0000088801
CHLTYPE	Channel type (Receiver)

DEFINE QLOCAL NAME(P00000999_P00000888.PIM1.INP01)

NAME	Name of local queue for message received from B/D P0000099901

Outgoing from IPA to Broker/Dealer

Issuing Paying Agent

For Queue Manager PP0000088801 (IPA) to send messages from P0000099901 (B/D) the following MQSeries definitions are needed:

DEFINE QREMOTE NAME (PP0000099901)
RQMNAME (PP0000099901)
XMITQ (P0000088801_ DTC01.XMT01)

NAME	IPA Queue Manager Alias for B/D MQ Queue Manager
RQMNAME	Name of B/D MQSeries Queue Manager
XMITO	Name of transmission queue used by IPA to pass messages to DTC

DEFINE QLOCAL NAME (P0000088801_DTC01.XMT01)
USAGE (XMITQ)

NAME	Name of transmission queue for sending message from IPA to DTC
USAGE	Queue is used as a transmission queue

DEFINE PROCESS NAME (P0000088801_DTC01.PROC01)
USERDATA (P0000088801_DTC01.C1)

NAME	Name of process to send data over channel from IPA P0000088801 to DTC
USERDATA	Must be same name as sending channel

DEFINE CHANNEL NAME (P0000088801_DTC01.C1
CHLTYPE (SDR)
XMITQ (P0000088801_DTC01.XMT01)

NAME	Name of sender channel from IPA to DTC
CHLTYPE	Channel type (Sender)
XMITQ	Name of transmission queue to DTC

Incoming to Broker/Dealer from IPA

For Queue Manager PP0000099901 (B/D) to receive messages from PP0000088801 (IPA) the following MQSeries definitions are needed.

DEFINE CHANNEL NAME (DTC01_P0000099901.CH01)
CHLTYPE(RCVR)

NAME	Name of receiver channel from DTC to B/D P0000099901
CHLTYPE	Channel type (Receiver)

DEFINE QLOCAL NAME(P00000888_P00000999.PIM1.INP01)

NAME	Name of reply queue for message received from IPA P0000088801

NOTE:

See page 48 for an exhibit of the MQSeries Information Form - External Users.

RECORD LAYOUTS

Below are the record layouts for Dealer/Issuing Paying Agent (PA) Commercial Paper (Cp) re-issuance Messages (PIMs) via DTC (In Participant User's Guide Format)

Start-of-Day Record (from Dealer to Issuing/PA (IPA) Bank)

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	JAAA	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	AAAL	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	AAAK	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD- TYPE	HADD	8	2	Record Type. SD = Start-of-Day record
5	PIM-DEALER-PART-NO	CAGK	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	CAGL	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	AAAU	26	8	Password. Convention to be established by IPAs.
8	PIM-TRANS-ID- REC	CAGM	34	2	Dealer's Start-of-Day Transaction Identifier. This is the 1st of 3 segments comprising the dealer's 15 - position unique Start-of-Day transaction identifier: the type of transaction. SD = Start-of-Day transaction.
9	PIM-TRANS-ID-DATE	BABU	36	8	Dealer's Start-of-Day Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
10	PIM-TRANS-ID-SEQ-NO	GAC9	44	5	Dealer's Start-of-Day Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.
11	PIM-INTERNAL-CNTL-NO	CAGO	49	15	Dealer's Start-of-Day Internal Control Number. Free form. May be the same as preceding Start-of-Day Transaction Identifier, as dealer wishes.

IPA Bank Reply to Dealer

Start-of-Day Record Type SD (from IPA Bank to Dealer)

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	JAAA	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	AAAI	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	AAAK	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD- TYPE	HADD	8	2	Record Type. SR = IPA Bank Reply to Dealer Start-of-Day Transaction record
5	PIM-DEALER- PART-NO	CAGK	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	CAGL	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	AAAU	26	8	Password.
8	PIM-TRANS-ID- REC	CAGM	34	2	IPA Bank Reply to Dealer Start-of-Day Transaction Identifier. This is the 1st of 3 segments comprising the IPA's 15-position unique IPA Bank Reply to Dealer Start-of-Day Transaction identifier: the type of transaction. SR = IPA Bank Reply to Dealer Start-of-Day Transaction
9	PIM-TRANS-ID-DATE	BABU	36	8	IPA Bank Reply to Dealer Start-of-Day Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	GAC9	44	5	IPA Bank Reply to Dealer Start-of-Day Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
11	PIM-INTERNAL-CNTL-NO	CAGO	49	15	IPA Bank's Start-Of-Day Internal Control Number. Free form. May be the same as preceding IPA Bank Reply to Dealer Start-of-Day Transaction Identifier, as IPA bank wishes.
12	PIM-SD-TRANS-ID	CAGP	64	15	Dealer's Start-of-Day Transaction Identifier. This identifies the dealer transaction to which the IPA bank is replying. It is the dealer's Start-of-Day Transaction Identifier from the SD record.
13	PIM-SD- INTERNAL-CNTL- NO	CAGQ	79	15	Dealer's Start-of-Day Internal Control Number. This also identifies the dealer transaction to which the IPA bank is replying. It is the dealer's Start-of-Day Internal Control Number from the SD record.
14	PIM-ACCEPT-SW	GAC5	94	1	Accepted/Rejected Code. Indicates whether the IPA bank has accepted or rejected the dealer's Start-of-Day record. A = Accepted R = Rejected
15	PIM-ERROR- FIELD1		95	4	Up to four fields in one record might be identified as fields containing errors. This field identifies the 1st field containing an error. Leave blank if there is no error.
16	PIM-ERROR-FIELD1-CODE		99	4	Describes the error in the 1st field.
17	PIM-ERROR- FIELD2		103	4	This field identifies the 2nd field containing an error. Leave blank if there is no error.
18	PIM-ERROR-FIELD2-CODE		107	4	Describes the error in the 2nd field.
19	PIM-ERROR- FIELD3		111	4	This field identifies the 3rd field containing an error. Leave blank if there is no error.
20	PIM-ERROR-FIELD3-CODE		115	4	Describes the error in the 3rd field.
21	PIM-ERROR- FIELD4		119	4	This field identifies the 4th field containing an error. Leave blank if there is no error.
22	PIM-ERROR-FIELD4-CODE		123	4	Describes the error in the 4th field.

