

PAGE STATUS SUMMARY

**ISSUE: Update A - UP-9009 Rev. 2
RELEASE**

LEVEL: 8.0 Forward

Part/Section	Page Number	Update Level
Cover/Disclaimer		Orig.
PSS	1	A
Contents	1	A
Text	1 2 2a 3 thru 6 7 8 9 10 thru 33 34, 35 36 thru 38	Orig. A A* Orig. A Orig. A Orig. A Orig.
User Comment Sheet		

*New page



Contents

PAGE STATUS SUMMARY	
CONTENTS	
SUMMARY NOTATION	1
DUPL SYNTAX	2
DBMS Start-up	2
Schema Processor (SCHMAP)	3
Subschema Processor (SUBSP)	3
DMCL Processor (DMCLP)	4
DML Preprocessor (DMLP)	5
Data Base Initializer Utility (DBINT)	5
Data Base Security Dump Utility (DBDUM)	6
Data Base Security Restore Utility (DBRES)	6
Data Base Manual Recovery Utility (DBREC)	7
Data Base Page Dump and Alter Utility (DBPAG)	8
Journal File Audit Utility (JFAUD)	9
Journal File Fix Utility (JFFIX)	10
DMS JPROC	11
Data Dictionary Creation and Initialization (PDMCLP)	11
Data Dictionary and User Data Base Initialization (DBINT)	11
Schema Compilation (SCHMAP)	12
User Data Base Creation (DMCLP)	12
Subschema Compilation (SUBSP)	13
DML Preprocessor and COBOL Compiler Execution (DMLP)	14
SCHEMA DATA DESCRIPTION LANGUAGE	16
SUBSCHEMA DATA DESCRIPTION LANGUAGE	18
DEVICE MEDIA CONTROL LANGUAGE	19
DATA MANIPULATION LANGUAGE	21
Schema Section Syntax	21
DML Identifier Statements	21
Procedure Division Syntax	21
ACTION OF DML VERBS ON DMCA FIELDS	25
DML ERROR STATUS CODES	26
Major Status Codes	26
Error Codes for DML Verb "IF"	27
Minor Status Codes	28
Cross-Reference of Possible Major and Minor Codes	33
DML ROLLBACK ERROR CODES	34
RESERVED WORDS	36
USER COMMENT SHEET	



4

4



SUMMARY NOTATION

The following rules apply to DUPL, DDL, DMCL, and DML syntax:

- Underlined uppercase words are required if the functions in which they appear are used.
- Double underlined words in DUPL commands must begin on a new line.
- Nonunderlined uppercase words are optional.
- Lowercase words represent generic terms that must be supplied by the user.
- Brackets [] enclose words, phrases, or clauses that may be omitted if their functions are not required.
- Braces { } indicate a choice of variant forms or functions.
- Double vertical lines || || indicate a choice of one or more variant forms or functions.
- An ellipsis ... indicates optional repetition of the preceding syntax element.
- Periods, commas, semicolons, and spaces must be used as shown in the format. Where one space is allowed, more than one may be used. Periods are underlined in the format to distinguish them from ellipses.

In jprocs, shaded terms are default parameters.

DUPL SYNTAX

DBMS Start-up

DBMS SECTION.

MAXIMUM NUMBER OF DBMS RUN-UNITS
IS integer.

JOURNAL FILE IS { lfd-name }
 { DUMMY }

[ACCESS-CONTROL KEY IS literal].

[MAXIMUM NUMBER OF IMS-THREADS
IS integer.]

[MAXIMUM NUMBER OF IMS-TERMINALS
IS integer.]

[SUPPRESS SUB-SCHEMA DATE TIME CHECK.]

DMCL SECTION:

DMCL IS dmcl-name.

[ASSIGN integer DATA BASE BUFFERS.]

[ASSIGN integer SPACE INVENTORY
BUFFERS.]

[ALLOCATE integer KEEP LOCKS.]

[MAXIMUM NUMBER OF RUN-UNITS
IS integer.]

[MAXIMUM NUMBER OF UPDATING
RUN-UNITS IS integer.]

[DATA BASE FILE IS lfd-name
[ACCESS-CONTROL KEY IS literal].]

[QUICK-BEFORE-LOOKS FILE IS { lfd-name }
 { DUMMY }
[ACCESS-CONTROL KEY IS literal]
[ON ERROR { STOP
 { PROCEED }].]

[IMS QUICK-BEFORE-LOOKS FILE IS { lfd-name }
 { DUMMY }
[ACCESS-CONTROL KEY IS literal]
[ON ERROR { STOP
 { PROCEED }].]

DUPL SYNTAX (cont)

[CALC ROUTINE IS {CALC00}
 {CALC01}]

ACTIVATE DMCL.
END.



DUPL SYNTAX (cont)

RESTORE FROM Ifd-name [USING DMCL dmcl-name] ON ERROR { STOP / PROCEED }

RESTORE content-description
[; RESTORE content-description]

where content-description is:

{ PAGE } page-number-1
{ PAGES }
[THRU page-number-2]
ALL AREAS
{ AREA } area-name-1 [, area-name-2] . . .
{ AREAS }

DISPLAY HEADER FROM Ifd-name
[ON ERROR { STOP / PROCEED }]
END UTILITY

NOTE:

The *DISPLAY* command may be issued before the *DMCL* command or without it.

