Series 1100

MAPPER 1100

Level 31R1

Coordinator's Reference

SPERRY

UP-9194.3

This document contains the latest information available at the time of preparation. Therefore, it may contain descriptions of functions not implemented at manual distribution time. To ensure that you have the latest information regarding levels of implementation and functional availability, please consult the appropriate release documentation or contact your local Sperry representative.

Sperry reserves the right to modify or revise the content of this document. No contractual obligation by Sperry regarding level, scope, or timing of functional implementation is either expressed or implied in this document. It is further understood that in consideration of the receipt or purchase of this document, the recipient or purchaser agrees not to reproduce or copy it by any means whatsoever, nor to permit such action by others, for any purpose without prior written permission from Sperry.

Page Status Summary

Section	Pages	Update
Cover/Disclaimer		
PSS	1	
Preface	1	
Contents	1 - 4	
Section 1	1 - 2	
Section 2	1 - 11	
Section 3	1 - 13	
Section 4	1 - 20	
Section 5	1 - 14	
Section 6	1 - 3	
Section 7	1 - 9	
Appendix A	1 - 2	
Appendix B	1	
Appendix C	1 - 3	
Appendix D	1	
Appendix E	1 - 9	
Index	1 - 4	
User Comment Sheet		

Section	Pages	Update

A vertical bar (|) in the outer margin of the updated pages indicates technical changes.

Preface

This is a reference manual for MAPPER coordinators. MAPPER coordinators control the development and use of the MAPPER data base and the interface of this data base with OS 1100 software. MAPPER coordinators are also primarily responsible for MAPPER security.

These MAPPER Software level 31R1 manuals are also available:

- *MAPPER Software Level 31R1, Reference,* UP-9193.3
- *MAPPER Software Level 31R1, Run Designer's Reference,* UP-9662.2
- *MAPPER Software Level 31R1, Summary* (card), UP-9196.3
- *MAPPER 1100 Level 31R1, Operator's Reference,* UP-9195.3

MAPPER coordinators should have these manuals as well as the MAPPER 1100 level 31R1 release documentation.

Contents

Figures

Tables

1. Coordinators and This Manual

1.1. Qualifications and Responsibilities

To be a MAPPER coordinator, you should be a skilled MAPPER user. You should know all aspects of MAPPER functions and be a good run designer. You should also have successfully completed a MAPPER coordinator class, where the tools and techniques presented in this reference are taught.

You should assume responsibility for these activities:

- Establish and administer MAPPER data base security procedures. Register MAPPER users and MAPPER runs.
- Tell users know how to obtain the necessary published manuals and any local documentation, e.g., policies and procedures for your site.
- Develop training programs for users, both in manual function use and in run design.
- Determine the economic justification for new applications (form types); evaluate the layout of proposed form types to see that they are efficient and easy to use; and generate new form types.
- Monitor all MAPPER applications and act to ensure efficient use according to plan.
- Identify the requirements for remote run data links between MAPPER sites. Establish the necessary security registrations for remote run use.
- Schedule MAPPER service: define MAPPER operating time and availability for local and remote users; schedule the transfer of data to and from other MAPPER sites.
- Help support groups define needed software enhancements. When new software is ready for use on the MAPPER processor, plan, test, and introduce it with a minimum impact on service to users.
- Plan MAPPER hardware enhancements and expansion requirements by comparing known MAPPER storage with daily and monthly reports that reflect MAPPER efficiency, response times, and growth patterns.

1.2. How to Use This Manual

Following this introduction and a section on security, sections on managing the MAPPER data base and analyzing transactions provide you with important tools and statistics as a MAPPER coordinator.

The next section, communications, is followed by registering and analyzing runs, both important areas for maintaining and improving overall efficiency.

The final section discusses generating form types.

The appendices describe MAPPER files; and have a suggested list of daily reports; form type descriptions; coordinator reserved words; and information for installing Executive Support Facilities, color graphics, and languages.

This document is a model—a starting point from which to create a useful MAPPER data base and establish effective policies. It uses color to indicate formats.

For online MAPPER coordination procedures, enter:

```
HELP COORD
```

2. Security

2.1. User Registration Reports

User registration reports have the user-id (usually the last name or initials), the user's password (if applicable), the user's mode at sign-on time, and the functions to which the user is allowed access.

Register every user in a user registration report. Set up these reports in mode 218, type F, by department or user group: 1F for department 1, 2F for department 2, etc. Report 46F in mode 218 shows the form type definition of user registration reports (see Figure 2-1).

Limit user access to MAPPER functions by entering **X** on the same line as the user-id, under the function to be restricted.

Users must sign on with their user-id. The MAPPER terminal displays the user-id in the logo and in updated report headers, and can identify all users by their sign-on identification.

NOTE: *Register a new MAPPER coordinator (MAPCOORD) initially in mode 218, report 104F.*

Table 2-1 alphabetically lists and defines the capabilities under USER RESTRICTIONS in the user registration report. See Figure 2-1 for the from type description of a user registration report.

Table 2-1. User Restrictions: User Registration Report

Code	Definition
ABT	Abort MAPPER software (without PMD) (operator)
ADO	Append report to displayed report
ADR	Add new report
ADT	Append displayed report to another report
ALE	Place alert (status) message in logo and send to all terminals
AQM	Analyze/alter queued auxiliary reports/messages (support programmer; coordinator)
AUX	Send report to auxiliary device

(continued)

Table 2-1. User Restrictions: User Registration Report (continued)

Code	Definition
BFN	Find data (binary find) in report
BRK	Breakpoint: direct output to alternate device (support programmer)
CAL	Calculate in report
CEL	Communications error log (support programmer; coordinator)
CES	Communications error summary (support programmer; coordinator)
CHG	Locate and change data string in report
COM	Communications line exerciser (support programmer)
CPY	Copy OS 1100 files/elements to another site
DAT	Analyze/compute dates in report
DEL	Delete lines in update function results from report
DLL	Downline load a UTS terminal
DLR	Delete report
DPR	Duplicate report
DSG	Display graphics code
DSP	Display report
DWN	Down MAPPER software (support programmer; operator)
EAB	Down MAPPER software (with PMD) (operator)
ELT	Copy MAPPER report to OS 1100 file (support programmer; coordinator)
FND	Find data in report
GEN	Generate form type (coordinator)
IND	Index form type
LGL	Display log list (support programmer; coordinator)
LGS	Display log summary (support programmer; coordinator)
LOC	Locate data string in report
LZR	Display line 0 information
MCH	Match data across reports
MOD	Switch modes
MUD	Match update report
OKM	OK receipt of message
PAK	PACK RECOVERY (operator)
PCH	Punch cards
PRG	Purge: update external MAPER files to current level (support programmer)
PRT	Print report

(continued)

Table 2–1. User Restrictions: User Registration Report (continued)

Code	Definition
PUR	Purge MAPPER software (support programmer; operator)
REP	Replace report
RET	Retrieve report/OS 1100 file
RFM	Reformat data
RNE	Run error messages (authorized run designers only)
RPW	Read access password
RRR	Start remote run at another MAPPER site
RSI	Demand mode through remote symbiont interface (to OS 1100 files)
RUN	Execute MAPPER run
SEN	Send report to another station
SLU	Search update report from a list
SLX	Search report from a list
SQQ	Requeue output sent to printer but failed to print
SRH	Search report
SRT	Sort data (limited)
STA	Display MAPPER statistics (support programmer; coordinator; operator)
STR	Start batch run
STS	Send message (up to full screen) to another station
STT	Display station table (support programmer; coordinator)
SUD	Search update report
SXX	Stop printout already queued at printer
TCS	Online tape cassette/diskette operations
TOT	Totalize in report
UPD	Update and blend lines in update function result into report
USO	Unlimited sort option
VER	Verify MAPPER files (support programmer; coordinator; operator)
WPR	Word processing in report
XXX	Release user-id

```
.DATE 14 JUL 82  11:11:11  RID    46    19 MAR 79  COORD
.USER DEFINITION:    REGISTRATION FORM DESCRIPTION        F3332
*DEPARTMENT .PHONE NO.  .-------------------------USER RESTRICTIONS-----------------------------.XXXXXXX DEPT. NAME    MSXXXX.      .
*MGR. NAME  .       .UNIT.MSSDUDPPCDADRITSADF GPPSSSEAXSPMMVRRR ASSLLB DAALCSSORRSCC DTRRUDCBWCLEA.XXXXXXX ADDRESS AREA XXXXXXX.AMDDL.
*   USER    . PASS .     .ORUEPSRCAPDLENORQSN ERUTTTABXXACUEEFP ULLGGF ADDOHETKUNQEE WCSRSLPRPOZLL.XXXXXXX ADDRESS AREA XXXXXXX.LOAAA.
* IDENTITY  . WORD .MODE.DHDLDPTHLRRRPDTTMGD NGRATRBTXXKHDRTMW XXUSLN TOTCGNSMNEQSL NSIROLYKRMRTE.LAST NAME   I.EXT / LOCATION.TNYYN.
*==========.======.====.=============================================================================.============.=============.=====.
*XXXXXXXXXX USERS LAST NAME OR INITIALS                                        ALERT   \=NOTIFY DEPT. /=NOTIFY COORD. X=NOTIFY BOTH X
*           XXXXXX USERS PASSWORD (/ = CODED )                                      MONTH & DAY/DAY WHEN PASSWORD WAS LAST CHANGED XXX
*                  XXXX MODE ACCESSED AT SIGN ON                                     EXAMPLE  A03 WOULD BE THE 3RD DAY IN OCTOBER
*                       X MODE REQUEST                                               MONTHS 1 THRU 9=JAN THRU SEP, A=OCT,B=NOV,C=DEC
*                        X SEARCH REQUEST                                                    LANGUAGE CODE FOR MAPPER MESSAGES X
*                         X SEARCH UPDATE REQUEST
*                          X DELETE SEARCH FINDS FROM ORIGINAL REPORT
*                           X UPDATE SEARCH FINDS BACK INTO ORIGINAL REPORT
*                            X DISPLAY REQUEST
*                             X PRINT REQUEST
*                              X PUNCH REQUEST
*                               X CALCULATOR
*                                X DUPLICATE A REPORT
*                                 X ADD A NEW REPORT
*                                  X DELETE A REPORT
*                                   X REPLACE A REPORT
*                                    X INDEX A GIVEN TYPE
*                                     X TOTALS OF A REPORT
*                                      X SORT A REPORT (LIMITED)
*(COORDINATOR-- SUPPORT PROGRAMMER )     X ANALYZE(ALTER)QUEUES(AUX OR MESSAGE)
*                                        X DISPLAY GRAPHICS CORE PRIMITIVES
*                                         X FIND REPORT DATA AND DISPLAY
*                                          X UNASSIGNED
*          (COORDINATOR ONLY)               X TYPE GENERATION
* UPDATE MAPER FILES TO CURRENT LEVEL        X (SUPPORT PROGRAMMER)
*  PURGE SYSTEM (SUPPORT PROGRAMMER--OPS)      X
*   SYSTEM STATISTICS (COORD SUPP PROG AND OPS)  X
*    STATION TABLE DISPLAY (COORD AND SUPP PROG)  X
```