Issuance ("Add Trade")

Record - Data fields in addition to those provided in DTC CCF/MDH "MMIC/MMIM" Participant User's Guide (from Dealer to IPA Bank)

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	JAAA	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	AAAI	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	AAAK	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD- TYPE	HADD	8	2	Record Type. AT = Add Trade record
5	PIM-DEALER- PART-NO	CAGK	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	CAGL	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	AAAU	26	8	Password.
8	PIM-TRANS-ID- REC	CAGM	34	2	Dealer's Add Trade Primary Transaction Identifier. This is the 1st of 3 segments comprising the dealer's 15- position unique Add Trade transaction identifier: the type of transaction. AT = Add Trade transaction
9	PIM-TRANS-ID-DATE	BABU	36	8	Dealer's Add Trade Primary Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	GAC9	44	5	Dealer's Add Trade Primary Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
11	PIM-INTERNAL-CNTL-NO	CAGO	49	15	Dealer's Add Trade Primary Internal Control Number. Free form. May be the same as preceding Add Trade Primary Transaction Identifier, as dealer wishes.
12	PIM-IPA-ISSUER- ID	CAGU	64	10	IPA Issuer Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer.
13	PIM-IPA-ISSUER-PROG-ID	CAGV	74	10	IPA Issuer Program Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer program. Fields 12 and 13 may optionally be combined by the IPA for the purpose of identifying both the issuer and its program in one identifier of up to 18 characters.
14	PIM-ISS-INSTR-TYPE-IND	EAF8	84	1	Issuance Instruction Type. E = Entry only R = Entry and Release combined
15	PIM-PHYS-ISS-IND	GAAZ	85	1	DTC/Physical Issuance Code. Indicates whether this issuance is to be via DTC or with physical certificates. D = DTC P = Physical certificates
16	PIM-PHYS-CERT-DESC-OCCUR	HADY	86	2	Physical Certificate Description. This is the 1st of 3 fields describing the bearer or registered physical certificates: the number of Face Amount sets, which can be any number from 01 to 10. Leave all 3 fields blank if this issuance is to be via DTC.
17	PIM-PHYS-CERT-DESC-AMT	DABM	88	11	Physical Certificate Description. This is the 2nd of 3 fields describing the certificates: the Face Amount of each certificate in this set, right justified with leading zeros. (This 2nd field and the 3rd field below are coupled fields that are repeated 10 times in this record layout.) Zero-fill unused couples. pic = 9(9)v99
18	PIM-PHYS-CERT-DESC-NO	CAGS	99	3	Physical Certificate Description. This is the 3rd of 3 fields describing the certificates: the number of certificates with that Face Amount entered in the preceding field, which can be any number from 001 to 999. (This 3rd field and the 2nd field above are coupled fields that are repeated 10 times in this record layout.) Zero-fill unused couples.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
19	PIM-REG-CERT-DESC-HLD-NAME	HADZ	228	35	Physical Registered Certificate Description. This is the 1st of 2 fields further describing registered certificates: the name of the holder to be inscribed on the certificates. Leave both fields blank if this issuance is to be via DTC, or bearer certificates are to be used.
20	PIM-REG-CERT-DESC-HLD-INFO	HEAE	263	210	Physical Registered Certificate Description. This is the 2nd of 2 fields further describing the registered certificates: additional holder information to be inscribed on the certificates, structured in 6 lines of 35 characters each. Leave unused lines blank.
21	PIM-MANAGE-FEE	DABN	473	9	Management Fee. Necessary in some special cases. (Fill with zeros if not applicable.) pic = 9(7)v99
22	PIM-MANAGE- FEE-RATE	FAAL	482	5	Management Fee Rate. Necessary in some special cases. (Fill with zeros if not applicable.) pic = 9v9999
23	PIM-DAYS-TO-MATURE	DABO	487	3	Number of Days to Maturity (Tenor). Redundant. Included as a double-check. Value should be greater than zero. pic = 9(3)
24	PIM-DISCOUNT-AMT	DABP	490	11	Discount Amount. Redundant. Included as a double-check. pic = 9(9)v99
25	PIM-MATURE-AMT	DABQ	501	15	Maturity Amount. Redundant. Included as a double-check. pic = 9(13)v99
26	PIM-VALUED-TRADE-SW	EAF7	516	1	Valued/Free Trade Code. Indicates whether the trade is to settle versus payment or free of payment. V = Valued trade F = Free trade
27	PIM-MMI-INPUT-REC		517	895	MMIC/MMIM INPUT From IPA Bank to DTC. 895-position record layout starts here.

