



Settlement

20.10 MAINFRAME DUAL HOST (MDH) SYSTEM USER GUIDE FOR PRELIMINARY SETTLEMENT - STATEMENT RECORDS (OUTPUT)

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PREFACE

This document describes, specifically, the input and output requirements for obtaining the Preliminary Settlement Statement notification records via DTC's Mainframe Dual Host (MDH) system. These records (one per settlement 'activity-type') enable the participant to balance its system in an automated manner. The complete description of the MDH system and the functions it supports are contained in the *MDH User Guide - Version 4*.

OVERVIEW

Criteria for Developing MDH

The Mainframe Dual Host (MDH) system is designed to converse with those participants whose mainframes can support 'real-time' (for example, CICS) processing via the LU6.2 communications protocol. This protocol is described in the next section of this document.

The MDH system provides the following advantages over older systems at DTC:

- Allows two-way traffic activity between DTC and the participant in a real-time environment
- Eliminates the need for intermediate hardware/software
- Provides backup through redundant mainframes and lines.

MDH will control the data flow between the DTC 'host' computer and the participant 'host' computer via a dedicated point-to-point communication line (such as a telephone line). The procedure with which the participant can either request data to be transmitted to DTC or request data to be transmitted to it from DTC is described in other sections of this document.

DTC-TO-PARTICIPANT DATA TRANSMISSION

General

This section describes in detail the procedure that the participant uses to receive data transmission blocks from MDH.

The types of data available are Preliminary Settlement Statement Records (PSR)

Note:

These records contain all the data that is shown on the PTS 'FFSD' inquiry by settlement-activity-type, one record each.

To review the sequence of transmissions required to receive data the participant's host will:

- Signon to MDH by transmitting a Type '01' Logon Block
- Request the MDLS function by transmitting a Type '03' function-request block
- Transmit a Type '07' transmission-request block
- Receive one or more Type '08' data blocks until all the available data has been transmitted.

Receiving Data from DTC

Type '08' Transmission Block Format

The Type '08' transmission block format is shown in the diagram below:

| | | | | | | | | |
|-----------------|-------------------------|--------------------|------------------|--------------------|------------------|--------|--------|---|
| BLOCK PREFIX | BLOCK DATA LENGTH | TRANS #1 LENGTH | TRANS #1 DATA | TRANS #2 LENGTH | TRANS #2 DATA | \ / | \ / | TRANS #N (UP TO 4085 TOTAL CHARACTERS) |
| 66) | (4) | (4) | PSR(168) | (4) | PSR (168) | \ / | \ / | |

|<-----MINIMUM 242----->|

|<-----MAXIMUM 4085----->|

Note:

This data can be interspersed with other types of non-Preliminary Settlement Statement activity.

Each block contains a 66-byte prefix followed by one to 10 transactions in any combination of the data record types described above. The minimum block length is 242 bytes and the maximum is 4085 bytes.

Transmitting the Request Block

The participant will transmit a type '07' block containing the following fields:

- **Block Type** must be '07'
- **Time Stamp** is provided by MDH and used for cutoff-time checking
- **Participant Sign-on ID** must be a valid 8-character field
- **Individual user Number** - This 2-digit field is provided by MDH in the Type '02' logon response block. It must be inserted in the prefix of every transmission block sent to MDH to uniquely identify the transmission
- **Function Requested** must be 'MDLS'

- **Request Code** (should be 'AD' for 'all data')
- **File Control Number** (YYYYDDDs).(Julian date + session)
- **Starting Sequence Number** desired ('nnnnnn')
- **Total Number** desired ('nnnnnn' - optional)

Note:

The 'starting seq. #' and 'total #' parameters are six-character numeric fields which must be right aligned and left zero filled.

See [Exhibit 3](#) for this block's format

Receiving the Response Block

The participant host will receive one of the three following responses as a result of the Type '07' request.

1. A *'No Data Available' condition*. The Type '08' block will contain:
 - A 70-byte block prefix
 - A transaction length attribute with a value of 8
 - A message 'NONE' in the data portion of the transaction indicating that there was no data available for the requested range. (See [Exhibit 4](#)).

The participant can now submit a Type '03' function-request block or a Type '90' signoff block.

2. A *'Data Sent' condition*. The Type '08' block will contain:
 - A 70-byte block prefix indicating the number of transactions sent in the block
 - One or more occurrences of intermixed transactions in the sequence that they were chronologically processed at DTC.