Figure 2-1. Form Type Definition: User Registration Report
(Part 1 of 2)

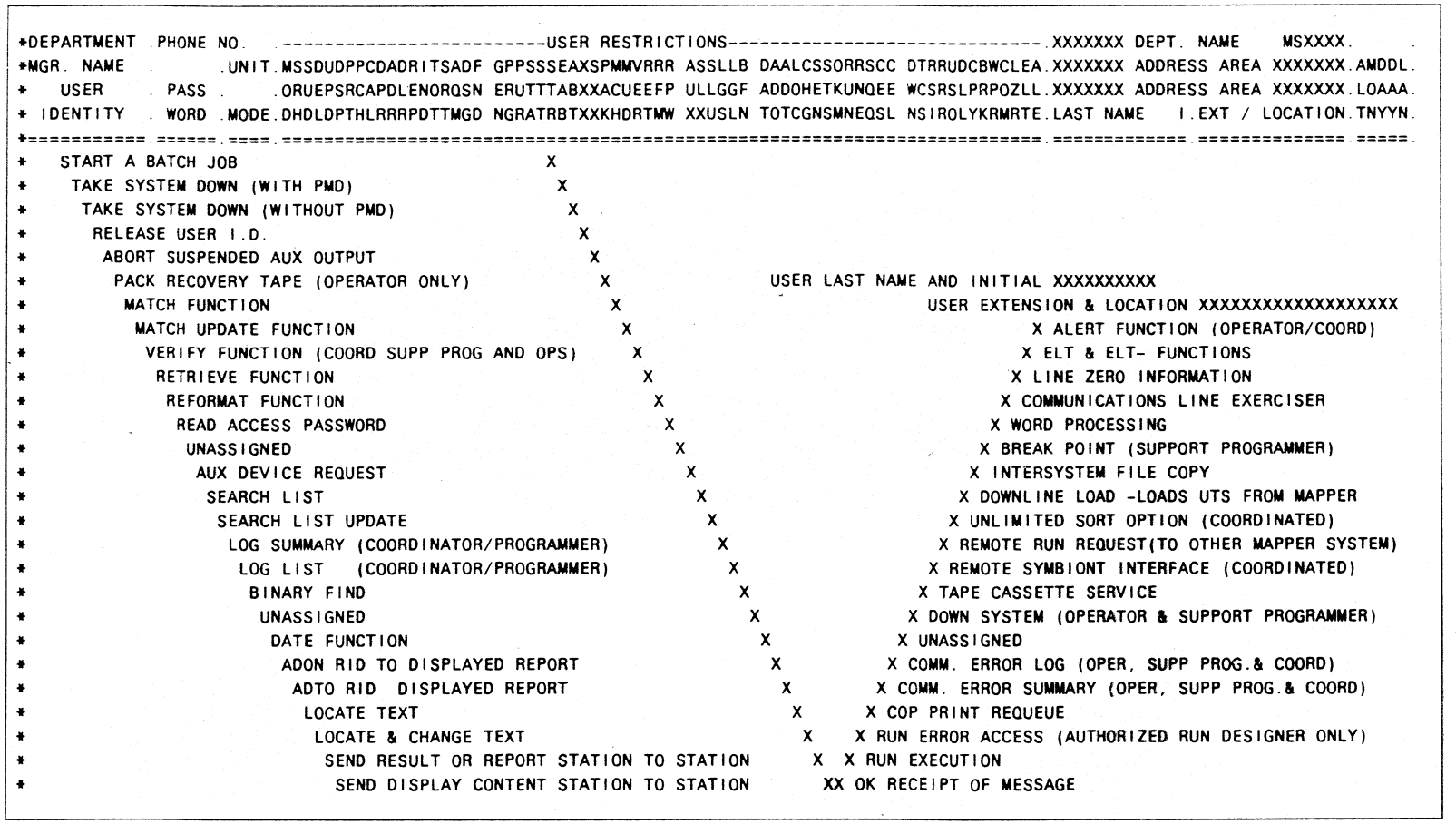


Figure 2-1. Form Type Definition: User Registration Report
(Part 2 of 2)

2.2. User Sign-on Passwords

Sites can make user sign-on passwords optional or mandatory. If made optional, users can set, change, or delete their own passwords. Whenever a password is used, the MAPPER processor records it in the second field of the user registration report (Figure 2-1).

2.3. Controlling User Sign-on Passwords

If you make user sign-on passwords mandatory at your site, your site must set the SECTIM and USERDP start parameters to enforce the use of sign-on passwords.

With SECTIM specified, all users must sign-on with a password. SECTIM also limits user sign-on password entry attempts to three within a specified time allotment. If a user makes three unsuccessful attempts to sign on within the specified time, the MAPPER processor disables the user's sign-on by entering an asterisk (*) in column 1 of the related user registration report and starts a run called USERR, which sends an alert message to the MAPPER coordinator. Users in violation are advised that they are no longer registered. The MAPPER processor logs invalid password attempts in mode 224 (message mode), RID 99, in the appropriate alphabetic type (depending on the user's language for the messages), and retains these attempts for the time specified in SECTIM for three attempts.

Also, if the SECTIM start parameter is set, users must change their sign-on password at least once every three months. Use columns 129 through 131 of the user registration report to record the date of change (see Figure 2-1). The MAPPER processor enters the current date the next time a user signs on if it finds no date or invalid data in these positions.

The USERDP start parameter defines the department number for which the run USERR is registered.

To detect access to MAPPER software by certain users, and to send an alert message to designated administrative personnel, set the ALERDP start parameter to the department number for which the ALERR run is registered.

With ALERDP specified, the MAPPER processor checks each user sign-on for the / or \ character in column 128 of the related user registration report. If it detects a slant (/), it starts the run ALERR, which sends a message to the MAPPER coordinator. If it detects a reverse slant (\), it starts the run NOTIFY$. Register the NOTIFY$ run individually by ***user*** (user-restricted run registration) and by run control report (form types and RID to execute). In other words, NOTIFY$ may be any run that either you or the user wants to execute. You can use this feature either to notify MAPPER coordinators when the user signs on, or as a convenient way to execute a user's choice of a run when the user sign on.

2.4. Coded User Sign-on Passwords

For added MAPPER software access security, users can use a coded sign-on password. A coded password may vary according to time of day, date, month, and station number.

MAPPER coordinators initially enter a user's first coded sign-on password. The MAPPER Software Reference, UP-9193 (see Preface), instructs users who wish to use coded passwords to contact their MAPPER coordinator for the procedures to follow, which are explained here.

To indicate a coded password, enter this information starting in the first character position of the PASSWORD field in the user registration report (Figure 2-1):

/ktdms

where:

/	slant indicating coded password
k	constant value
t	value representing time of day (hour)
d	value representing date
m	value representing month
s	value representing station number

To calculate the sign-on password, set *k* to a number from 1 through 5, and any of the remaining fields to a number from 0 through 5; then:

1. Start with the value of *k*.
2. Multiply the actual time of day (hour) by the value of *t*.
3. Multiply today's actual date by the value of *d*.
4. Multiply the current actual month by the value of *m*.
5. Multiply the user's actual station number by the value of *s*.
6. Total the results from steps 1 through 5 to get the sign-on password.

For example, if the PASSWORD field has:

/51234

and it is 8 a.m., today's date is 10 June, and the user's sign-on station number is 12, then:

1. *k* = 5
2. *t* (8 times 1) = 8
3. *d* (10 times 2) = 20
4. *m* (6 times 3) = 18
5. *s* (12 times 4) = 48
6. The sign-on password is 99, the sum of 5+8+20+18+48.

Or, set *k* to a number from 6 through 9, and any of the remaining usable fields to a number from 6 through 9; then:

1. Subtract 5 from the value of *k* and multiply by the factor 10.

2. Don't use (=0 if used).

3. Don't use (=0 if used).

4. Raise 10 to the power of (m–5):

   6 = 10
   7 = 100
   8 = 1000
   9 = 10000

   Multiply the result by the current actual month.

5. Multiply the last digit of the user's actual station number by (*s* – 5):

   If *s* = 6, multiply by 1
   If *s* = 7, multiply by 2
   If *s* = 8, multiply by 3
   If *s* = 9, multiply by 4

6. Total the results from steps 1 through 5 to get the sign-on password.

For example, if the PASSWORD field has:

/60066

and it is 8 a.m., today's date is 10 June, and the user's sign-on station is 12, then:

1. *k* (1 times 10) = 10

2. *t* = 0

3. *d* = 0

4. *m* (10 times 6) = 60

5. *s* (2 times 1) = 2

6. The sign-on password is 72, the sum of 10+0+0+60+2.

NOTE: *Use the PASSWORD run for help in decoding passwords.*

2.5. Mode Passwords

MAPPER coordinators control mode passwords. As a coordinator, you can establish different passwords for odd and even modes: even mode for reading from or writing to; odd mode for read-only reports. Limit users to their sign-on access mode by placing an X on the mode-switching capability in their related type F report (see MOD under USER RESTRICTIONS in Figure 2-1).

Register mode passwords in the form type description report in mode 244, report 101B (Figure 2-2).

The FUNCTION (FUN) function displays lines 4 through 14 of this report.

Enter mode passwords of up to six characters in columns 2 through 7 in the two lines associated with the related mode display. For example, enter the password for mode 0 in line 26; for mode 1, in line 27. You can change these passwords at any time. New mode passwords become effective immediately. Use the blank lines between mode/type displays (excluding the two 6-character password areas), to record mode authorities, telephone numbers, special security considerations, etc.

The TYPE (T) and MODE (M) functions display the lines showing the report form types for that relative mode, but not the two lines in which you have entered the mode passwords. For example, a call to switch to mode 0 displays lines 18 through 25; a call for mode 2 displays lines 33 through 40, etc.