Cancel Trade Record (from Dealer to IPA Bank)

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	JAAA	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	AAAI	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	AAAK	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD- TYPE	HADD	8	2	Record Type. CT = Cancel Trade record
5	PIM-DEALER-PART-NO	CAGK	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	CAGL	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	AAAU	26	8	Password.
8	PIM-TRANS-ID- REC	CAGM	34	2	Dealer's Cancel Trade Transaction Identifier. This is the 1st of 3 segments comprising the dealer's 15- position unique Cancel Trade transaction identifier: the type of transaction. CT = Cancel Trade transaction
9	PIM-TRANS-ID-DATE	BABU	36	8	Dealer's Cancel Trade Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	GAC9	44	5	Dealer's Cancel Trade Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.
11	PIM-INTERNAL-CNTL-NO	CAGO	49	15	Dealer's Cancel Trade Internal Control Number. Free form. May be the same as preceding Cancel Trade Transaction Identifier, as dealer wishes.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
12	PIM-IPA-ISSUER- ID	CAGU	64	10	IPA Issuer Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer.
13	PIM-IPA-ISSUER-PROGID	CAGV	74	10	IPA Issuer Program Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer program. Fields 12 and 13 may optionally be combined by the IPA for the purpose of identifying both the issuer and its program in one identifier of up to 18 characters.
14	PIM-AT-TRANS-ID	CAGR	84	15	Dealer's Add Trade Primary Transaction Identifier. This identifies the trade the dealer is canceling. It is the dealer's Add Trade primary transaction identifier from the AT record.
15	PIM-AT- INTERNAL-CNTL- NO	CAGP	99	15	Dealer's Add Trade Primary Internal Control Number. This also identifies the trade the dealer is canceling. It is the dealer's Add Trade Primary Internal Control Number from the AT record.

Dealer Release Trade Record (from Dealer to IPA Bank)

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	JAAA	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	AAAI	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	AAAK	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD- TYPE	HADD	8	2	Record Type. DR = Dealer Release Trade record
5	PIM-DEALER-PART-NO	CAGK	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	CAGL	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	AAAU	26	8	Password.
8	PIM-TRANS-ID- REC	CAGM	34	2	Dealer Release Trade Transaction Identifier. This is the 1st of 3 segments comprising the dealer's 15- position unique Dealer Release Trade transaction identifier: the type of transaction. DR = Dealer Release Trade transaction
9	PIM-TRANS-ID-DATE	BABU	36	8	Dealer Release Trade Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	GAC9	44	5	Dealer Release Trade Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.
11	PIM-INTERNAL-CNTL-NO	CAGO	49	15	Dealer's Release Trade Internal Control Number. Free form. May be the same as preceding Dealer Release Trade Transaction Identifier, as dealer wishes.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
12	PIM-IPA-ISSUER- ID	CAGU	64	10	IPA Issuer Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer.
13	PIM-IPA-ISSUER-PROG-ID	CAGV	74	10	IPA Issuer Program Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer program. Fields 12 and 13 may optionally be combined by the IPA for the purpose of identifying both the issuer and its program in one identifier of up to 18 characters.
14	PIM-AT-TRANS-ID	CAGR	84	15	Dealer's Add Trade Primary Transaction Identifier. This identifies the trade the dealer is releasing. It is the dealer's Add Trade primary transaction identifier from the AT record.
15	PIM-AT- INTERNAL-CNTL- NO	CAGP	99	15	Dealer's Add Trade Primary Internal Control Number. This also identifies the trade the dealer is releasing. It is the dealer's Add Trade Primary Internal Control Number from the AT record

IPA Bank Reply to Dealer Transaction

Record Type AT, CT or DR (from IPA Bank to Dealer)