Note:

The first block will be followed by additional '08' blocks until either no more data is available or the desired range has been satisfied.

3. A *'No More Data' condition*. The Type '08' block will contain:
 - A 70-byte block prefix
 - A transaction length attribute with a value of 8
 - A message 'END ' in the data portion of the transaction indicating that no more data is available or that the desired range has been satisfied. (See [Exhibit 4](#)).

The participant can now submit a Type '03' function-request block or a Type '90' signoff block.

Note:

- The transaction length attributes shown above always contain the length of the data that follows plus four for the length of the length attribute field itself.
- The use of the 'Starting Seq. #' and 'Total #' parameters allows the end-user to receive the same data more than once if requested, similar to the 'RPNT' function on PTS. It does *not*, however, mark this data as being sent as an 'original transmission'.
- As discussed earlier, if a system problem occurs at DTC and is caused, for example, by a program ABEND, unavailability of files or tables, or other reasons, MDH will send a Type '99' response transmission block instead of the Type '08' block currently being transmitted. When the problem is resolved at DTC, the participant will be informed and should attempt to reestablish the session in the normal manner.

EXHIBITS

Exhibit 1 - Logon Request

Logon Request Block from Participant - Length 68 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Numeric - Value is '01' |
| TIME-STAMP | 03 | 06 | Time received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for group user (e.g. G0000123) |
| INDIVIDUAL-USER-NUMBER | 17 | 02 | Internal to MDH |
| LU6.2-TERMINID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |
| PASSWORD | 61 | 08 | DTC-assigned user password |

Figure 1. Logon Request Block from Participant

Logon Response Block from MDH - Length 142 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Numeric - value is '02' |
| TIME-STAMP | 03 | 06 | Time received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for group user (e.g. G0000123) |
| INDIVIDUAL-USER-NUMBER | 17 | 02 | Returned by MDH. Must be copied by participant into all blocks sent to MDH. |
| LU6.2-TERMID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |
| RESPONSE-CODE | 61 | 01 | Values: - 'A': Logon accepted - 'R': Logon rejected |
| RESPONSE-REASON-CODE | 62 | 01 | Code indicating reason for rejection: 'B': Invalid block type 'C': Invalid connection I.D. 'D': Already logged on 'H': PTS is in 'Halt' mode 'P- ': PTS is down 'Q': DQF Recovery down 'S': Invalid signon ID 'X': Invalid password |
| RESPONSE-ERROR-MESSIGE | 63 | 80 | Message explaining why the logon was rejected |

Figure 2. Logon Response Block from MDH

Exhibit 2 - Function Request

Function Request Block from Participant - Length 65 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Numeric - Value is '03' |
| TIME-STAMP | 03 | 06 | Time Received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for group user (e.g. G0000123) |
| INDIVIDUAL-USER-NUMBER | 17 | 02 | Copied from type '02' logon response |
| LU6.2-TERMINID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |
| FUNCTION-REQUESTED | 61 | 04 | Possible values: 'MDLS': output to participant |
| Filler | 65 | 01 | Value space |

Figure 3. Function Request Block from Participant

Function Response Block from MDH - Length 146 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Numeric - value is '04' |
| TIME-STAMP | 03 | 06 | Time received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for group user (e.g. G0000123) |
| INDIVIDUAL-USER-NUMBER | 17 | 02 | Internal to MDH |
| LU6.2-TERMINID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |
| FUNCTION-REQUESTED | 61 | 04 | Possible values: 'MDLS': output to participant |
| RESPONSE-CODE | 65 | 01 | Values: 'A': Function request accepted 'R': Function request rejected |
| RESPONSE-REASON-CODE | 66 | 01 | Code indicating reason for rejection: 'A': Not signed on "B": Past cutoff time "C": Function does not exist "D": User not eligible for function "E": Function quiescing "F ': Function mismatch for block type '05' "G- ': Function not for LU6.2 (MDH) "H- ': Previous function not completed "P- ': PTS is down "Q- ': Recovery not available |
| RESPONSE-ERROR-MESSAGE | 67 | 80 | Message explaining why Response-Code is 'R' |

Figure 4. Function Response Block from MDH

Exhibit 3 - Data Request Block (for MDLS Function)