Users can gain access to a mode without a password through a run, if the run has the necessary qualification criteria. Coordinator modes have sensitive security information; use a run to gain access to them.

```
1.      .DATE 08 DEC 82  08:52:11  RID    101   05 DEC 82  COORD
2.
3.      **** MAPPER SYSTEM - FUNCTION AND TYPE DISPLAY ***
4.      *=================== MAPPER FUNCTIONS ============================
5.      * M        MODE SELECTION              AR(XR)   ADD/DUP REPORT    *
6.      * D        DISPLAY REPORT              DR       DELETE REPORT    *
7.      * L        LINE CONTROL RESTORE        AUX      COP/CASSET/DISKET*
8.      * S(SU)    SEARCH (SEARCH UPDATE)      I        INDEX FORM TYPE  *
9.      * F        FIND REPORT DATA REQUEST    TOT      TOTALIZE REQUEST *
10.     * PR       PRINT REQUEST               ADON(ADTO) APPEND REPORTS *
11.     * T        DISPLAY TYPES IN MODE       LOC(CHG) LOCATE (CHANGE)  *
12.     * X        RELEASE USER I.D.           START(RET) BATCH START/RET*
13.     * SORT     SORT REQUEST                A        ARITHMETIC       *
14.     * DATE     DATE ANALYSIS REQUEST       MA(MAU)  MATCH(MATCH UPD) *
15.
16.
17.
18.     -----------   FILE CABINET - MODE   0/1   DRAWER - TYPE   -----------
19.     .C.       FORM TYPE         . FORM .C.       FORM TYPE        . FORM .
20.     .D.      DESCRIPTION        . TYPE .D.      DESCRIPTION       . TYPE .
21.     .=.======================.======.=.======================.======.
22.      B RUNSTREAM DATA          000002 F BATCH RETRIEVE          000012
23.      C OPEN                    000004 G OPEN                    000014
24.      D UNISCOPE MAINTENANCE LOG 000006 H OPEN                   000016
25.      E STATION DIRECTORY       000010 I RUNFUNCTION DATA        000020
26.      OPEN          MAPPER GENERAL
27.      OPEN          MAPPER COORDINATOR HAS PRIME CONTROL
28.         ***** NOTE **** NOTE **** NOTE **** NOTE **** NOTE *****
29.         IN A FUTURE RELEASE, JDOE TRAINING (MODE 16) WILL BE
30.         PLACED IN MODE 0 AND DELETED FROM MODE 16
31.
32.
33.     -----------   FILE CABINET - MODE   2/3   DRAWER - TYPE   -----------
34.     .C.       FORM TYPE         . FORM .C.       FORM TYPE        . FORM .
35.     .D.      DESCRIPTION        . TYPE .D.      DESCRIPTION       . TYPE .
36.     .=.======================.======.=.======================.======.
37.      B OPEN                    000022 F OPEN                    000032
38.      C OPEN                    000024 G OPEN                    000034
39.      D OPEN                    000026 H OPEN                    000036
40.      E OPEN                    000030 I OPEN                    000040
```

Figure 2-2. Form Type Descriptions for Modes 0/1 and 2/3

2.6. Report Update Passwords

Users establish passwords to update reports. The report update password is not visible to the user; however, the MAPPER processor logs the password in line 0 of the specific report.

NOTE: Users can see the report update password with the LINE ZERO (LZR) function through the user sign-on set in the ALLOWZ start parameter. Carefully restrict the use of this user sign-on.

Users can change or clear their report update password after obtaining update control. Also, the MAPPER processor clears a report update password whenever a report is replaced.

To clear a password to update:

- sign on using the user-id of the last person who updated the report;
- change the report to a result; and
- replace the report with the result.

2.7. Report Read Access Passwords

Users can establish standard, user-private, or department-private read access passwords on reports with the READ PASSWORD (RPSW) function. These passwords are not visible to users but are logged in line 0 of the specific report.

3. Managing the Data Base

3.1. Application Authorization and Justification Forms

Users who wish to create a new MAPPER form type should submit an Application Authorization and Justification form similar to the one shown in Figure 3-1 to the MAPPER coordinator. This form presents an estimate of the size of the user's data base, how often certain functions are used, etc.

Enter the data from this form online into a form type analysis report (see Figure 3-2). You can then monitor this data in mode 230, report 2C, where each line defines the planned use of a form type. Used with various monitoring procedures, this planning report becomes increasingly valuable in ensuring planned performance as the use of MAPPER software increases.

MAPPER

Application Authorization & Justification

DATA ORIGINATED	REQUESTER	EXT.	ORGANIZATION NAME	APPROVING MGR. & DATE

APPLICATION ☐NEW ☐MOD. ☐REJUST.	ASSIGNED MODE	ALPHA TYPE	NUMERIC TYPE	FILE NO.	LINE LENGTH	RESP. NO	DATE GENERATED

1. State title and describe reporting application.

2. Describe any alternative to MAPPER software for this task. If requesting computer runs, key punching, or printer listings, estimate costs/week.

3. Estimate weekly man-hours needed to accomplish reporting:

ALTERNATE METHOD	ON MAPPER SYSTEM	DIFFERENCE	RATE	YEARLY HOURS

4. What kind of historical access is required for this data base?

5. Describe any interfaces between this application and other processors.

6. Estimate these:

		COSTS/VAR
1. Total lines of data in the proposed data base.	_____	- _____
2. Number of reports in the data base.	_____	
3. Average number of lines of data in each MAPPER report.	_____	
4. Number of reports updated each day.	_____	
5. Number of SEARCHes/LOCATEs per week.	_____	+ _____
6. Number of TOTALIZEs/DATEs per week.	_____	+ _____
7. Number of online SORTs per week.	_____	+ _____
8. Number of MATCHes per week.	_____	+ _____
9. Number of Runs per week.	_____	+ _____
10. Number of auxiliary printer listings per week.	_____	+ _____
11. Number of high-speed printouts per week.	_____	+ _____
12. Number of BATCH STARTs/RETRIEVEs/REMOTE RUNs.	_____	+ _____

COMMENTS:

$-value of man-hours saved/week	_____
Total savings/week	_____
A) Annual savings	_____
B) Real-time rating	_____
C) Average lines updated/day	_____
Application Merit Rating (AxB/C)	_____

IF DIAL-IN REQUIREMENTS, ESTIMATE:

1. Number of terminals. _____
2. Number of dial-ins per week. _____
3. Average duration of time per dial-in. _____

NOTE: Areas within heavy lines to be filled in by coordinator.

Figure 3-1. MAPPER Application Authorization and Justification Form

```
.DATE 08 DEC 82  10:10:10  RID      1    14 APR 82   COORD
.@991231   TYPE ANALYSIS:  DESCRIPTION & CODES          BY: COORD           C3464
*ST.ANALYS.MOD.OCTAL .A.TOTL.LIN.TOTAL .MP.C.PLANND.ANNUAL.R.RATE. FORM .DP.        . NAME OF REPORTING .    USER     .      . .EXTR.
*CD.YYMMDD.NUM. TYPE .T.RIDS.LGT.LINES .FL.L.LINES .SAVING.T.A*BC.YYMMDD.CD.COMMENT .    DESCRIPTION     . LOCATION  . RC S.C.CODE.
*==.======.===.======.=.====.===.======.==.=.======.======.=.====.======.==.========.====================.============.=====.=.====.
*XX STATUS OF REPORTING TYPE (NEW, REVISED, ETC.)
*   XXXXXX DATE OF LAST REPORTING ANALYSIS
*          XXX MODE WHERE REPORTING TYPE RESIDES
*              XXXXXX OCTAL CONVERSION OF MODE AND ALPHA TYPE
*                     X ALPHA TYPE CODE
*                       XXXX TOTAL NUMBER OF RIDS WHEN ANALYZED
*                            XXX NUMBER OF CHARACTERS PER LINE
*                                XXXXXX ACTUAL NUMBER OF REPORTING LINES PER TYPE
*                                       XX MAPER FILE TYPE ASSIGNED TO
*                                          X MAPER FILE CLASSIFICATION, A = STANDARD, B = EXTERNAL
*                                            XXXXXX PLANNED NUMBER OF LINES FOR THE TYPE
*                       ANNUAL SAVINGS FOR THE TYPE XXXXXX
*                                    REAL-TIME RATING (1-9) X
*                       MERIT RATING (A TIMES B DIVIDED BY C) XXXX
*                                DATE REPORTING TYPE WAS GENERATED XXXXXX
*                                                  DEPARTMENT CODE XX
*                                           COMMENT (TYPE OF USE, ETC.) XXXXXXXX
*                                                                DESCRIPTION XXXXXXXXXXXXXXXXXXXX
*                                                                            USER LOCATION XXXXXXXXXXXX
*                                                                                 RESPONSIBILITY CODE XXXXX
*                                                  LCS=L FCS=F FCSU=U ---------- LIMITED/FULL OR UPPERCASE TYPE CODE X
*                                                                                 EXTRA CODING SPACE AVAILABLE XXXX
.=============================================================================.
.       STATUS (ST) CODES                    NOTE--- * IN THE RT COLUMN = THE
. 1=PLANNED/RESERVED                                 JUSTIFICATION NEEDS TO BE
. 2=EXPERIMENTAL/INITIAL USE                         COMPLETED &/OR REVIEWED
. 3=IN USE
. 4=DELETED (ANALYSIS DATE BECOMES THE DELETED DATE)
. 5=REQUEST FOR NEW OR REJUSTIFICATION MADE TO THE RESPONSIBLE USER/DEPT.
.=============================================================================.
.                      DEPARTMENTAL (DP) CODES (EXAMPLES)
.CA=COST ACCOUNTING                    FO=FACTORY OPERATIONS
.CE=CUSTOMER STATUS                    DP= DATA PROCESSING
.DM=DEVELOPMENT                        MA=MARKETING
                     ..... END REPORT .....
```

Figure 3-2. Form Type Definition: Form Type Analysis Report

3.2. Purge Index Data

The MAPPER PURGE or MERGE process creates purge index data and places this data in purge index reports. These reports list characteristics of all reports stored in the MAPPER processor (see Figure 3-3). Purge index reports generally reside in mode 218, form type H, but may reside elsewhere based on their assignment when MAPPER software is generated.

One report exists in type H for each MAPPER file (MAPER1,..., *n*). The first report defines the characteristics of reports in the MAPER1 file; the second report defines these same characteristics for MAPER2, etc. See also Appendix A.

For a discussion of the PURGE and MERGE processes, and MAPPER files, see the MAPPER 1100 Operator's Reference, UP-9195 (see Preface).

```
.DATE 05 DEC 82  10:10:10  RID       8    05 DEC 82  COORD
. SYSTEM PURGE INDEX OF FILE:  EIGHT                        H3336
*             . NUM .UPDATE.NUM.  LAST    . DATE     .
*FN. TYPE . RID .LINES. QTY  .CHR. UPDATED . CREATED .   DESCRIPTION       .MOD.DC.UDATEC. DIFF .TOTAL2. RC S.C.
*==.======.=====.======.======.===.=========.=========.====================.===.==.======.======.======.=====.=.
*XX MAPPER FILE NUMBER
*   XXXXXX OCTAL FORM TYPE
*          XXXXX REPORT NUMBER
*                XXXXX NUMBER OF LINES IN THE REPORT
*                      XXXXXX NUMBER OF UPDATES SINCE REPORT CREATION
*                             XXX NUMBER OF CHARACTERS IN THE LINE FOR THE TYPE
*                                 XXXXXXXXX DATE REPORT LAST UPDATED DD MMM YY
*                                           XXXXXXXXX DATE REPORT CREATED DD MMM YY
*                    DESCRIPTION (TITLE) OF REPORTING XXXXXXXXXXXXXXXXXXX
*                                           MODE ASSIGNED TO THE REPORTING XXX
*                                                    ALPHA FORM TYPE XX
*                                               RESULT FIELDS FOR EVALUATION RUNS XXXXXX XXXXXX XXXXXX
*                                                        DEPARTMENTAL RESPONSIBILITY CODE (F RID NO.) XXX
*                                                        DEPARTMENTAL RESPONSIBILITY SUB GROUPING (ALPHA) X
*                                           LCS=L FCS=F FCSU=U -------- LIMITED/FULL OR UPPER CASE TYPE CODE X
                     ..... END REPORT .....
```

Figure 3-3. Form Type Definition: Purge Index Report

3.3. RPG1/RPG2 Runs—Analyzing Purge Index Reports

The RPG1 run analyzes the purge index reports and produces a status report (see Figure 3-4), which gives report type and data base (MAPER file) sizes and a summary of reports and lines per form type. From this report, you can calculate how large the MAPER0 file should be. MAPER0 is a mass storage file that has RID and type tables, results, scratch reports, and reports updated since the last PURGE process.