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	JAAA	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	AAAI	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	AAAK	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD- TYPE	HADD	8	2	Record Type. RD = IPA Bank Reply to Dealer Transaction record
5	PIM-DEALER-PART-NO	CAGK	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	CAGL	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	AAAU	26	8	Password.
8	PIM-TRANS-ID- REC	CAGM	34	2	IPA Bank Reply to Dealer Transaction Identifier. This is the 1st of 3 segments comprising the IPA's 15-position unique IPA Bank Reply to Dealer Transaction identifier: the type of transaction. RD = IPA Bank Reply to Dealer Transaction
9	PIM-TRANS-ID-DATE	BABU	36	8	IPA Bank Reply to Dealer Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	GAC9	44	5	IPA Bank Reply to Dealer Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
11	PIM-INTERNAL-CNTL-NO	CAGO	49	15	IPA Bank's Reply to Dealer Internal Control Number. Free form. May be the same as preceding IPA Bank Reply to Dealer Transaction Identifier, as IPA bank wishes.
12	PIM-IPA-ISSUER- ID	CAGU	64	10	IPA Issuer Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer.
13	PIM-IPA-ISSUER-PROG-ID	CAGV	74	10	IPA Issuer Program Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer program. Field 12 and 13 may optionally be combined by the IPA for the purpose of identifying both the issuer and its program in one identifier of up to 18 characters.
14	PIM-X-TRANS-ID	CAGN	84	15	Dealer's Transaction Identifier. This identifies the dealer transaction to which the IPA bank is replying. It is the Add Trade primary transaction identifier from the AT record, the Cancel Trade transaction identifier from the CT record, or the Dealer Release Trade transaction identifier from the DR record, as the case may be.
15	PIM-X-INTERNAL-CNTL-NO	CAGQ	99	15	Dealer's Internal Control Number. This also identifies the dealer transaction to which the IPA bank is replying. It is the dealer's Add Trade, Cancel Trade or Release Trade Internal Control Number from the AT, CT or DR record, as the case may be.
16	PIM-ACCEPT-SW	GAC5	114	1	Accepted/Rejected Code. Indicates whether the IPA bank has accepted or rejected the dealer transaction record. A = Accepted R = Rejected
17	PIM-ERROR-FIELD1		115	4	Up to four fields in one record might be identified as fields containing errors. This field identifies the first field containing an error. Leave blank if there is no error.
18	PIM-ERROR-FIELD1-CODE		119	4	Describes the error in the first field.
19	PIM-ERROR-FIELD2		123	4	This field identifies the second field containing an error. Leave blank if there is no error.
20	PIM-ERROR-FIELD2-CODE		127	4	Describes the error in the second field.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
21	PIM-ERROR-FIELD3		131	4	This field identifies the third field containing an error. Leave blank if there is no error.
22	PIM-ERROR-FIELD3-CODE		135	4	Describes the error in the third field.
23	PIM-ERROR-FIELD4		139	4	This field identifies the fourth field containing an error. Leave blank if there is no error.
24	PIM-ERROR-FIELD4-CODE		143	4	Describes the error in the fourth field.
25	PIM-CUSIP-NO	GAAA	147	9	CUSIP Number. The CUSIP number the IPA bank has assigned to the Interest-At-Maturity (IAM) or other interest-bearing trade and is returning to the dealer. Leave blank if Discount trade or the IPA bank has rejected the dealer transaction record.
26	PIM-AT-TRANS-ID	CAGR	156	15	Dealer's Add Trade Primary Transaction Identifier. This is a trade cross-reference for the dealer. It is the dealer's Add Trade Primary Transaction Identifier from the AT record. If the dealer transaction to which the IPA is replying in this record is an Add Trade transaction, this field's value and field 14's value will be the same; otherwise, their values will be different.
27	PIM-AT- INTERNAL-CNTL- NO	CAGP	171	15	Dealer's Add Trade Primary Internal Control Number. This is also a trade cross-reference for the dealer. It is the dealer's Add Trade Primary Internal Control Number from the AT record. If the dealer transaction to which the IPA is replying in this record is an Add Trade transaction, this field's value and field 15's value will be the same; otherwise, their values will be different.

IPA Bank Release Trade Record (from IPA Bank to Dealer)

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	JAAA	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	AAAI	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	AAAK	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD- TYPE	HADD	8	2	Record Type. BR = IPA Bank Release Trade record
5	PIM-DEALER-PART-NO	CAGK	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	CAGL	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	AAAU	26	8	Password.
8	PIM-TRANS-ID- REC	CAGM	34	2	IPA Bank Release Trade Transaction Identifier. This is the 1st of 3 segments comprising the IPA bank's 15-position unique IPA Bank Release Trade transaction identifier: the type of transaction. BR = IPA Bank Release Trade transaction.
9	PIM-TRANS-ID-DATE	BABU	36	8	IPA Bank Release Trade Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	GAC9	44	5	IPA Bank Release Trade Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.
11	PIM-INTERNAL-CNTL-NO	CAGO	49	15	IPA Bank's Release Trade Internal Control Number. Free form. May be the same as preceding IPA Bank Release Trade Transaction Identifier, as IPA bank wishes.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
12	PIM-IPA-ISSUER- ID	CAGU	64	8	IPA Issuer Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer.
13	PIM-IPA-ISSUER-PROG-ID	CAGV	72	10	IPA Issuer Program Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer program. Fields 12 and 13 may optionally be combined by the IPA for the purpose of identifying both the issuer and its program in one identifier of up to 18 characters.
14	PIM-AT-TRANS-ID	CAGN	82	15	Dealer's Add Trade Primary Transaction Identifier. This identifies the trade the IPA bank is releasing. It is the dealer's Add Trade primary transaction identifier from the AT record.
15	PIM-AT- INTERNAL-CNTL- NO	CAGQ	97	15	Dealer's Add Trade Primary Internal Control Number. This also identifies the trade the IPA bank is releasing. It is the dealer's Add Trade Primary Internal Control Number from the AT record.