Data Request Block from Participant -- Length 86 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Value '07' |
| TIME-STAMP | 03 | 06 | Time received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for group user (e.g. G0000123) |
| INDIVIDUAL-USER-NUMBER | 17 | 02 | Entered by Sender from Type '02' logon response |
| LU6.2-TERMINID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |
| FUNCTION-REQUESTED | 61 | 04 | Value 'MDLS' |
| REQUEST-TYPE | 65 | 02 | Value of 'AD', 'OP' or 'OD' |
| FILE-CONTROL-NUMBER | 67 | 08 | Format : YYYYDDDS |
| STARTING-SEQ-# | 75 | 06 | Numeric 'starting' sequence number desired |
| MAXIMUM-NUM-REQUESTED | 81 | 06 | Numeric number of transactions desired. |

Figure 5. Data Request Block from Participant

Exhibit 4 - Data Response Block from MDH with 'END' or 'NONE'

Data Response Block from MDH - Length 78 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|--|
| TYPE-OF-BLOCK | 01 | 02 | Value '08' |
| TIME-STAMP | 03 | 06 | Time received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for Group user (e.g. G0000123) |
| INDIVIDUAL-USER-NUMBER | 17 | 02 | Internal to MDH |
| LU6.2-TERMID | 19 | 04 | Internal to MDH |
| Filler | 23 | 30 | Value spaces |
| FILE-CONTROL-NUMBER | 53 | 08 | Format : YYYYDDDS |
| RESPONSE-CODE | 61 | 01 | 'A' or 'R' |
| RESPONSE-REASON-CODE | 62 | 01 | 'A': Not signed on 'B': Past cutoff 'C': Not in 'MDLS' function 'D': Invalid range request 'E': Function incorrect' 'F': Invalid Request-Type (MDLS) 'G': Wrong File-Control-# (MDLS) 'M': Message Delivery is down 'N': File-Ctl# vs Request-Type is invalid (MDLS) 'P': PTS is down |
| TRANSACTIONS-IN-BLOCK | 63 | 04 | Number of transactions in this block (Value = 0) |
| BLOCK-DATA-LENGTH | 67 | 04 | Length of the data following this field plus 4. Value 12. |
| TRANSACTION-LENGTH | 71 | 04 | Length of the transaction following this field plus 4. Value 8. |
| REQUEST-END-MESSAGE | 75 | 04 | Values: 'END ' = All data requested has been sent. 'NONE' = No data has been found for this request. |

Figure 6. Data Response Block from MDH

Exhibit 5 - Response Block for 'SDFS' Prelim Settlement Statement

The '08' Response Block is variable length and consists of a 70-byte Block Prefix followed up by as many transactions as can fit in a 4,000-byte area. Each transaction is preceded by a 4-byte length attribute, which should be used for deblocking purposes. The exhibit below shows a block that contains a transaction for a single 'Preliminary Settlement Statement' record. It consists of the 70-byte block prefix, the 4-byte transaction length attribute, and 166 bytes of transaction data.

Response Block for SDFS Prelim Settlement Statement

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Value '08' |
| TIME-STAMP | 03 | 06 | Time received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for group user (e.g. G0000123) |
| INDIVIDUAL-USER-NUMBER | 17 | 02 | Internal to MDH |
| LU6.2-TERMINID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |
| RESPONSE-CODE | 61 | 01 | 'A': Accepted 'R': Rejected |
| RESPONSE-REASON-CODE | 62 | 01 | 'A': Not signed on 'B': Past cutoff 'C': Not in 'MDLU' function 'D': Invalid range request 'E': Function incorrect 'F': Invalid Request-Type (MDLS) 'G': Wrong File-Control-# (MDLS) 'M': Message delivery is down 'N': File-Ctl# vs Request-Type is invalid (MDLS) 'P': PTS is down |
| TRANSACTIONS-IN-BLOCK | 63 | 04 | Number of transactions in this block |
| BLOCK-DATA-LENGTH | 67 | 04 | Length of the data following this field plus 4. |
| TRANSACTION-LENGTH | 71 | 04 | Length of the transaction following this field plus 4. Value = '172'. |
| Filler | 75 | 02 | For DTC internal use only |
| Filler | 77 | 01 | Value space |
| DEST-PARTIC-ACCOUNT | 78 | 08 | Individual Participant # or Group user # |
| DEST-SYMBOL | 86 | 02 | Destination Symbol - Numeric |
| Filler | 88 | 01 | Value '-' |