To estimate a size for MAPER0, multiply the number of lines updated on a typical day by 125 percent to allow sufficient space for updated reports and 25 percent for transient result production.

NOTE: *Keep track of the size of MAPER files. If you want to expand the MAPER0 file, contact a MAPPER support programmer.*

The first table in Figure 3-4 gives the size of the MAPER1,..., *n* data base files from which you can estimate when to add new files. If possible, confine MAPER files to less than 3,000 reports (RIDs); 5,000 is the maximum allowed. If the number of reports exceeds 5,000, the PURGE or MERGE process fails. (See also Appendix A and the SYSENT start parameter in the release documentation. The SYSENT start parameter defines specific RID limitation relationships.)

The second table in Figure 3-4 lists the number of lines and RIDs per type, describes the report, and gives the department for each active form type.

NOTE: *The RPG2 run is an abbreviated version of RPG1. RPG2 produces only the first table and summary information.*

```
.DATE 14 OCT 82  11:11:11      REPORT GENERATION      COORD
*=========================================================================

   STATUS OF XYZ 1100/81 M A P P E R SYSTEM FOR 04 NOV 80

 THERE ARE    1157 DISPLAYS ONLINE WITH     973 AUXILIARY DEVICES
 THERE ARE A TOTAL OF    1050 TYPES OF REPORTING IN EXISTENCE
 THERE ARE A TOTAL OF   20728 REPORTS CONTAINING   5088198 LINES
 THE AVERAGE NUMBER OF LINES PER TYPE IS   4846
 THE AVERAGE NUMBER OF LINES PER REPORT IS    245
 THERE ARE    476 REPORTS CONTAINING OVER 2000 LINES EACH
 THERE WERE  1453 REPORTS UPDATED INVOLVING    608137 LINES OF DATA

 FILE NO.   RID QTY
 --------   -------
    1          1883
    2          1277
    3          1634
    4          1433
    5          1848
    6          1438
    7          1953
    8           112
    9          1829
   10          1403
   11          1469
   12            79
   13          1549
   14          1431
   15          1337
   16            53



BELOW IS A SUMMARY LIST SHOWING REPORTS & LINES PER TYPE
 FILE   MODE    TYPE    LINES/  RIDS/                          DEPT
  NO     NO      NO     TYPE    TYPE      DESCRIPTION           NO
----   ----   ------   ------  -----  ---------------------   ----
    1      0  000001    23609    266    FREE FORM REPORTS       7
    1      0  000002     2069      6    STATION DIRECTORY       7
    1      0  000006     3152     15    MAPPER/TPS MAINT.       4
    4      2  000022     1758     44    PRODUCTION STATUS       7
    5      2  000024      184      7    FACTOR BASE             7
    4      2  000026      136      6    ORDER STATUS            7
    1      2  000030     7873    103    RUN FUNCTION DATA       7
   14      2  000032      377      9    MAPPER APPLICATIONS     1
   10      2  000034       80      3    RUN FUNCTION REFERNC    7
    1      2  000036     6546     10    QUOTATIONS              7
    1      2  000040    27106    364    EXPERIMENTAL REPORTS    7
    5      4  000042       59      2    F2141 MODULE SWAPOUT   61
   13      4  000044     1546      7    ROTATOR PROGRAM         2
    1      4  000046     1189     20    DIR/COND. SHIPMENT     63
   13      4  000050       40      1    7015-00 TEST STATUS    63
    7      4  000052      236      2    CONSOLE/PRINTR STAT.   61
    1      4  000054       50      2    NEW PROD. TEST STATUS  61
   13      6  000062      469      3    CONTINUITY TEST 407     3
    6      6  000064     8406     25    COMPONENT DEFECTS       3
    5      6  000072     3695      9    TEST LIST STATS         3
    7      6  000074     1305      3    DIT-MCO TEST LIST       3
    1      6  000100     1606      4    CABLE TEST PROCEDURE    3
```

Figure 3-4. RPG1 Run: Status Report

3.4. Eliminating Inactive Data

Most form types have active reports that reflect:

- activity about to enter an operation;
- activity in progress; or
- activity that has just left the operation.

Activity status reporting is the most heavily processed type. Status reporting data does not usually exceed a few thousand lines per form type; the reports should be under 500 lines. These are optimum sizes.

Eliminate information that becomes old online. Separate historical from active information to ensure efficient processing of the active data.

As the MAPPER data base grows in size and use, the manual elimination of inactive data by users becomes inadequate, in which case you can execute the PRIMER and KILLER runs to automatically eliminate inactive reports.

3.5. PRIMER Run—Finding Candidate Reports for Deletion

The PRIMER run checks the purge index reports and produces a report in mode 208, report 1E, with a list of reports that are candidates for deletion. These candidates exhibit one of these characteristics:

- Added or duplicated reports or results that have never been updated and have existed for a specified period of time (e.g., for over a week)
- Reports that have not been updated for a specified period of time (e.g., for over a month)

NOTE: Specify these time periods as parameters to the PRIMER run. Place any form types you want to bypass in PRIMER and KILLER runs in an exception list in mode 208, report 5E.

3.6. KILLER Run—Sampling Candidate Reports Before Deletion

After executing the PRIMER run, check the report it produces in mode 208, report 1E, and remove any reports you don't wish to delete. The KILLER run samples each report immediately before deletion: a last minute update saves a report from deletion. The KILLER run result is located in mode 208, report 6E.

Three lines define each deleted report: the first from the purge index reports describes the report; the second shows the first line in the report, i.e., the date line, and the user-id of the last person to update the report; and the third gives the save flag characteristics and the title line of the report. See Figure 3-5.

```
.DATE 14 AFR 82  09:09:09  RID           14 APR 82  COORD
.DELETIONS BY AUTOMATIC DELETER,     13 APR 82                    H3336
*             . NUM .UPDATE.NUM.  LAST    . DATE    .
*FN. TYPE . RID .LINES. QTY  .CHR. UPDATED . CREATED . REPORT DESCRIPTION .MOD.DC.
*==.======.=====.=====.======.===.========.========.====================.===.==.
  1 000001    16    15      1  80 25 OCT 77 13 SEP 77 FREE FORM REPORTS      0 A
.DATE 24 OCT 77  09:32:06  RID     16    24 OCT 77  JB
. FREE FORM :
  1 000001    37    15      0  80 23 NOV 77 23 NOV 77 FREE FORM REPORTS      0 A
.DATE           09:32:06  RID     37    22 NOV 77  BARRIE
. FREE FORM :
  1 000001    52    14     10  80 22 OCT 77 23 NOV 77 FREE FORM REPORTS      0 A
.DATE 21 OCT 77  11:03:55  RID     52    21 OCT 77  HAGLUND
. FREE FORM :
  1 000040     4    15     10 132 25 OCT 77 25 OCT 77 EXPERIMENTAL REPORTS  2 !
.DATE 24 OCT 77  15:18:01  RID      4    24 OCT 77  JACQUES
.PC STATUS REPORT                                BY: LITTLE     I0040
  1 000040     8    15      6 132 26 OCT 77 25 OCT 77 EXPERIMENTAL REPORTS  2 I
.DATE 24 OCT 77  07:51:24  RID      8    24 OCT 77  HEADSTONE
.VENDOR CODE DISBURSEMENTS: FY 78       BY: T R HEADSTONE
  1 000040    10    21     22 132 27 OCT 77 27 OCT 77 EXPERIMENTAL REPORTS  2 I
.DATE 26 OCT 77  10:18:56  RID     10    26 OCT 77  PETERS
........ SCF PROCUREMENT DOLLAR ACTIVITY:  WEEK ENDING  YYMMDD
  1 000040    13    37     79 132 27 OCT 77 05 OCT 77 EXPERIMENTAL REPORTS  2 I
.DATE 26 OCT 77  09:40:10  RID     13    04 OCT 77  PETERS
........ CASH FLOW AND DOLLAR COMMITMENT ANALYSIS  ( SCF FULL STD. )
  1 000066     3   100    314  80 26 OCT 77 02 APR 76 TEST EQUIPMENT STAT.   6 D
.DATE 25 OCT 77  15:36:24  RID      3    17 MAR 77  WENDYS
.TEST EQUIPMENT STATUS                     BY: J.J.JOHNS          40
  2 000156    18   121      0  80 24 NOV 77 24 NOV 77 QUALITY DATA          12 H
.DATE 26        14:40:45  RID     18    23 NOV 77  JTB
.QUALITY DATA: W/C 415 PANEL. ASSY OCT  . BY:JAMIE          H0156
  7 000312     2    24      0  80 24 NOV 77 03 NOV 77 JOB LOCATOR CARDS     24 F
.DATE           11:55:38  RID     11    21 NOV 77  BONE
.MATERIEL ENG. VENDOR QUALIFICATION (250215)BY:
  4 001142    12   164      0  80 22 NOV 77 22 NOV 77 MAT. VEN. QUALIF.     76 B
.DATE           08:57:40  RID      3    22 NOV 77  JONES
.VENDOR CODE STRIP:                      BY:
  9 001256     2    16      7 132 22 OCT 77 22 OCT 77 VEND.DIST/COM.REPORT  84 H
.DATE 21 OCT 77  13:05:55  RID      2    21 OCT 77  HEADSTONE
.VEND. DISB./COMMOD. REPORT: TEST 1    BY: H.H.HEADSTONE     H1256
  7 001606     9    37    106 132 27 OCT 77 23 SEP 77 MIXED STATUS REPORTS 112 D
.DATE 26 OCT 77  07:58:07  RID      9    22 SEP 77  SEB
.INMATS PRICED DOCK RECEIPTS             BY:S.E.BARRIE        D1606
  5 001642    16  1717      1 132 13 OCT 77 01 DEC 76 SEMICONDUCTOR IFP    116 B
.DATE 12 OCT 77  14:27:21  RID     16    12 OCT 77  BROOK
.@771201   FY78-5    ACKNOWLEDGED SHIPMENTS THRU 770819   (1711 LINES)
  2 002274     4     8      0 132 24 NOV 77 31 DEC 75 OPEN PURCHASE ORD    150 G
.DATE           08:48:45  RID      4    23 NOV 77  BLOOM
.OPEN PURCHASE ORDERS:TOOLS & SUPPLIES BY: JOANIEGIRL       G2274
  6 002702     3   125      0 132 23 NOV 77 27 AUG 77 SLC ORDERING PLAN    184 B
.DATE           11:43:00  RID      3    22 NOV 77  JMB
.780102   SALT LAKE CITY ORDER PLAN BY: JOANIEGIRL        B2702
                    ..... END REPORT .....
```

Figure 3-5. KILLER Run Result (Format 1)

3.7. History Data

The daily PURGE or MERGE process produces magnetic tape files of copies of reports as they exist at the end of that day. Working with site management, establish a policy for retaining these files in a library. Assist users to gain access to history files. You can use batch routines to copy reports from the tapes to files, then retrieve them through the MAPPER processor with the RETRIEVE (RET) function; or you can use the RETRID and COPYRID runs in mode 226.