Dealer Reply to IPA Bank Release

Trade Record Type BR (from Dealer to IPA Bank)

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	JAAA	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR- PROD-IND	AAAI	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	AAAK	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD- TYPE	HADD	8	2	Record Type. RR = Dealer Reply to IPA Bank Release Trade record
5	PIM-DEALER- PART-NO	CAGK	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	CAGL	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	AAAU	26	8	Password.
8	PIM-TRANS-ID- REC	CAGM	34	2	Dealer Reply to IPA Bank Release Trade Transaction Identifier. This is the 1st of 3 segments comprising the dealer's 15- position unique Dealer Reply to IPA Bank Release Trade transaction identifier: the type of transaction. RR = Dealer Reply to IPA Bank Release Trade transaction.
9	PIM-TRANS-ID- DATE	BABU	36	8	Dealer Reply to IPA Bank Release Trade Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
10	PIM-TRANS-ID- SEQ-NO	GAC9	44	5	Dealer Reply to IPA Bank Release Trade Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.
11	PIM-INTERNAL-CNTL-NO	CAGO	49	15	Dealer's Reply to IPA Bank Release Trade Internal Control Number. Free form. May be the same as preceding Dealer Reply to IPA Bank Release Trade Transaction Identifier, as dealer wishes.
12	PIM-IPA-ISSUER- ID	CAGU	64	8	IPA Issuer Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer.
13	PIM-IPA-ISSUER-PROG-ID	CAGV	72	10	IPA Issuer Program Identifier. This is the unique alphanumeric identifier the IPA assigns to each issuer program. Fields 12 and 13 may optionally be combined by the IPA for the purpose of identifying both the issuer and its program in one identifier of up to 18 characters.
14	PIM-BR-TRANS-ID	CAGN	82	15	IPA Bank Release Trade Transaction Identifier. This identifies the IPA bank release to which the dealer is replying. It is the IPA Bank Release Trade transaction identifier from the BR record.
15	PIM-BR- INTERNAL-CNTL- NO	CAGQ	97	15	IPA Bank's Release Trade Internal Control Number. This also identifies the IPA bank release to which the dealer is replying. It is the IPA Bank's Release Trade Internal Control Number from the BR record.
16	PIM-ACCEPT-SW	GAC5	112	1	Accepted/Rejected Code. Indicates whether the dealer has accepted or rejected the IPA Bank Release Trade record. A = Accepted R = Rejected
17	PIM-ERROR- FIELD1		113	4	Up to four fields in one record might be identified as fields containing errors. This field identifies the first field containing an error. Leave blank if there is no error.
18	PIM-ERROR- FIELD1-CODE		117	4	Describes the error in the 1st field.
19	PIM-ERROR- FIELD2		121	4	This field identifies the 2nd field containing an error. Leave blank if there is no error.

	Field Name	FIELD CODE	Starting Position	Length	Field Attributes
20	PIM-ERROR- FIELD2-CODE		125	4	Describes the error in the 2nd field.
21	PIM-ERROR- FIELD3		129	4	This field identifies the 3rd field containing an error. Leave blank if there is no error.
22	PIM-ERROR- FIELD3-CODE		133	4	Describes the error in the 3rd field.
23	PIM-ERROR- FIELD4		137	4	This field identifies the 4th field containing an error. Leave blank if there is no error.
24	PIM-ERROR- FIELD4-CODE		141	4	Describes the error in the 4th field.
25	PIM-AT-TRANS-ID	CAGR	145	15	Dealer's Add Trade Primary Transaction Identifier. This is a trade cross-reference for the IPA bank. It is the dealer's Add Trade Primary Transaction Identifier from the AT record.
26	PIM-AT- INTERNAL-CNTL- NO	CAGP	160	15	Dealer's Add Trade Primary Internal Control Number. This is also a trade cross-reference for the IPA bank. It is the dealer's Add Trade Primary Internal Control Number from the AT record.

Dealer Heartbeat Request (from Dealer to IPA Bank)

	Field Name	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD- IND	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD-TYPE	8	2	Record Type. DH = Dealer Heartbeat Request (to determine at any time whether IPA bank's system is available)
5	PIM-DEALER-PART-NO	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	26	8	Password.
8	PIM-TRANS-ID-REC	34	2	Dealer Heartbeat Request Transaction Identifier. This is the 1st of 3 segments comprising the dealer's 15-position unique Dealer Heartbeat Request transaction identifier: the type of transaction. DH = Dealer Heartbeat Request transaction.
9	PIM-TRANS-ID-DATE	36	8	Dealer Heartbeat Request Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	44	5	Dealer Heartbeat Request Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.
11	PIM-INTERNAL-CNTL- NO	49	15	Dealer's Heartbeat Request Internal Control Number. Free form. May be the same as preceding Dealer Heartbeat Request Transaction Identifier, as dealer wishes.