| Field Name | Pos | Len | Field Attributes |
|--------------------------|-----|-----|---|
| DEST-ACCOUNT-SEQ-# | 89 | 06 | Sequence # of the transaction □ unique for each account destination |
| TYPE-08-RESPONSE | 95 | 01 | Value: 'E' |
| SET-FUNCTION-NAME | 96 | 04 | Values: 'SETA' |
| SET-MDH-DATE | 100 | 08 | MDH processing date (CCYYMMDD) |
| SET-MDH-TIME | 108 | 06 | MDH processing time (HHMMSS) |
| SET-PARTICIPANT | 114 | 08 | Participant Number |
| SET-RECORD-TYPE | 122 | 03 | Values 'DET' (DETAIL RECORD) |
| SET-ACTIVITY-CODE | 125 | 03 | Activity code (Refer to Exhibit 9) |
| SET-ACTIVITY-CODE-SUFFIX | 128 | 03 | Activity code suffix (Refer to Exhibit 9) |
| SET-CREDITS | 131 | 17 | Credits to the participant's DTC account. Picture 9(15)V99 |
| SET-DEBITS | 148 | 17 | Debits to the participant's DTC account. Picture 9(15)V99 |
| SET-ADJUSTMENTS | 165 | 18 | Preliminary cutoff adjustments to the participant account. Picture 9(15)V99S |
| SET-NET-OBLIGATION | 183 | 18 | Preliminary cutoff net settlement obligation. Picture 9(15)V99S |
| SET-SHORT-DESCRIPTION | 201 | 10 | Short description of activity |
| SET-LONG-DESCRIPTION | 211 | 30 | Long description of activity |
| Filler | 241 | 02 | Value spaces |

Figure 7. Response Block For SDFS Prelim Settlement Statement

Exhibit 6 - Logoff Request Block

Logoff Request Block from Participant - Length 60 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Value '90' |
| TIME-STAMP | 03 | 06 | Time Received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for group user (e.g. G0000123) |
| Individual-User-Number | 17 | 02 | Entered by Sender from Type '02' logon response |
| LU6.2-TERMID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |

Figure 8. Logoff Request Block From Participant

Logoff Response Block from MDH - Length 142 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Value '91' |
| TIME-STAMP | 03 | 06 | Time received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161) Alphanumeric for group user (e.g. G0000123) |
| Individual-User-Number | 17 | 02 | Internal to MDH |
| LU6.2-TERMID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |
| Response-Code | 61 | 01 | Values: 'A' = Logoff Accepted 'R' = Logoff Rejected |
| Response-Error-Code | 62 | 01 | Code indicating reason for rejection Values: 'A' = Not Logged on 'B' = Wrong signon-ID 'P' = PTS is down |
| Error-Message | 63 | 80 | Error message if logoff has been rejected. |

Figure 9. Logoff Response Block From MDH

Exhibit 7 - System Error Block From MDH

System Error Block from MDH - Length 145 Bytes

| Field Name | Pos | Len | Field Attributes |
|------------------------|-----|-----|---|
| TYPE-OF-BLOCK | 01 | 02 | Value '99' |
| TIME-STAMP | 03 | 06 | Time received (HHMMSS) |
| USER-ID | 09 | 08 | Numeric for individual user (e.g. 00000161); Alphanumeric for group user (e.g. G0000123) |
| Individual-User-Number | 17 | 02 | Internal to MDH |
| LU6.2-TERMID | 19 | 04 | Internal to MDH |
| Filler | 23 | 38 | Value spaces |
| Function | 61 | 04 | Function in progress at time of error |
| Error-Code | 65 | 01 | This error-code field is currently not used, but will eventually contain the CICS ABEND code at the time of system failure. |
| Error-Message | 66 | 80 | System error message. |

Figure 10. System Error Block From MDH

Exhibit 8 - Participant Request/MDH Response

Participant Request/MDH Response - Chart

| PARTICIPANT REQUEST | | MDH RESPONSE | |
|---------------------|--|--------------|---|
| Block type | Description | Block type | Description |
| '01' | Logon | '02' | <i>Logon</i> (accepted/rejected) |
| | | '06' | OR - <i>Status</i> of last good transmission ('recovery' after abnormal session termination) |
| | | '99' | OR - <i>Logon</i> rejected (System error) |
| '03' | Function | '04' | <i>Function</i> (accepted/ rejected) |
| | | '99' | - OR - <i>Function</i> rejected (System error) |
| '05' | Data to DTC ('Change of Function') | '06' | <i>Status</i> of Data Block |
| | | '99' | - OR - <i>Data</i> rejected (System error) |
| '07' | Data from DTC (via 'Range Request' or 'ALL') | '08' | <i>Data</i> transmission |
| | | '99' | - OR - <i>Data</i> rejected (System error) |
| '90' | Logoff | '91' | <i>Logoff</i> (accepted/rejected) |
| | | '99' | - OR - <i>Logoff</i> rejected (System error) |
| NONE | 'Time-out' (automatic) | NONE | Session terminated via (Automatic) LU6.2-to-LU6.2 system protocol message |