3.8. CHANGE Run—Listing Types that Deviate from Planned Size

The form type analysis report, with information from the Application Authorization and Justification form, and the purge index reports have information about the anticipated use (plan) of form types and the actual use. The CHANGE run uses these two reports to produce a plan/actual report, an exception report that lists all form types that deviate from planned size by a specified margin, and the department responsible for each type (see Figure 3-6).

Start the CHANGE run with a result of the portion of the purge index data on display that you wish to analyze. To analyze the entire data base, display a result of all the purge index reports. Start the run and enter the margin in the message displayed on the screen. The margin is defined in line 2 of the completed plan/actual report (Figure 3-6).

Execute the CHANGE run monthly.

.DATE 11 AUG 82 09:09:09 REPORT GENERATION COORD
.PLAN RESULT ----- DIFFERENCE PLAN/ACTUAL OVER 1000 IS -157026

*		.ACTUL.	.NUM.			.PLANED.	LINES .	%		
*FN.	TYPE	.LINES.	.CHR.	DESCRIPTION	.MOD.	LINES .	DIFF .	DIFF .	RC	S.
1	000001	6263	80	FREE FORM REPORTS	0	5000	1263	25	7	
1	000040	3568	132	EXPERIMENTAL REPORTS	2	1500	2068	138	7	
6	000064	4795	132	COMPONENT DEFECTS	6	3000	1795	60	3	
1	000066	1037	80	TEST EQUIPMENT STAT.	6	3200	-2163	-68	3	
1	000076	1089	132	FMR INVENTORY P/C	6	4000	-2911	-73	3	
3	000112	984	132	FAILURE MALFUNCTION	8	5000	-4016	-80	3	
2	000114	18660	132	FMR REPORTING	8	15000	3660	24	3	
9	000130	383	80	QUESTIONS & ANSWERS	10	5000	-4617	-92	3	
6	000142	6194	132	MLP QUALITY DATA	12	2500	3694	148	3	
9	000146	678	80	RUN FACTORS	12	2000	-1322	-66	3	
4	000152	2507	80	T/L STATUS	12	5000	-2493	-50	3	
7	000154	2134	132	TESTABILITY STATUS	12	10000	-7866	-79	3	
2	000170	3602	80	QUALITY DATA	12	9000	-5398	-60	3	
6	000200	21509	132	XYZ TEST INVENTORY	14	25000	-3491	-14	63	C
3	000204	920	132	RUN FUNCTION DATA	14	2000	-1080	-54	63	
3	000206	6997	132	RUN FUNCTION DATA	16	4000	2997	75	28	
3	000210	18056	132	MARS FACTORS	16	7000	11056	158	28	
7	000214	8164	132	IE ASSY GENEALOGY	16	6000	2164	36	28	
5	000220	4260	132	RUNSTREAM DATA	16	10000	-5740	-57	28	
3	000224	18724	132	ACCT. STANDARD DATA	16	20000	-1276	-6	28	
9	000224	1344	132	NUK SHIPMENTS	18	5000	-3656	-73	2	
3	000230	3526	132	EXPED. PART SHORT	18	5500	-1974	-36	2	
9	000242	1780	80	FACT TEST LIST	20	500	1280	256	12	
4	000254	587	80	MULTILAYER TEST	20	2400	-1813	-76	12	
4	000310	3936	132	RUN FUNCTION DATA	24	5000	-1064	-21	2	
2	000322	4541	80	STATUS REPORT	26	6000	-1459	-24	15	
2	000336	54007	132	XYZ ORDER STATUS	26	60000	-5993	-10	15	
7	000344	2506	132	MAPIS STRIP PC&MECH.	28	7000	-4494	-64	2	
7	000350	755	132	SCHEDULE MONITOR	28	2000	-1245	-62	2	
3	000352	48998	132	W/C SCHEDULING	28	60000	-11002	-18	2	
2	000356	85	80	INTERNAL ORDERS MECH	28	5000	-4915	-98	2	
6	000360	1383	80	INACT/EXCESS ANALYS.	28	2500	-1117	-45	2	
3	000362	21324	132	PRODUCTION STATUS	30	20000	1324	7	2	
5	000366	40520	132	ASSY GENEALOGY	30	35000	5520	16	2	
6	000370	4775	132	SCF IFPO CHECK	30	1500	3275	218	2	
9	000372	285	80	WORK CENTER UPDATE	30	2000	-1715	-86	2	

Figure 3-6. CHANGE Run: Plan/Actual Report

3.9. DIST Run—Sending Notice to Departments of Oversize Types

Use the plan/actual report to identify data bases that must be brought back to plan, rejustified with a new plan, or eliminated. The CHANGE run result provides the input for the DIST run, which produces a form letter to departments with a list of active form types that are larger than planned (see Figure 3-7).

```
***** MAPPER SYSTEM *****
.
.DATE 14 JUL 82  08:08:08     REPORT GENERATION     COORD
.
.
.         MAPPER SYSTEM USE - PLAN/ACTUAL REPORT
.     ==============================================
.                                              *****************************
.                                              * FOR: JDOE
.                                              *
.                                              *
. LIST OF MAPPER TYPES OUT OF PLAN             * MAIL STATION: MS 1111
. --------------------------------             *****************************
.
. DEPARTMENT: R8320-MP006    SIGN-ON NO.  6
.
. TOTAL NUMBER OF TYPES OUT OF PLAN:     1
.
. TOTAL NUMBER OF LINES OVER PLAN:   2454
.
. COST PER YEAR TO KEEP THIS DATA ON LINE IS APPROXIMATELY $ 613.50
.
.
. NOTE: THE TYPE/S OF REPORTING IN WHICH THESE REPORT/S EXIST
.       HAVE EXCEEDED THEIR PLANNED (COST JUSTIFIED) SIZE.
.
.       THE FACT THAT THE TYPE/S OF REPORTING ARE OVER PLAN
.       MEANS THAT A REJUSTIFICATION WILL BE REQUIRED
.       UNLESS TOTAL LINES CAN BE BROUGHT BACK TO PLAN.
.
.
. PLEASE REVIEW THE LISTING ON THE NEXT PAGE AND:
.
.        . EVALUATE WHY THESE TYPE/S OF REPORTING HAVE EXCEEDED
.          THEIR PLANNED SIZE?
.
.        . DELETE ANY DUPLICATED REPORTS OR SEARCH RESULTS
.          WHICH ARE NOT NEEDED.
.
.        . CLEAN UP THE BASE/S AND MARK UP THIS REPORT TO SHOW
.          CORRECTIVE ACTION.
.
.        . RETURN THE REPORT SHOWING CORRECTIVE ACTION TO MAPPER
.          SYSTEM COORDINATION
.
.
.    NOTE: A REJUSTIFICATION MUST BE SUBMITTED IF THE TYPE OF
.          REPORTING IS TO CONTINUE OFF PLAN.  FORMS FOR
.          THIS ARE AVAILABLE FROM COORDINATION.
.
.
.
.  IF YOU HAVE ANY QUESTIONS, CONTACT MAPPER SYSTEM COORDINATION:
.
 ***** MAPPER SYSTEM ******
.
.
*        RID .ACTUL.                          PLANED.LINES .  %    .    .
* TYPE . QTY .LINES.   DESCRIPTION       .MOD.DC.LINES. DIFF . DIFF . RC $.
*======.=====.=====.===================.===.==.=====.======.======.=====.
 001624     8  4954 MECHANIZED OTS       114 C   2500   2454     96   6
                ..... END REPORT .....
```

Figure 3-7. DIST Run: Plan/Actual Report (to User Department)

3.10. FLAG Run—Listing Deletion Candidates with Save Flags

Save flags protect inactive data from automated report elimination (see 3.4) causing obsolete, unused data to accumulate in MAPPER data bases. The FLAG run generates a report (Figure 3-8) for each department, denoting reports that were candidates for automatic deletion but were saved by save flags. These reports are in form types that exceed the run designer's proposed size. Contact the responsible departments or individuals and advise them to either remove the flags or revise the plans for the form types.

```
.DATE 07 OCT 82  20:20:20    REPORT GENERATION    COORD

.                                        ******************************
.                                        * FOR: JDOE
.                                        *
.                                        *
. LIST OF SUSPECT, SAVE FLAGGED REPORTS  * MAIL STATION: MS 1111
. ---------------------------------      ******************************

. DEPARTMENT: FACTORY QUALITY            SIGN-ON NO.  3

. TOTAL NUMBER OF SUSPECT RIDS:   1

. TOTAL NUMBER OF SUSPECT LINES INVOLVED IN THE REPORTS:    58

. COST PER YEAR TO KEEP THIS DATA ON LINE IS APPROXIMATELY $  14.50


. NOTE: THE TYPES OF REPORTING IN WHICH THESE REPORTS EXIST
.       EXCEEDED THEIR PLANNED (COST JUSTIFIED) SIZE.  THERE IS
.       A STRONG POSSIBILITY THAT THESE SAVED REPORTS HAVE
.       CAUSED THE TYPE OF REPORTING TO GO OVER PLAN.  THE UPDATE
.       CHARACTERISTICS (DUP'ED / OLD) OF THESE REPORTS WOULD
.       HAVE CAUSED THEM TO BE DELETED BY THE AUTOMATIC REPORT
.       DELETER HAD SAVE FLAGS NOT BEEN PUT ON THEM.  THUS THEY
.       ARE DOUBLY SUSPECT.
.
.       THE FACT THAT THE TYPES OF REPORTING ARE OVER PLAN
.       PROBABLY MEANS A REJUSTIFICATION WILL BE REQUIRED
.       UNLESS TOTAL LINES CAN BE BROUGHT BACK TO PLAN.


. PLEASE REVIEW THE LISTING ON THE NEXT PAGE TO SEE:

.       . SHOULD THE DATA REALLY BE SAVED? (PRINT OUT INSTEAD?)

.       . ARE THE SPECIFIED SAVE DATES REALISTIC? (NOT TOO FAR OUT?)

.       . TO AID IN YOUR REVIEW, 3 LINES ARE LISTED FOR EACH
.         SUSPECT REPORT:

.          THE 1ST LINE GIVES A SUMMARY OF REPORT CHARACTERISTICS.

.          THE NEXT 2 LINES ARE THE 2 FIRST LINES OFF THE ACTUAL REPORT.

.          FROM THESE LINES YOU CAN DETERMINE THE REPORT MODE,
.          TYPE AND NUMBER, THE NUMBER OF LINES IN THE REPORT, THE
.          UPDATE AND CREATION DATES (REFLECTING CURRENCY), THE
.          SUBJECT OF REPORTING, THE NAME OF THE LAST UPDATER
.          (LIKELY THE PERSON WHO SET THE SAVE FLAG), AND
.          THE NAME OF THE PERSON RESPONSIBLE FOR THE REPORT.

.          IF YOU HAVE ANY QUESTIONS, CONTACT:

.                        MAPPER SYSTEM COORDINATION

.            . NUM .  LAST   . DATE    .
* TYPE . RID .LINES. UPDATED . CREATED .   DESCRIPTION       .MOD.DC. RC S.
*======.=====.=====.=========.=========.====================.===.==.=====.
 000114   102    58 22 SEP 80 21 SEP 77 FMR REPORTING          83 G    3
.DATE 02 SEP 82  10:10:10  RID    102    21 SEP 82  COORD
.@991231 FMR REPORTING:                BY:  COORD             GO114
                    ..... END REPORT .....
```

Figure 3-8. FLAG Run: Report of Deletion Candidates with Save Flags

3.11. VER—Listing Valid/Inconsistent/Damaged Reports

The VERIFICATION (VER) function produces a result that lists both valid reports and those that indicate symptoms of report data inconsistencies or damage. You can execute VER against any MAPPER file, including the current file of today's updated reports.