IPA Bank Reply to Dealer Heartbeat Request

Record Type DH (from IPA Bank to Dealer)

	Field Name	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD-TYPE	8	2	Record Type. HB = IPA Bank Reply to Dealer Heartbeat Request Transaction record (from IPA Bank, indicating that its system is available)
5	PIM-DEALER-PART-NO	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	26	8	Password.
8	PIM-TRANS-ID-REC	34	2	IPA Bank Reply to Dealer Heartbeat Request Transaction Identifier. This is the 1st of 3 segments comprising the IPA bank's 15-position unique IPA Bank Reply to Dealer Heartbeat Request Transaction identifier: the type of transaction. HB = IPA Bank Reply to Dealer Heartbeat Request Transaction
9	PIM-TRANS-ID-DATE	36	8	IPA Bank Reply to Dealer Heartbeat Request Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	44	5	IPA Bank Reply to Dealer Heartbeat Request Transaction Identifier. This is the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.

	Field Name	Starting Position	Length	Field Attributes
11	PIM-INTERNAL-CNTL-NO	49	15	IPA Bank's Reply to Dealer Heartbeat Request Internal Control Number. Free form. May be the same as preceding IPA Bank Reply to Dealer Heartbeat Request Transaction Identifier, as IPA bank wishes.
12	PIM-DH-TRANS-ID	64	15	Dealer Heartbeat Request Transaction Identifier. This identifies the dealer transaction to which the IPA bank is replying. It is the Dealer Heartbeat Request Transaction Identifier from the DH record.
13	PIM-DH-INTERNAL-CNTL-NO	79	15	Dealer's Heartbeat Request Internal Control Number. This also identifies the dealer transaction to which the IPA bank is replying. It is the dealer's Heartbeat Request Internal Control Number from the DH record.

IPA Bank Heartbeat Request (from IPA Bank to Dealer)

	Field Name	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	6	2	This field allows the dealer or IPA to specify different versions of the same record. '1' = this Version 1
4	PIM-RECORD-TYPE	8	2	Record Type. BH = IPA Bank Heartbeat Request (to determine at any time whether dealer's system is available)
5	PIM-DEALER-PART-NO	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	26	8	Password.
8	PIM-TRANS-ID-REC	34	2	IPA Bank Heartbeat Request Transaction Identifier. This is the 1st of 3 segments comprising the IPA bank's 15-position unique Heartbeat Request transaction identifier: the type of transaction. BH = IPA Bank Heartbeat Request transaction
9	PIM-TRANS-ID-DATE	36	8	IPA Bank Heartbeat Request Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd
10	PIM-TRANS-ID-SEQ-NO	44	5	IPA Bank Heartbeat Request Transaction Identifier. This the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.
11	PIM-INTERNAL-CNTL-NO	49	15	IPA Bank's Heartbeat Request Internal Control Number. Free form. May be the same as preceding IPA Bank Heartbeat Request Transaction Identifier, as IPA bank wishes.

Dealer Reply to IPA Bank Heartbeat Request Record Type BH (from Dealer to IPA Bank)

	Field Name	Starting Position	Length	Field Attributes
1	PIM-FUNCNAME	1	4	Function Name. This field is used by DTC's billing system to properly charge dealers and IPA banks for use of this service. It is a literal, 'PIM1'.
2	PIM-TEST-OR-PROD-IND	5	1	Indicates whether the data being transmitted is test data or production data. T = Test P = Production
3	PIM-RECORD-VERSION	6	2	This field allows the dealer or IPA to specify different versions of the same record. '01' = this Version 1
4	PIM-RECORD-TYPE	8	2	Record Type. HD = Dealer Reply to IPA Bank Heartbeat Request Transaction record (from Dealer, indicating that its system is available)
5	PIM-DEALER-PART-NO	10	8	Dealer's DTC Participant Number. For uniformity, all records will contain this field and the next one, after the Record Type field.
6	PIM-IPA-PART-NO	18	8	IPA's DTC Participant Number. For uniformity, all records will contain this field and the preceding one, after the Record Type field.
7	PIM-PASSWORD	26	8	Password.
8	PIM-TRANS-ID-REC	34	2	Dealer Reply to IPA Bank Heartbeat Request Transaction Identifier. This is the 1st of 3 segments comprising the dealer's 15- position unique Dealer Reply to IPA Bank Heartbeat Request Transaction identifier: the type of transaction. HD = Dealer Reply to IPA Bank Heartbeat Request Transaction
9	PIM-TRANS-ID-DATE	36	8	Dealer Reply to IPA Bank Heartbeat Request Transaction Identifier. This is the 2nd segment: today's date. pic = ccyymmdd