Figure 11. Participant Request/MDH Response - Chart

Exhibit 9 - Settlement Activity/Sub-Activity Codes

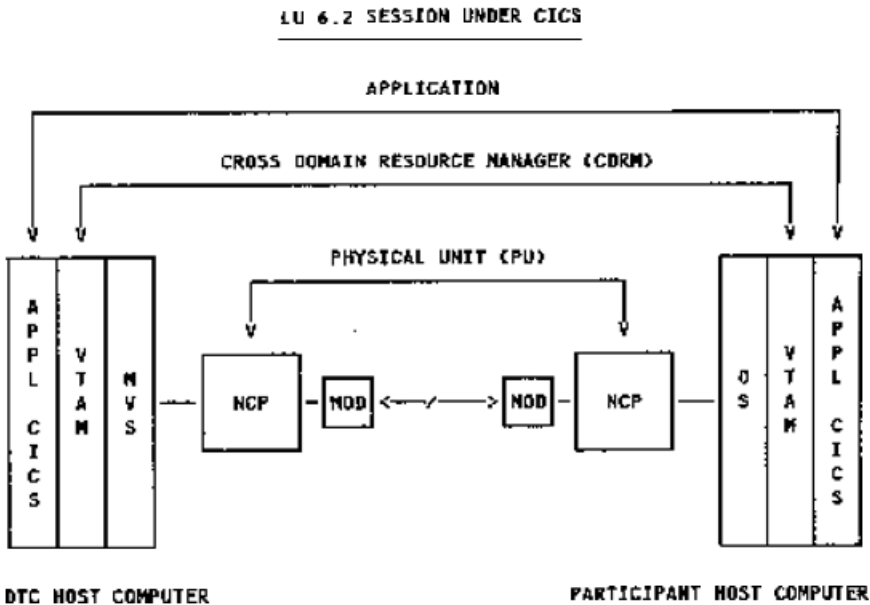
| Activ | Sub-A | Description |
|-------|-------|-----------------------------|
| 019 | 000 | ID Deliver Orders |
| 019 | 001 | MMI Night Deliver Orders |
| 026 | 000 | Deliver Orders SDFS |
| 026 | 001 | MMI Deliver Orders (Day) |
| 026 | 003 | REPO Deliver Orders |
| 026 | 004 | Issuance |
| 026 | 005 | Stock Loan Deliver Orders |
| 026 | 006 | Stock Loan Return DOs |
| 026 | 007 | Inter-Depository Reversals |
| 028 | 000 | Maturity Presentments |
| 028 | 001 | REORG Presentments |
| 047 | 000 | IPO/IPO Deliver Orders |
| 048 | 000 | IPO/Free Deliver Orders |
| 049 | 000 | Free/IPO Deliver Orders |
| 052 | 000 | Valued IPO Pledge |
| 054 | 000 | Valued Pledge |
| 055 | 000 | Valued Release |
| 060 | 000 | Income Presentments |
| 061 | 000 | Principal Presentments |
| 070 | 000 | Billing/Refunds |
| 070 | 001 | Part Fund Contributions |
| 070 | 002 | Controllers Adjustments |
| 078 | 000 | Security Payment Orders |
| 078 | 001 | MMI/Security Payment Orders |
| 082 | 000 | Premium Payment Orders |
| 084 | 000 | Reorganizations |

| Activ | Sub-A | Description |
|-------|-------|-----------------------------|
| 086 | 000 | CMO Refactoring |
| 087 | 000 | Dividend Allocations |
| 088 | 000 | Redemptions |
| 089 | 000 | Short Penalties |
| 094 | 000 | Yesterday's Suspense |
| 095 | 000 | Funds Transfer Manual |
| 095 | 001 | Funds Transfer SPP |
| 095 | 002 | Funds Transfer Set |
| 095 | 003 | Fund Tran P/I Withdrawal |
| 096 | 000 | Fund Tran Cross-Endorsement |
| 140 | 000 | Fund Serv |
| 141 | 000 | Network Dividends |
| 250 | 000 | Late P/I Allocations |

MDH TECHNICAL DOCUMENTATION

This section describes the Communications and Systems Programming Requirements for participants who wish to use the Mainframe Dual Host (MDH) System. The test and production environments at DTC are described along with guidelines for the environment at the participant's location.