If your site is using the CYCLE/MERGE process, you can verify MUPER files also.

VER checks these report characteristics for discrepancies:

Line 0
Line numbers and line terminators
End-of-report indicator (END REPORT)
Proper number of lines

VER also checks the RID tables. (The PACK, PACK RECOVERY, and PURGE processes also check RID tables.)

If the MAPER0 verification result shows report damage, correct it through the RECOVERY process.

If the damaged report appears in a MAPER*n* file, it has already passed through the PURGE process.

To produce a corrected version in MAPER0:

- retrieve a good copy from a previous history tape;
- replace the bad report; and
- make the needed updates to bring the report up to date.

To verify:

enter:	to:
VER	verify MAPER0 or the current MUPER file
VER 0	verify MAPER0 or the current MUPER file
VER -1	verify MUPER1
VER -2	verify MUPER2
VER *n*	verify MAPER*n* file
VER T*n*	verify numeric form type *n* in current file
VER T*n* R*nn*	verify numeric form type *n*, RID *nn*

Figure 3-9 shows the form type definition of the VER function result.

```
.DATE 07 DEC 82  09:09:09  RID            08 DEC 82  COORD
. (FILE N) CONTAINS THE FOLLOWING RIDS :
.
*
*                              .CHR.       SECTOR    .SECTOR.
* TYPE . RID  .LINES .CHARS .SET.VALID.     ADRS     .LENGTH.
*======.======.======.======.===.=====.============.======.
 XXXXXX NUMERIC REPORT TYPE
        XXXXXX REPORT NUMBER
               XXXXXX NUMBER OF LINES
                      XXXXXX NUMBER OF CHARACTERS PER LINE
                             XXX CHARACTER SET (L, F, or U)
                                 XXXXX VALID CHECKS (YES OR NO)
   REPORT OCTAL STORAGE SECTOR ADDRESS XXXXXXXXXXX
                                       STORAGE SECTORS XXXXXX
                        ..... END REPORT .....
```

Figure 3-9. Form Type Definition: VER Function Result

If a report is invalid, the word NO appears in the VALID field.

An asterisk appears in the LINES (quantity), CHARS (number of characters), and CHR SET (character set) fields whenever these indicators are invalid.

The MAPPER processor also flags totals at the end of the result that may be invalid because of discrepancies with asterisks.

Figure 3-10 shows the VER function result of a MAPER file.

```
.DATE 14 OCT 82  09:09:09  RID            14 OCT 82  COORD
.
. (MAPER5) CONTAINS THE FOLLOWING RIDS:
.
*                              .CHR.       SECTOR    .SECTOR.
* TYPE . RID  .LINES .CHARS .SET.VALID.     ADRS     .LENGTH.
*======.======.======.======.===.=====.============.======.
 001306      0     10     80   L   YES  000000010400     24
 001306      1     15     80   L   YES  000000010430     16
 003526      0     10     80   F   YES  000000010444     40
 003526      1     19     80   F   YES  000000010510     24
 003526      2    115     80   F   YES  000000010534     96
.
. TOTAL VALID   = 5
. TOTAL INVALID = 0
. TOTAL LINES   = 229
. TOTAL SECTORS = 200
                      ..... END REPORT .....
```

Figure 3-10. VER Function Result of a MAPER File

4. Analyzing Transactions

4.1. Accounting Log File

The software-produced accounting log file (a cataloged, public file) lets you analyze MAPPER transactions.

The MAPPER processor records MAPPER statistical data in the accounting log file in 5-minute intervals. Each 5-minute interval is called a "period." Each time frame of MAPPER operations is called a "term." The current term starts at midnight or whenever MAPPER software is started. Values in term fields apply only to the current time frame.

which function should I use?

For a list or summary of transactions, you can use the LOG LIST or LOG SUMMARY function.

For more detailed statistical information, use these functions:

- CURRENT SYSTEM STATISTICS
- STATISTICS LOG
- STATISTICS SUMMARY

4.2. LOGL/LOGS—Listing/Summarizing MAPPER Activity

The LOG LIST (LOGL) function gives you a list of MAPPER transactions. It lists all activity in sequence by time of occurrence as a result in mode 220, type H. Select restrictive parameters in the LOGL function mask or the result includes all of the day's transactions, which could be thousands of lines of data.

The LOG SUMMARY (LOGS) function gives you a summary of MAPPER transactions. It produces a summary of the log data by function as a result in mode 220, form type G. Since LOGS produces only a summary of functions, its output is always limited. Use LOGS primarily to see how MAPPER software is running, and to gather information for the System Performance Chart (see Figure 4-9).

Figure 4-1 shows the form type definition of the LOGL function result; Figure 4-2 shows the form type definition of the LOGS function result.

```
.DATE 08 DEC 82  14103125  RID      1   08 DEC 82  COORD
. LOG LIST   FORM DEFINITION      BY: COORD            13400
.
.LTNAME.STAN.DEPARTMENT .   USER    . FUNCTION   .  TIME  .   ACTIVE   . TYPE .RID .LINES-IN.LINE-OUT.READS.WRITE.BKPT.BRKPT-TIME  .
*======.====.===========.==========.===========.========.===========.======.====.========.========.=====.=====.====.===========.
*XXXXXX CLT / INDICATOR NAME (FROM CONFIGURATION REPORT)
*       XXXX TERMINAL STATION NUMBER (FROM CONFIGURATION REPORT)
*            XXXXXXXXXXX USER DEPARTMENT NAME (FROM SIGN-ON REGISTRATION RID IN TYPE F)
*                        XXXXXXXXXXX USER SIGN-ON NAME (FROM SIGN-ON REGISTRATION RID IN TYPE F)
*                                    XXXXXXXXXXXX FUNCTION USED NAME
*                                                 XXXXXXXX CLOCK TIME AT FUNCTION END
*                                                          XXXXXXXXXXXX FUNCTION ACTIVE TIME (NOT INCLUDING TIME IN BREAKP)
*                                                                       XXXXXX REPORT TYPE PROCESSED (OCTAL)
*                                                                              XXXX REPORT ID NUMBER (BLANK=RESULT)
*                                                                                   XXXXXXXX  LINES READ IN
*                                                                                             XXXXXXXX LINES WRITTEN OUT
*                                                                                                      XXXXX BUFFERS I/O'S READ IN
*                                                                                BUFFERS I/O'S WRITTEN OUT XXXXX
*                                                                                         NUMBER OF BREAKPOINTS XXXX
*                                                                                                TIME IN BREAKPOINT XXXXXXXXXXX
*
                    ..... END REPORT .....
```

Figure 4-1. Form Type Definition: LOGL Function Result

```
.DATE 08 DEC 82  03:03:03  RID      1    08 DEC 82  COORD
. LOG SUMMARY   FORM DEFINITION       BY: COORD
.
*  FUNCTION  .STARTS.ACTIVE TIME .BRKPT. BRKPT TIME .LINE IN .LINE OUT.READS .WRITES.  I/O   . LINES  .NO LOG.          .
*============.======.============.======.============.========.========.======.======.========.========.======.===========.
*XXXXXXXXXXXX FUNCTION NAME (TYPE)
*             XXXXXX NUMBER OF FUNCTION STARTS
*                    XXXXXXXXXXXX TIME IN THE FUNCTION
*                                 XXXXX NUMBER OF BREAKPOINTS REQUIRED
*                                       XXXXXXXXXXXX TIME SPENT IN BREAKPOINT
*                                                    XXXXXXXX LINES OF DATA READ IN
*                                                             XXXXXXXX LINES OF DATA WRITTEN OUT
*                                                                      XXXXXX NUMBER OF READ (I/O) BUFFERS
*                                                                             XXXXXX NUMBER OF WRITE (I/O) BUFFERS
*                                                                                    XXXXXXXX FOR I/O SUM
*                                                                                             XXXXXXXX FOR LINE SUM
*                                                                               FUNCTIONS NOT LOGGED UNDER RUN XXXXXX
                    ..... END REPORT .....
```

Figure 4-2. Form Type Definition: LOGS Function Result

To display one of these function request messages, enter:

{LOGL|LOGS}

```
                    LOG LIST

DEPARTMENT /                                  USER
START TIME                                STOP TIME
FUNCTION                                    STATION
LINE TERMINAL                         DECIMAL TIME Y
CYCLE                                      MIN ACTV
MAX ACTV                                       RID
                        TYPE
```

```
                   LOG SUMMARY

DEPARTMENT /                                  USER
START TIME                                STOP TIME
FUNCTION                                    STATION
LINE TERMINAL                         DECIMAL TIME Y
CYCLE                                      MIN ACTV
MAX ACTV                                       RID
                        TYPE
```

where:

DEPARTMENT	department designation from user registration reports in mode 218, type F
USER	user–id from user registration reports
START TIME STOP TIME	start and stop times and dates in the format *hhmmss ddmmmyy* (enter date if different from date in current log)
FUNCTION	name of function used (see FUNCTION field, Figure 4–4)
STATION	terminal station number

LINE TERMINAL	communications line system generation name
DECIMAL TIME	**Y** means time in seconds (delete the **Y** if you want hours, minutes, and seconds)
CYCLE	activity log file cycle (blank, –0, –1, etc.)
MIN ACTV MAX ACTV	minimum and maximum duration in milliseconds that function was active
RID	report identifier of report processed
TYPE	numeric form type processed

Make the appropriate entries in these fields to get the information you want.

4.3. LOGLA Run—Analyzing LOGL Results

The LOGLA run analyzes the LOGL function result, listing the users, functions, start times, numeric form types, and RID numbers, lines read in, lines written out, and read and write operations. It computes the number of I/O units processed, the number of logic lines and data lines processed, and the approximate charge for the I/O processing. The second comment line indicates which parameters were specified in the LOGL function.