	Field Name	Starting Position	Length	Field Attributes
10	PIM-TRANS-ID-SEQ-NO	44	5	Dealer Reply to IPA Bank Heartbeat Request Transaction Identifier. This the 3rd and last segment: the sequence number, right justified with leading zeros. This number is not to be repeated on any given day.
11	PIM-INTERNAL-CNTL-NO	49	15	Dealer's reply to IPA Bank Heartbeat Request Internal Control Number. Free form. May be the same as preceding Dealer Reply to IPA Bank Heartbeat Request Transaction Identifier, as dealer wishes.
12	PIM-BH-TRANS-ID	64	15	IPA Bank Heartbeat Request Transaction Identifier. This identifies the IPA bank heartbeat request to which the dealer is replying. It is the IPA Bank Heartbeat Request Transaction Identifier from the BH record.
13	PIM-BH-INTERNAL-CNTL-NO	79	15	IPA Bank's Heartbeat Request Internal Control Number. This also identifies the IPA bank heartbeat request to which the dealer is replying. It is the IPA bank's Heartbeat Request Internal Control Number from the BH record.

APPENDICES

MMI PRE Issuance Field Error Codes

Record Types	Field Code	Field Description	Possible Error Codes For Field
all	jaaa	func name	9aaaa required 9aaa invalid
all	aaai	test or prod indicator	9aaa 9abe
all	aaak	record version	9aaa 9abe
all	hadd	record type	xaaa, xdab, xdac, xdad, xdae, xaaz, xdao, xe01, x901, x902
all	cagk	dealer part number	xaab, xaaj, xaak
all	cagl	ipa part no	maaa, 9abe
all	aaau	password	
all	cagm	trans id rec	
all	babu	trans rec date	
all	gac9	is seq no	xaag, xaay, 9aa6, 9abo, multiple records exist
all	cago	internal control no	9aaa, xabc, 9aa6 duplicate
ct dr br	cagp	at ref internal control no	9aaa, xdac, xdad
ct dr br	cagq	other ref intl control no	xaah
ct dr br	cagr	at ref trans no	xaai
	cagn	other ref trans no	xaai
	gac5	accept switch	
at ct br	cagu	ipa issuer id	xc01
at ct br	cagv	ipa issuer prog id	9abe, xc01, xdaf, xdah, xdai, xdaj, xabd
at	eaf8	iss intr type ind	xaal
at	gaaz	phy iss id	xaam
at	hady	phys cert desc occur	9aaa
at	dabm	phys cert desc amount	9aaa, xdan, xa01-xa10 xb01-xb10
at	cags	phys cert descr no	9aaa, xa01-xa10
at	hadz	phys cert desc hld name	9aaa, xa01-xa10

Record Types	Field Code	Field Description	Possible Error Codes For Field
at	haea	reg cert desc hld info	9aaa, 9abe, xa01-xa10
at	dabn	manage fee	xaas, 9aaj
at	faal	manage fee rate	xaat
at	dabo	days to mature	xaau, xdag
at	dabp	pin discount amt	xaav
at	dabq	mature amt	xaaw
at	eaf7	valued trade sw	xaax, xdam
at	gaaa	cusip no	9abe
at	gaax	iss. product type	9abe
at	gaay	instruction type	9abe
at	caaj	issuing agent type	9aaf
at	caak	paying agent number	maaa
at	eaam	ex-dtc issuance	9abe - see MMI errors
at	baag	last payment date	9aaj - see MMI errors
at	baaa	settlement date	9aaj, 9abe, 9aa8
at	baah	dated date	9aaj, xdak
at	baai	maturity date	9aaj, 9aaz, xdag, xdal
at	daaa	face value/num. shares	9aaf xdaf, 9aa2 9aa3 xdam
at	daat	settlement amount	9aaf, 9aa4, 9aa9
at	caal	receiving part number	9aaf, 9aah, maao
at	daau	min denom/num shares	**Note:** All italicized errors copied from MMI spec. For MMI 895 Byte recordds fields: Error Codes 9abe - invalid and 9aaa - requird will be applied in lieu of similar error codes listed in MMI document
at	daav	incr denom/num shares	9aah
at	gaa1	sales agt/direct type	9abe
at	daaw	sales price percent	9aaf

Record Types	Field Code	Field Description	Possible Error Codes For Field
at	daax	commission percentage	9aaf
at	faad	income rate type	9abe
at	gaa0	income payment type	9abe
at	eaan	indexed principle ind.	9abe
at	eaao	per. amort. prin. ind.	9abe
at	eaap	foreign curr. ind.	9abe
at	gaai	foreign curr, code id	9abe
at	eaaq	US$ paymt. opt. ind	9abe
at	eaar	repay (PUT) opt. ind.	9abe
at	eaas	call ind	9abe
at	eaat	chgable inc. pay. freq. ind	9abe
at	eaau	repay opt/death ind	9abe
at	eaa2	taxable ind	9abe
at	eaav	extendeable mat ind	9abe
at	eaaw	income rate reset ind	9abe
at	eaax	renewable note ind	9abe
at	eaay	inc step up rate ind	9abe
at	faae	inc step up rate	9abe, 9aaf, 9aah
at	baac	income step up up eff. dt	9abe, 9aaj
at	faaf	inc. disc/int/1st pay	9abe, 9aaf, 9aah
at	daay	inc. pay amt/1k/1st pay	9abe, 9aaf, 9aah
at	daay	inc. pay amt/1k/maturity	9abe, 9aaf, 9aah
at	gaa3	inc calc formula type	9abe
at	gaa4	inc. pay. freq. inter type	9abe
at	gaa5	inc. pay. freq. interval no	9abe
at	gaa5	target 1st payment ind	9abe
at	gaa6	act. 1st payment ind.	9abe