The diagram below represents the 'layers' of communications that comprise an LU 6.2 session:



General Communications Definitions

Listed below are the characteristics of the DTC test and production systems. For a participant to use MDH, his system must have matching characteristics at the same or a higher level and this information will be exchanged with DTC as soon as it is known:

| No | Feature | DTC Test Frame | DTC Prod Frame |
|----|---------------------------------|----------------|----------------|
| 1 | VTAM Level | CSV2R8 | CSV2R8 |
| 2 | NCP Level | V7 R5 | V7 R5 |
| 3 | NETID | DTCT | DTCT |
| 4 | NULL NETID ** | | |
| 5 | GWNCP | Yes | Yes |
| 6 | MAXSUBA | 31 | 31 |
| 7 | NULL NET MAXSUBA ** | | |
| 8 | HOST SUBAREA (NON GATEWAY) | Not applicable | Not applicable |
| 9 | NCP SUBAREA (NON GATEWAY) | Not applicable | Not applicable |
| 10 | NULL NET NCPSUBAREA ** | | |
| 11 | CDRM NAME | DTCT02 | DTCP03 |
| 12 | CDRM ADDRESS, ELEMENT (GATEWAY) | (,2) | (,2) |
| 13 | SSCPID | 1025 | 1027 |
| 14 | Transmission Group for Line | 1 | 1 |
| 15 | ERS, VRS | 0,0 and 1,1 | 0,0 and 1,1 |
| 16 | MAX RU SIZE | 3840 | 3840 |
| 17 | Application Name** | UTOR | PLCICS |
| 18 | Line Name ** | | |
| 19 | Line Station Name ** | | |

Figure 12. Communication Requirements

** To be determined at time of installation by agreement between DTC and participant.

Note:

The production link will run at 9600-Baud Full Duplex.

Note:

Items 8 and 9 do not apply if participant's installation is Gateway capable.

Controller 'Sysgen' Definitions

The following parameters must be included in 3705 or 3725 gens:

1. For Both 3705 and 3725 Group or Line Macros:
 - NRZI= No
 - NEWSYNC = No
 - DUPLEX = Full
2. For 3725. code the Line Address as follows:
 - Address = (XXX,Full) for Full Duplex.
 - Address = (XXX,Half) for Half Duplex.

Note:

IBM Informational APAR II01803 is very useful for Link Station definitions.

VTAM Requirements

1. Mode Table Definitions

The required Mode Table entry for use with LU6.2 is shown below:

MODELU62 TITLE 'MVS/XA SYSTEM MODE TABLE FOR LU 6.2 USE '

MODULE NAME = MODELU62

MODELU62 MODETAB

```

SNASVCMG  MODEENT  LOGMODE=SNASVCMG
SNASVCUS  MODEEND  LOGMODE=SNASVCUS
MODEEND
END

```

2. VTAM CICS Application Definition

*

```

XXX      APPL EAS=160,          ESTIMATED CONCURRENT SESSIONS
         ACBNAME=XXX,          APPLID FOR ACB
         SONSCIP=YES,
         VPACING=3,
         MODETAB=MODELU62,
         PARSESS=YES,
         AUTH=(ACQ,VPACE,PASS)

```

CICS Requirement (General)

The participant's system must have the following:

1. At least CICS Release 1.6.1.
2. At least a PUT Level 8601 (with Release 1.6.1).
3. A TCT entry defining the CICS/LU6.2 line as suggested below. This entry defines the link for the LU6.2 Communications Facility and will be allocated by the LU6.2 Participant Application Region.