Data Base Manual Recovery Utility (DBREC)

DMCL IS dmcl-name

DATA BASE FILE IS Ifd-name
[ACCESS-CONTROL KEY IS literal]

[QUICK-BEFORE-LOOKS FILE IS
Ifd-name [ACCESS-CONTROL
KEY IS literal] [KEEP]]

[IMS QUICK-BEFORE-LOOKS FILE
IS Ifd-name [ACCESS-CONTROL KEY
IS literal] [KEEP]]

ACTIVATE DMCL

DUPL SYNTAX (cont)

RECOVER { BACKWARD } TO { INITIAL ^①
 { FORWARD } { FINAL ^②
 date/time

[{ ALL AREAS
 { AREA } area-name-1
 { AREAS }
 [, area-name-2] . . .]

USE JOURNAL FILE lfd-name-1

[ACCESS-CONTROL KEY IS literal-1]

[ON ERROR { STOP
 { PROCEED }] -

END UTILITY.

① This option pertains only to backward recovery.

② Date/time format is:
'yy-mm-dd/hh:mm:ss.fff'

Data Base Page Dump and Alter Utility (DBPAG)

DMCL IS dmcl-name.

DATA BASE FILE IS lfd-name
[ACCESS-CONTROL KEY IS literal] .

ACTIVATE DMCL.

ALTER PAGE page-number STARTING AT
integer-1 BYTES OFFSET

REPLACING literal-1 WITH literal-2

[ON ERROR { STOP
 { PROCEED }] -

CALC ROUTINE IS calc-module-name.

NFP FILE IS lfd-name MODULE module-name

[ON ERROR { STOP
 { PROCEED }] -

PRINT { { AREA } area-name-1
 { AREAS }
 [, area-name-2 . . .]
 { PAGE } page-number-1
 { PAGES }
 [THRU page-number-2] }

DUPL SYNTAX (cont)

```
[ IN { ALPHA FORMAT
      { HEX FORMAT
      { BOTH FORMATS } } ]
[ ON ERROR { STOP
            { PROCEED } ] -
PRINT CALC { PAGE
            { PAGE NUMBER }
OF AREA area-name USING literal-1
[ ON ERROR { STOP
            { PROCEED } ] -
END UTILITY.
```

Journal File Audit Utility (JFAUD)

```
DMCL IS dmcl-name.
REPORT DAY STATUS FROM { date/time ①
                       { INITIAL }
[ TO { date/time
    { FINAL } ]
USE JOURNAL FILE lfd-name
[ ACCESS-CONTROL KEY IS literal ]
[ ON ERROR { STOP
            { PROCEED } ] -
REPORT UPDATES OF PAGE
data-base-page-number [ IN { ALPHA FORMAT
                          { HEX FORMAT
                          { BOTH FORMATS } } ]
FROM { date/time } [ TO { date/time }
                  { INITIAL } { FINAL } ]
USE JOURNAL FILE lfd-name
[ ACCESS-CONTROL KEY IS literal ]
[ ON ERROR { STOP
            { PROCEED } ] -
```

① Date/time format is:
'yy-mm-dd/hh:mm:ss.fff'

DUPL SYNTAX (cont)

PRINT JOURNAL CHECKPOINTS { FORWARD
BACKWARD }

FROM { date/time } [TO { date/time }]
[INITIAL] [FINAL]

USE JOURNAL FILE lfd-name

[ACCESS-CONTROL KEY IS literal]

[ON ERROR { STOP
PROCEED }] -

PRINT JOURNAL RECORDS { FORWARD
BACKWARD }

[IN { ALPHA FORMAT
HEX FORMAT
BOTH FORMATS }]

FOR { ALL AREAS
{ AREA } area-name-1
{ AREAS }
[, area-name-2] . . . }

FROM { date/time } [TO { date/time }]
[INITIAL] [FINAL]

USE JOURNAL FILE lfd-name

[ACCESS-CONTROL KEY IS literal]

[ON ERROR { STOP
PROCEED }] -

END UTILITY -

Journal File Fix Utility (JFFIX)

DMCL IS dmcl-name -

FIX { TAPE } JOURNAL input-lfd-name
{ DISK }

[ACCESS-CONTROL KEY IS literal]

[NEW JOURNAL IS output-lfd-name] -

END UTILITY -

DML ERROR STATUS CODES (cont)

Cross-Reference of Possible Major and Minor Codes

Major Code	CLOSE		DELETE	FIND/FETCH	FREE	GET	KEEP	INSERT	MODIFY	OPEN	UNBIND	REMOVE	STORE	DEPART	BIND	MOVE	IF	IMPART	ROLLBACK
Minor Code	01	02		03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18
01	■	■																	
02			1																
05								■	■										
06			2,3,4,6					■										■	
07			3																
08		■		■					■										
09		■							■										
11																			
13		■		2,5															
14									■										
15																			
16									■										
17				2															■
20		■		5															
22																			
23	■			2,3															
24	■	■																	
25				3,4,6					■										
26				1,5,6															
28																			
30		■																	
31				5,6															
32				5															
33		■																	
34																			
35																			
36	■	■																	
52	■	■																	
53																			
54	■	■																	
55																			
59	■	■																	
60		■																	
61		■																	
62		■																	
69	■	■																	

■ Applicable combinations of major and minor codes.