Figure 4-3 is an example of a LOGLA run result.

```
.DATE 08 DEC 81  16:16:16      REPORT GENERATION      COORD
*=============================================================================
 .LOG LIST: FROM 16:15:14  08 DEC 81   TO 16:15:24  08 DEC 81
FOR: LOGLA ANALYSIS OF THE 'MARK' RUN, MODE 16, TYPE E, RID 3

        TRANSACTIONS        I/O'S          LOGIC LINES       DATA LINES
        ------------ ----------------- ---------------- ----------------
PART  1 =          8                 69                15               399

TOTAL =            8                 69                15               399

APPROXIMATE CHARGE FOR I/O PROCESSING   $     0.08

.
*   USER     .   FUNCTION   .    ACTIVE    . TYPE .RID .RD LINES.WR LINES.RD IO.WR IO.
*============.============.============.======.====.========.========.=====.=====.
 JDOER        PRE-RUN*      00:00:00.144 003330    1        40        0     2     0
 JDOER        SORT*         00:00:00.701 000206             38       38    13     9
 JDOER        MATCH*        00:00:00.309 000206    1        78       58     7     6
 JDOER        SORT*         00:00:00.479 000206             20       20     9     6
 JDOER        TOTALS*       00:00:00.112 000206             19       20     2     2
 JDOER        TOTALS*       00:00:00.038 000206             19        0     1     0
 JDOER        TOTALS*       00:00:00.051 000206             19        6     1     0
 JDOER        RUN*          00:00:00.129 000210    3        15        9     5     6
PART  1 XCTNS =     8  LLP =         15 LINES =      399  I/O's =     69
 JDOER        DISPLAY*      00:00:00.098 000210             15        0     1     0
                      ..... END REPORT .....
```

Figure 4-3. LOGLA Run Result

4.4. LOGSA Run—Analyzing LOGS Results

The LOGSA run analyzes the LOGS function result and produces a field of data called REP RATES (see Figure 4-4). The REP RATE is the average access time per I/O unit, determined by dividing the active time (decimal) by the number of I/O units. This figure indicates the relative throughput effectiveness of the MAPPER processor. REP RATES might be higher in some cases, e.g., if there are file conflicts or if single-channel instead of dual-channel services are being used. To determine normal and abnormal conditions, monitor REP RATES daily. Also, monitor average response time to detect abrupt changes.

It is especially important to monitor REP RATE variations on the heavily used functions such as RUN, SEARCH, and SORT. See again Figure 4-4, where the REP RATE figures for these functions are shaded.

You should also monitor the total breakpoint quantity computed by the LOGSA run for normal and abnormal levels: figures in excess of 2,000 may indicate an inadequate main storage pool.

The MAPPER processor uses a breakpoint technique to reduce the loading effect of high-impact activities during peak report processing times, thereby maximizing service to activities having a lower impact on the processor.

The MAPPER supervisor controls distribution of main storage to MAPPER functions and control routines. The MAPPER processor automatically executes a breakpoint whenever there is a wait for main storage. The breakpoint releases the related I-bank and stores the D-bank in mass storage. Thus, main storage is freed and related functional I/O activity is temporarily suspended. A secondary benefit is that, as reloading occurs, the fragmented characteristic of main storage is minimized: in effect, main storage is packed and small holes in main storage are minimized. When a high-impact activity encounters a breakpoint suspension, it is not suspended indefinitely. Once reactivated, a set amount of service—active time and I/O—is allocated before it again becomes a candidate for breakpoint.

These functions are candidates for breakpoint:

BATCH START	Based on time active and multiple reports
MATCH	If SORT is required
PRINT	
RETRIEVE	Based on time active
RUN	If high-impact functions are used
SEARCH/SEARCH LIST	If multiple reports are searched
SORT	Based on time active

NOTE: *You can manually abort any function that is a candidate for breakpoint.*

The relationships among active time, breakpoints, I/O quantities, and REP RATES vary considerably whether or not multibanked storage is used, and to the extent that it is used. Use these items to evaluate day-to-day variations; don't use them to evaluate performance with or without multibanking. System programmers can analyze resource utilization completely with external resource monitors such as SIP or PAR.

```
.DATE  25 JAN 82  08:08:08       REPORT GENERATION       COORD
*=====================================================================
XYZ 1100/81 M A P P E R SYSTEM
. LOG SUMMARY FROM 00:29:30  14 NOV 80   TO 01:28:29  22 JAN 82
FOR:  XYZ SYSTEM, LAST DAY OF OPERATION AS 1100/81 SINGLE PROCESSOR

          NON RUN   AVG SEC                  I/O'S      LINES   FUNCTIONS
        FUNC STARTS RESPONSE BREAKPOINTS PROCESSED PROCESSED UNDER RUNS
        ---------- -------- ----------- --------- --------- ---------
TOTALS=    205380    0.706         473   3863700  63081383     90941
APPROXIMATE CHARGE FOR I/O PROCESSING   $ 3786.43
NUMBER OF PACKS       2   TOTAL LINES WRITTEN TO RECOVERY TAPE  3737829
NUMBER OF VALIDATES       1    NUMBER OF RECOVERIES       0

             .QTY  .              .QTY  .  TIME IN  .    I/O   .  LINES  .TIME/I/O.
  FUNCTION   .STARTS.ACTIVE TIME .BRKPT.BREAKPOINT .    QTY   .PROCESSD .REP RATE.
=============.======.============.=====.==========.=========.=========.========.
ADD-REMOTE         33     295.536     0       0.00      4700     60680 0.062880
ADD-REPORT        114      39.797     0       0.00       910      3918 0.043733
ADD-SITE          127     442.417     0       0.00     10941     82179 0.040437
APPEND            296     391.686     0       0.00     11276    328373 0.034736
ARITHMETIC        861      88.478     0       0.00      5680     23823 0.015577
AUX-DEV-STK       495     388.647     0       0.00      8412     95952 0.046201
AUX-OUTPUT      10359    2170.731     0       0.00     53735    304493 0.040397
BATCH-PORT         92    1269.911     0       0.00     11037    149319 0.115059
BATCH-START        36     833.634     2       0.00     22328    329579 0.037336
CASSETTE          300      12.057     0       0.00       710      1320 0.016982
CE-SUMMARY          1      95.521     0       0.00      4217        53 0.022651
COMM-INIT           1     163.774     0       0.00       175      2247 0.935851
CYCLE-UPD           2     109.605     0       0.00      7941     93084 0.013802
DATE               71      16.626     0       0.00       670     11745 0.024815
DBL-MASK          276      38.428     0       0.00       750      3029 0.051237
DELETE-SITE       118      25.564     0       0.00         0         0 25.56400
DEL-REPORT        870     115.354     0       0.00      2586       869 0.044607
DISPLAY        113339   10601.466     0       0.00    165298   1629667 0.064135
DUP-REPORT        295     472.627     0       0.00     12358    202636 0.038245
FILE-INIT           1       4.269     0       0.00         1         0 4.26900
FIND             2802    4701.535    27      13.20    107869   3597447 0.043586
II-FUNCTION        10    6338.166     0       0.00     27716        69 0.228683
INDEX             173     849.836    18       8.14     25450    102465 0.033392
LINE-CHANGE      5238    5104.962     0       0.00    111683   3797890 0.045709
LOC-OR-CHG       1031     431.798     0       0.00      9120    245074 0.047346
LOG-LIST           25     770.197     2       0.41     22985     44185 0.033509
LOG-SUMMARY        49    1160.044    18       5.29     35932      1076 0.032284
MATCH             352    1688.700     0       0.00     47976    884657 0.035199
MESSAGE-STK       968     105.662     0       0.00      2450     23985 0.043127
MODE-SELECT      2063     115.118     0       0.00      2619      2051 0.043955
PACK-REC            2     714.286     0       0.00     13409         0 0.053269
PRE-RUN          7994    2892.489     0       0.00     71429   1728942 0.040495
PRINT             101     952.971     0       0.00      8660     87957 0.110043
PUNCH               9      13.302     0       0.00        60       503 0.221700
REFORM             34      74.183     0       0.00      2004     17542 0.037017
REMOTE-RUN        104       5.469     0       0.00       416      1433 0.013147
REP-REPORT        803    1181.237     0       0.00     31232    658269 0.037821
RETRIEVE          115     672.918    10       1.66     18057     93100 0.037266
RETRIEVE-A        123     180.946     0       0.00       230         0 0.786722
RSI               590     303.647     0       0.00      5721      3219 0.053076
RUN             18176   67072.892   199      67.51   2179156  31238763 0.030779
SEARCH           5873   16993.959   131      34.95    424488  12673887 0.040034
SEARCH-UPD       1813    5451.952     0       0.00    130528   2912756 0.041768
SIGN-OFF         4014      38.285     0       0.00         0         0 38.28500
SIGN-ON          4662     579.698     0       0.00     12191    192281 0.047551
SORT             1277    3675.555    68      33.57    121262    858713 0.030311
STALL-UPD          30       0.013     0       0.00         0         0 0.013000
SYMB-QUEUE          4       5.981     0       0.00       190       288 0.031479
SYS-STATUS         49       5.265     0       0.00       327      2366 0.016101
TOTALS           3390     995.255     0       0.00     32902    544655 0.030249
TPS-TRAN          866       0.000     0       0.00         0         0 0.000000
TYPE-GEN            6       1.676     0       0.00        64       246 0.026188
UPDATE          14946    4185.146     0       0.00     92359     44531 0.045314
VALIDATE            1      71.548     0       0.00      1490        67 0.048019
                    ..... END REPORT .....
```

4.5. TCK Run—Analyzing Individual Transactions

The TCK run analyzes individual transactions. With a result from the LOGL function on the screen, enter:

TCK *n*

where *n* is the line number of a transaction in the LOGL function result to display in the TCK run result (Figure 4-5). If you don't specify a line number, the TCK run analyzes the ***first line*** on the screen.

The TCK run collects and displays relevant registration data about the selected transaction. You can print the result from the TCK run for future use. If you are analyzing a run transaction, you can review the related run control report (RCR).

For example, if you started the TCK run with this LOGL result on display, you would enter:

TCK 6

where 6 is the line number of the line with the transaction to analyze:

```
.DATE          F1  M 220  132C
. LOG LIST FROM 11:00:00  14 APR 82   TO 12:00:00  14 APR 793356
. FUNC=RUN, CYCLE=0
*   USER    . FUNCTION    .  TIME   . TYPE .RID .LINES-IN.LINE-OUT.READS.WRITE.BKPT.
*==========.============.========.======.====.========.========.=====.=====.====.
 RRS         RUN           11:31:07 000310   14     13826     7086  1004   651    0
```

After transmitting, this TCK run result appears:

```
**************************** FUNCTION DATA ********************************
FUNCTION DATE = 14 APR 82            TIME = 11:31:07
FUNCTION = RUN            READ  =  -LINES    13826   -IO'S  1004
                          WRITE =  -LINES     7086   -IO'S   651
ACTIVE TIME =       93.667   BRKPTS =    0 BRKPT TIME =        0.000
****************************   USER DATA   ********************************
USER = RRS         BARRIE JOHN                    DEPT = 8150,  2
EXT. = 5608                1
RUN DESIGNER - YES
**************************** TERMINAL DATA ********************************
UNIT = 518    LINE = CTMF11          SCOPE SIZE = 12 X 80
LOCATION = R.E.R. BLDG-4           , XYZ,B4,G-047
SCOPE EXT. =                 COP - NO
**************************** PROCESSED REPORT *****************************
MODE  24, TYPE E 310, RID   14
RUN ID = RPCLOC
IO'S ALLOWED =  5999  LLP ALLOWED =  1999  LAST HIGH ACTUAL =  3019
MODES REGISTERED = 24
RESPONSIBLE PERSON = BARRIE                AGREEMENT? NO
TIME SLOTS - BEGINNING = 10:30:00 ENDING = 13:00:00
TIME SLOTS - BEGINNING = 15:30:00 ENDING = 08:00:00
MULTI REGISTRATION =   RUN STATUS = AN
```

Figure 4-5. TCK Run Result

4.6. CSS—CURRENT SYSTEM STATISTICS

The CURRENT SYSTEM STATISTICS (CSS) function displays real-time MAPPER internal statistical information. It reads the current status of controlling MAPPER parameters and can help you to evaluate how certain resources are being used.