| | | | |
|-------------|---------------|--------------------------|--------------------------------|
| LU62 | DFHTCT | TYPE=SYSTEM, | DEFINE IRC |
| | | ACCMETH=VTAM, | USE VTAM |
| | | TRMTYPE=LUTYPE62, | LOGICAL UNIT 6.2 |
| | | FEATURE=SINGLE, | SINGLE SESSION |
| | | SYSIDNT=LU62, | NAME OF THIS LINK (ANY NAME) |
| | | NETNAME=PLCICS, | APPLID OF REMOTE SYSTEM AT DTC |
| | | MODENAME=SNASVCU, | NOTE: |
| | | BUFFER=1024, | USE TQCICS FOR TESTING |
| | | RUSIZE=1024, | LOG MODE ENTRY NAME |
| | | TCTUAL=172 | MATCH TO MODETAB ENTRY |
| | | | OUTBOUND RUSIZE |
| | | | INBOUND RUSIZE |
| | | | OPTIONAL TCT USER AREA |

Participants must provide DTC with the NETNAME, i.e., 'APPLID', of *their* systems for inclusion in the DTC DFHTCT.

Note:

It is recommended that the participant consider maintaining a separate CICS Region for the LU6.2 link with DTC. This will facilitate the coordination of PTF upgrades at each location and avoid incompatible versions of CICS. A 'policy paper' discussing this issue is available upon request.

CICS/LU6.2 Application Requirements

Shown below are two skeleton programs which highlight the key activities required to establish an LU6.2 session with the MDH system and send and receive data.

The code is a combination of actual CICS commands, mainly related to establishing the session and conversing, and pseudocode, which indicates the sequence of block types that will be transmitted back and forth over the communication line.

1. Initialization

```
EXEC CICS HANDLE ABEND LABEL(LU62-EXIT) END-EXEC.
```

```
EXEC CICS HANDLE CONDITION SYSIDERR(ALLOC-FAIL) END-EXEC.
```

2. Allocate an LU6.2 session with the MDH system.

```
EXEC CICS ALLOCATE SYSID(LU62-SYSTEM) END-EXEC.
```

Note:

When the resource is not available (DTC System is down or the session has already been taken), the program will wait at this point until the session becomes available.

Where the label 'LU62-SYSTEM' should be the TCT ID of the remote facility, i.e., DTC.

MOVE EIBRSRCE TO LU62-ID.

Where the label 'LU62-ID' is a storage area for the Session-ID, which is required in subsequent code.

```

EXEC CICS CONNECT      PROCESS
                        PROCNAME(PROC-NAME)
                        PROCLength(4)
                        SYNCLEVEL(1)
                        CONVID(LU62-ID)
                        END-EXEC.

```

Where 'PROC-NAME' is a 4-byte constant 'LU62'

3. Format a Type-01 Signon Block in Working-Storage including Signon-ID, and Password.
4. Send the Block to DTC and receive the response (Type-02 Block).

```

EXEC CICS CONVERSE
                        CONVID(LU62-ID)
                        FROM(SIGNON-BLOCK-AREA)
                        FROMLENGTH(BLOCK-01-LENGTH)
                        SET(BLL-CELL-2)
                        TOLENGTH(BLOCK-02-LENGTH)
                        END-EXEC.

```

5. Validate Block Type-02 returned by LU6.2 and that the Signon was accepted.
6. Determine which Function, 'DO,' 'PO,' etc., to request.
7. Build and send a 'DO' or 'PO', etc., Function Request (Type-03 Block) and wait for the response (Type-04 Block).

```

EXEC CICS CONVERSE
                        CONVID(LU62-ID)
                        FROM(BLOCK-03-AREA)
                        FROMLENGTH(BLOCK-03-LENGTH)
                        SET(BLL-CELL-4)
                        TOLENGTH(BLOCK-04-LENGTH)
                        END-EXEC.

```

8. Validate Block Type-04 and response.
9. Get the next transactions to be sent (up to 10) and build a Type-05 data block.
10. Send the block and wait for the Type-06 Block response.

EXEC CICS CONVERSE

CONVID(LU62-ID)
FROM(BLOCK-05-AREA)
FROMLENGTH(BLOCK-05-LENGTH)
SET(BLL-CELL-6)
TOLLENGTH(BLOCK-06-LENGTH)
END-EXEC.

11. Validate Block Type-06 and response.
12. If more transactions, go to send more data (Step 9).
13. Otherwise, build and send an 'END' Type-05 Data Block and go to process the next Function (Step 6).
14. When no more input, build and send a SIGNOFF (Type-90) Block and wait for the response (Type-91) Block.
15. Free the session.

EXEC CICS FREE SESSION(LU62-ID) END-EXEC.