NOTE:

For FIND/FETCH statement, numbers indicate formats for which error may occur.

DML ROLLBACK ERROR CODES

<u>Rollback Code</u> (first or last two bytes of <u>RB-ERROR-CODE</u>)	<u>Explanation</u>
01	DMS internal error
02	Data base write error
03	Data base read error
04	Program check or unrecoverable error (in DBMS)
05	I/O error in concurrent run unit
06	Run-unit canceled (while in DBMS)
07	Journal file write error
08	Program termination before depart
09	Invalid subschema
10	Main storage not available
11	Space inventory write error
12	Space inventory read error
13	Invalid verb number
14	Area unavailable for update
15	Record update conflict
18	Resource wait time exceeded
19	Deadlock avoidance
20	Delete hierarchy error
21	QBL file allocation error
22	Maximum updating run-units exceeded for DMCL
23	Rollback failure — QBL file was shut down
24	QBL file read error
25	QBL record error
29	Requested QBL write rejected, IMS- QBL file shutdown
30	Requested DMCL not loaded
31	Requested subschema not found
32	Insufficient main storage to load subschema
33	Invalid subschema
34	Invalid DBA name for DMCL
35	Invalid DBA name for subschema

DML ROLLBACK ERROR CODES (cont)

<u>Rollback Code</u> (first or last 2 bytes of <u>RB-ERROR-CODE)</u>	<u>Explanation</u>
36	Invalid schema name for DMCL
37	Invalid schema name for subschema
38	Different DMCL not allowed on BIND
39	Subschema compilation date/time mismatch
40	IMS terminal limit exceeded
43	Data base shut down by data base administrator
45	Area shut down. Possible causes are: <ul style="list-style-type: none">■ DBA shut down an area; or■ data base file had read/write or OPEN/CLOSE error.
46	Application shut down
47	Journal file shut down because of OPEN/CLOSE or read/write error under another task
48	File access time-out
51	Data base administrator inhibited new impart
52	DBA inhibited new impart
53	DBA inhibited new OPEN for the data base
55	DBA inhibited new OPEN for an area
56	Maximum run-units exceeded for DBMS
57	Maximum run-units exceeded for DMCL
58	IMS access inhibited to DMCL for this session
59	IMS access inhibited to DBMS for this session
67	IMS QBL file WRITE rejected
68	IMS QBL file space exhausted
88	Unidentified DMS error
97	DMS SVC processing error
99	First DBMS call not IMPART

RESERVED WORDS

ACCESS-CONTROL	CURRENT
ACTUAL	DATA
AFTER-LOOKS	DATA-BASE-KEY (DBKEY)
ALIAS	DATE
ALL	DBA-NAME
ALLOCATE	DDLML
ALLOWED	DECIMAL (DEC)
ALTER	DECODING
ALWAYS	DEFINED
AND	DELETE
APPLICATION	DEPART
ARE	DEPENDING
AREA	DESCENDING (DESC)
AREA-CODE	DESCRIPTION
AREA-ID	DEVICE-MEDIA
AREA-NAME	DIRECT
AREA-WAIT-TIME	DIRECT-DBK
AREAS	DISPLACEMENT
ASCENDING (ASC)*	DISPLAY
ASSIGN	DIVISION
AUTHOR	DMCA-LENGTH
AUTOMATIC (AUTO)	DMCL-NAME
	DMCLNTWK
BASE	DMS-ABORT
BEFORE-LOOKS	DMS-CURR-ERR
BINARY (BIN)	DMS-DELE-ERR
BIT	DMS-DUPL-ERR
BUFFERS	DMS-END-SET
BY	DMS-IMPART
	DMS-MEMB-ERR
CALC	DMS-OPEN-ERR
CALC-KEY	DMS-RECD-NFD
CALL	DMS-ROLLBACK
CALL-RETURN-ADDR	DMS-ROLLBACK-PARA
CHAIN	DMS-STATUS
CHANGED	DMS-SUCCESS
CHARACTER (CHAR)	DMS-SYST-ERR
CHECK	DMS-WARNING
CLOSE	DMS90-BIND-PARA
CODE	DMS90-DMCA
COMMENT	DMS90-DMCA-INITIAL
COMPILE	DMS90-IMPART-PARA
COMPLEX	DMS90-REC-BIND-PARA
COMPUTATIONAL (COMP)	DUPLICATE (DUP)
COMPUTATIONAL-1 (COMP-1)	DUPLICATES (DUPS)
COMPUTATIONAL-2 (COMP-2)	DURING
COMPUTATIONAL-3 (COMP-3)	DYNAMIC
CONTAINS	
COPY	EMPTY
CURRENCY	ENCODING

**All reserved words in parentheses represent a valid alternate spelling for that reserved word.*