Record Types	Field Code	Field Description	Possible Error Codes For Field
at	gaa6	inc pay acc pd meas typ	9abe
at	eaaz	inc pay acc pd meas typ	9abe, 9aa5
at	baa7	1st inc. pd. recd date	9abe, 9aaj
at	baak	inc pay rec/pay dt dif d	9abe, 9aah
at	eaa0	inc pay bus cal ind	9abe
at	eaa1	inc pay wknd/hol ind	9abe
at	gaa7	income rt reset int typ	9abe
at	gaa8	Inc rt res inter val number	9aaf
at	eaak	Libor indx inc pmt indicator	
at	haaa	Income pay var rt indx name	
at	gaa9	Indx pay indx mat int. type	9aaa
at	gaba	Indc pay indx mat int number	9abe
at	eaal	inc pay spread sign type	9abe
at	daaz	income pay spread percentage	9aaf
at	baal	Inc pay day of mnth (DOM)	9abe
at	baam	inc pay day DOM bus/calen indicator	9abe
at	baan	inc pa wk of month	9abe
at	baao	inc payment day of week	9abe, 9aaa
at	gabb	repayment put option frequency	9abe
at	baap	start date of first tender period	9abe, 9aaj
at	baaq	end date of first tender period	9abe, 9aaj
at	baar	pay date of first tender period	9abe, 9aaj
at	baa3	end date of last tender period	9abe, 9aaj
at	baa4	first call date	9abe, 9aaj
at	daa0	call price percentage	9abe
at	gabc	princ pay frequency int number	9abe, 9aaj
at	gabd	princ pay frequency int numb	9abe, 9aaj

Record Types	Field Code	Field Description	Possible Error Codes For Field
at	baas	princ pay day of month	9abe, 9aaj
at	baat	princ pay DOM bus/calen ind	9abe, 9aaj
at	baau	principal pay wk of month	9abe, 9aaj
at	baav	princ pay day of week	9abe, 9aaj
at	baa0	tergeted first princ pay date	9abe, 9aaj
at	baa1	actual first princ pay date	9abe, 9aaj
at	baa2	first princ payment record dat	9abe, 9aaj
at	baaw	pcpl py r/pl de dif(#od pr pl dt	9abe, 9aaj
at	eaah	pcpl py bus/calen indicator	9abe
at	eaai	princ pay wkn/hol indicator	9abe
at	eaaj	libor indx princ pay indicator	9abe
at	haac	princ pay indx mat inter type	9abe
at	gabe	princ pay indx mat int type	9abe
at	gabf	princ pay indx mat int number	9abe
at	eaag	princ pay sprd sign type	9abe
at	daa1	princ pay spread percentage	9abe, 9aaj
at	baax	stlmnt ds princ pay after mat	9abe, 9aaj
at	eaae	final princ pay calen/bus d ind	9abe
at	baay	stlmnt d inc pay calen/bus day ind	9abe
at	eaaf	final inc pay calen/bus inc	9abe
at	baaz	BA draft date	9abe
at	haae	BA draft name	9abe
at	haaf	BA letter of credit name	9abe

MQSeries Information Form - External User

MQSeries Information Form
External User

Company Name:_____ Request Date:_____	
Address:_____	
City:_____ State:_____ Zip:_____	
Authorized Signature:_____ Title:_____	
Requestor Support List	
Tech. Support:	_____ Phone: ( )_____ Hrs:_____-_____
Alternate:	_____ Phone: ( )_____ Hrs:_____-_____
App. Support: _____ Phone: ( )_____ Hrs:_____-_____	
After Hrs. Support _____ Phone: ( )_____ Hrs:_____-_____ Fax#: _____ Phone: ( )_____ Hrs:_____-_____	
Requestor Environment Information Site Location:_____ Time Zone:_____ System Platform:_____ Operating System:_____ Release:_____ MQ Software:_____ Release:_____ MQ Transport:_____ (LU62, TCP/IP)	
Requestor Channel Information _____Test _____QA _____Prod	
Queue Mgr. Name:_____(Leave blank - to be supplied by DTC) Sending Channel Type:_____ Receiving Channel Type:_____ APPC/ACB Name: _____ Logmode: _____ TCP/IP Network Address:_____ TP Name @ Requestor: _____ Max. Message Size:_____ Max Transmission Size: _____ Disconnect Interval:_____	

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