16. Terminate the program.

Important Notes:

- Coding should be included after every 'CONVERSE' instruction to test for a Type-99 Block. This Block will be returned if there is any MDH system failure at DTC.
- The 'HANDLE ABEND' Routine must contain:

EXEC CICS FREE SESSION(LU62-ID) END-EXEC.

as its first statement.

- In the 'HANDLE ABEND' Routine, a 'USER ABEND' is acceptable only after the 'FREE SESSION' has been requested. This is required in order to keep the LU6.2 session synchronized.

Purpose This code describes the LU 6.2 participant processing needed to receive transactions from DTC.

Note:

Recovery logic is not included here.

1. Initialization

EXEC CICS HANDLE ABEND LABEL(LU62-EXIT) END-EXEC.

EXEC CICS HANDLE CONDITION SYSIDERR(ALLOC-FAIL) END-EXEC.

2. Allocate an LU6.2 session with the MDH system.

EXEC CICS ALLOCATE SYSID(LU62-SYSTEM) END-EXEC.

Where the label 'LU62-SYSTEM' should be the TCT ID of the remote facility, i.e., DTC.

Note:

When the resource is not available (DTC System is down or the session has already been taken), the program will wait at this point until the session becomes available.

MOVE EIBRSRCE TO LU62-ID.

Where the label 'LU62-ID' is a storage area for the Session-ID which is required in subsequent code.

EXEC CICS CONVERSE PROCESS
PROCNAME(PROC-NAME)
PROCLENGTH(4)
SYNLEVEL(1)
CONVID(LU62-ID)
END-EXEC.

Where 'PROC-NAME' is a 4-byte constant 'LU62'

3. Format a Type-01 Signon Block in Working-Storage including Signon-ID and Password.
4. Send the Block to DTC and receive the response (Type-02 Block).

EXEC CICS CONVERSE
CONVID(LU62-ID)
FROM(SIGNON-BLOCK-AREA)
FROMLENGTH(BLOCK-01-LENGTH)
SET(BLL-CELL-2)
TOLENGTH(BLOCK-02-LENGTH)
END-EXEC.

5. Validate Block Type-02 returned by LU6.2 and that the Signon was accepted.
6. Build and send a 'MDLU' Function Request (Type-03 Block) and wait for the response (Type-04 Block).

EXEC CICS CONVERSE
CONVID(LU62-ID)
FROM(BLOCK-03-AREA)
FROMLENGTH(BLOCK-03-LENGTH)
SET(BLL-CELL-4)
TOLENGTH(BLOCK-04-LENGTH)
END-EXEC.

7. Validate Block Type-04 and response.
8. Build a Type-07 Block containing 'ALL' to receive all messages or a range of message numbers.
9. Send the block.

EXEC CICS SEND
CONVID(LU62-ID)
FROM(BLOCK-07-AREA)
LENGTH(BLOCK-07-LENGTH)
INVITE
WAIT
END-EXEC.

10. Issue a RECEIVE for the Type-08 Response block, test if a CONFIRMATION is required, and if so, send the CONFIRMATION.

EXEC CICS RECEIVE

CONVID(LU62-ID)
INTO(BLOCK-08-RESPONSE-AREA)
LENGTH(BLOCK-08-LENGTH)
END-EXEC.

IF EIBCONF EQUAL HIGH-VALUES**EXEC CICS ISSUE CONFIRMATION**

CONVID(LU62-ID)
END-EXEC.

11. Determine if the Type-08 block contains 'NONE', 'END', or data:
 - If 'NONE', go to end the session (Step 15).
 - If 'END', go to end the session (Step 15).
 - If data, go to process the transactions (Step 12).
12. Process the block of data.
13. Issue a RECEIVE for another Type-08 Response block, test if a CONFIRMATION is required, and if so, send the CONFIRMATION.

EXEC CICS RECEIVE

CONVID(LU62-ID)
INTO(BLOCK-08-RESPONSE-AREA)
LENGTH(BLOCK-08-LENGTH)
END-EXEC.

IF EIBCONF EQUAL HIGH-VALUES**EXEC CICS ISSUE CONFIRMATION**

CONVID(LU62-ID)
END-EXEC.

14. Determine if the Type-08 block contains 'END' or data:
 - If 'END', go to end the session (Step 15).
 - If data, go to process the transactions (Step 12).
15. Build and send a SIGNOFF (Type-90) Block and wait for the response (Type-91) Block.
16. Free the session.

EXEC CICS FREE SESSION(LU62-ID) END-EXEC.

17. Terminate the program.

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