The CSS function displays many key MAPPER statistics and their interpretation can vary widely; therefore, be careful when interpreting them. CSS creates a result, which is a type A report and is processable by MAPPER functions.

To get the current statistics, enter:

CSS

to display the function request message:

```
                    CURRENT SYSTEM STATISTICS

ENTER OPTION(S)                    A = ALL
                                   C = CORE POOL
                                   F = FUNC CONTROL
                                   M = MASS STORAGE
                                   N = COM NETWORK
                                   R = REPORT CONTROL
                                   U = USER
```

where:

A	all statistical information
C	current main storage pool statistics
F	function control statistics
M	mass storage statistics
N	communications network statistics
R	report control statistics
U	user statistics

With a CSS function result on display, resume to start the monitoring activity. Monitoring updates values that have changed every five seconds. To stop the monitor, press MSG WAIT . This also produces a result of the current statistics.

which options to use

Enter either the ***A option alone,*** or any combination of the other options.

With the C option, entries under TYPE relate to the start parameters FPOOL, MMPSIZ, and MMPBANK:

CPOOL-ACTIVE	value of FPOOL (if greater than zero) or the operator entry bit equal to zero
MPOOL-ACTIVE	total multiple storage pool size (MMPSIZ times start parameter MMPBNK values)
MBANK-ACTIVE	value of the MMPBNK start parameter

The TYPE field in the result may have these statistics:

CPOOL-ACTIVE	common storage pool use
MPOOL-ACTIVE	multiple storage pool use
MBANK-ACTIVE	number of multiple storage banks in use

With the F option, CSS displays two statistical items:

FUNCS-ACTIVE	functions active
FUNC-REQUEST	function requests

With the M option, the number of lines of statistics varies according to start parameters. You get one line of statistics for each type of mass storage in use. Values in the SIZE field are mass storage starting positions defined in the FPOS, MPOS, SPOS, and UPOS start parameters (these parameters are in MAPER0).

You get:

FPOS-ACTIVE	fast-speed mass storage
MPOS-ACTIVE	medium-speed mass storage
SPOS-ACTIVE	slow-speed mass storage
UPOS-ACTIVE	update file (MUPER*n*)
FILE-REQUEST	request for mass storage

With the N option, you can look at communications network statistics. Values in the SIZE field are from the start parameters for maximum lines, stations, drops, and auxiliary devices. The statistics vary little while the MAPPER processor is operating because all network tables are built when MAPPER software is initialized and vary only when the dial-in pool changes owing to fewer or more users, or if a remote run is activated.

You get:

LINES-ACTIVE	communications lines
DROPS-ACTIVE	communications drops
STATS-ACTIVE	stations
AUXES-ACTIVE	auxiliary devices
COMM-REQUEST	output, poll, and communications acknowledgments

With the R option, you can look at report control statistics:

REPTS-ACTIVE	number of available entries in conflict table: percentage of conflict table in use (the conflict table shows the number of reports being accessed)
RECV-REQUEST	number of recovery tape requests (a recovery tape request is made when reports are updated; each request is for one block of data, which may be a report update, part of a report update, or the writing of an entire report)

With the U option, you can look at user statistics: The SIZE field indicates the maximum number of users that can be signed on at a time; the percentage is the percentage of the maximum that is currently active.

USERS-ACTIVE	percentage of maximum users currently signed on
USER-REQUEST	number of user-initiated (manual) requests

fast access

Enter:

CSS *options*

where *options* is a valid option or options.

The result has five header lines, with the current time in line 2, and a number of lines of data, each line representing a specific MAPPER statistic:

```
.DATE          TIME        RID
.CURRENT SYSTEM STATISTICS: 10:00:00
*                .     .     .  PRD . PRD . PRD  . PRD .TERM .TERM . TERM .TERM .
*    TYPE      . SIZE . CUR .XX. AVG . MAX . RATE . QUE . AVG . MAX . RATE . QUE .
*============.======.=====.==.=====.=====.======.=====.=====.=====.======.=====.
```

where:

TYPE	name of statistic (each line in the report defines a specific MAPPER statistic)
SIZE	maximum number possible for a particular item (only software-limited items appear in this field)
CUR	current value for item (percentage of maximum size)
PRD AVG	average number (percentage of maximum size for current 5-minute period)
PRD MAX	maximum number (percentage of maximum size for current 5-minute period)
PRD RATE	number of occurrences per second during current 5-minute period
PRD QUE	percentage of requests queued during 5-minute period
TERM AVG	average number (percentage of maximum size for current term)
TERM MAX	maximum number (percentage of maximum size for current term)
TERM RATE	number of occurrences per second during current term
TERM QUE	percentage of main storage requests queued during current term (used only on main storage requests [C option])

Figure 4–6 shows an example of a CSS function result.

```
.DATE           TIME          RID
.CURRENT SYSTEM STATISTICS: 10:21:00                 PERIOD: 10:10:00  TERM: 04:37:32
*             .      .     .  . PRD  . PRD  . PRD   . PRD .TERM .TERM . TERM .TERM .
*     TYPE    . SIZE . CUR .XX. AVG  . MAX  . RATE  . QUE . AVG . MAX . RATE . QUE .
*============.======.=====.==.=====.=====.======.=====.=====.=====.======.=====.
 CPOOL-ACTIVE 30000 45.00    56.40 94.70              57.60 95.20
 CORE-REQUEST                           63.322  0.00              63.909  7.60
 FUNCS-ACTIVE   452 0.401     0.20  1.80               0.4  2.90
 FUNC-REQUEST                           7.2519 *****              6.9346 *****
 FPOS-ACTIVE      4 41.00    39.60 48.50              41.20 55.20
 MPOS-ACTIVE     13 17.00     8.10 33.40              12.60 69.90
 SPOS-ACTIVE     30 00.00    00.00 00.00              00.00  5.20
 UPOS-ACTIVE    105 35.90    35.80 37.10              34.60 37.10
 FILE-REQUEST                           5.1556 *****              5.1698 *****
 LINES-ACTIVE    64 60.90    60.90 60.90              57.80 60.90
 DROPS-ACTIVE    65 81.50    81.50 81.50              76.90 81.50
 STATS-ACTIVE   450 88.20    88.20 88.20              83.60 88.20
 AUXES-ACTIVE   350 78.90    78.90 78.90              74.90 78.90
 COMM-REQUEST                           74.308 *****              61.295 *****
 REPTS-ACTIVE   475 11.60    10.70 14.50               9.30 15.20
 RECV-REQUEST                           1.1037  0.00              3.5860  1.20
 USERS-ACTIVE   451 11.10    10.20 11.30               7.50 11.30
 USER-REQUEST                           2.0000 *****              1.0560 *****
                     ..... END REPORT .....
```

Figure 4–6. Example of a CSS Function Result

run control statement format

@CSS *o*

where *o* are the options.

example

This statement produces a result with current user statistics:

@css u

4.7. STATL—Extracting Statistics from Accounting Log File

The STATISTICS LOG (STATL) function extracts statistical log entries from the accounting log file and displays the entries as a result on the terminal.

You can request combinations of statistics, all of the statistics for a selected time frame, or any accounting log file cycle available.

To extract log entries, enter:

STATL

to display the function request message:

```
                    STATISTICS LOG LIST

                                        OPTIONS:
TYPE OR OPTION(S) /                 BLANK = ALL
       START TIME                   C = CORE POOL
        STOP TIME                   F = FUNC CONTROL
            CYCLE                   M = MASS STORAGE
INCLUDE COMMENTS? N                 N = COM NETWORK
                                    R = REPORT CONTROL
                                    U = USER
```

where:

TYPE OR OPTION(S)	options (leave blank to include statistics for all items; or enter a specific item)
START TIME STOP TIME	start and stop times and dates if different from those in the accounting log file cycle in the format *hhmmss* (blank=current log cycle; if you want information from a time frame in a previous accounting log file cycle, enter the date also in the format *hhmmss ddmmmyy*)
CYCLE	activity log file cycle (blank, -0, -1, etc.)
INCLUDE COMMENTS	**Y** means include comment lines (if there are any) in the result

See 4.6 for a definition of the fields on the right side on the function request message.

Enter the appropriate information.

The result has five header lines indicating the starting and ending times of the log, and the date:

```
.STATS LOG: (07:00:00  11 AUG 82) TO (07:30:00  11 AUG 82)  TERM BEGIN: 03:52:42
. CYCLE=(0)
*                 .      .         . PRD  . PRD  . PRD   . PRD .TERM .TERM  . TERM .TERM
*     TYPE      . SIZE .   TIME    . AVG  . MAX  . RATE  . QUE  . AVG  . MAX  . RATE . QUE  .
*============.======.========.=====.=====.======.=====.=====.=====.=====.=====.
```

Figure 4-7 shows an example of a STATL function result.

```
.STATS LOG: (09:55:00  11 AUG 82) to (10:10:00  11 AUG 82)  TERM BEGIN: 07:30:46
. CYCLE=(0)
*                 .      .         . PRD  . PRD  . PRD   . PRD .TERM .TERM  . TERM .TERM
*     TYPE      . SIZE .   TIME    . AVG  . MAX  . RATE  . QUE  . AVG  . MAX  . RATE . QUE  .
*============.======.========.=====.=====.======.=====.=====.=====.======.=====.
 CPOOL-ACTIVE  30000 09:55:00  63.4  93.0                  58.8  95.7
 CORE-REQUEST        09:55:00              65.167   0.0               56.390   3.8
 FU"CS-ACTIVE    452 09:55:00   0.4   2.2                   0.2   2.7
 FUNC-REQUEST        09:55:00              6.2642 *****               6.0584 *****
 FPOS-ACTIVE       4 09:55:00  45.9  53.9                  43.6  57.3
 MPOS-ACTIVE      13 09:55:00  31.4  46.8                  13.9  69.4
 SPOS-ACTIVE      30 09:55:00   0.0   0.0                   0.0   5.2
 UPOS-ACTIVE     105 09:55:00  32.2  32.9                  23.8  33.7
 FILE-REQUEST        09:55:00              4.4314 *****               4.3974 *****
 LINES-ACTIVE     64 09:55:00  60.9  60.9                  59.4  60.9
 DROPS-ACTIVE     65 09:55:00  81.5  81.5                  80.0  81.5
 STATS-ACTIVE    450 09:55:00  89.3  89.6                  87.8  90.0
 AUXES-ACTIVE    350 09:55:00  78.9  78.9                  78.6  81.7
 COMM-REQUEST        09:55:00              76.896 *****               56.864 *****
 REPTS-ACTIVE    475 09:55:00  13.7  17.5                  11.2  17.5
 RECV-REQUEST        09:55:00              2.8027   3.4               2.7981   1.8
 USERS-ACTIVE    451 09:55:00  11.5  12.4                  12.4  17.7
 USER-REQUEST        09:55:00              1.8729 *****               0.8608 *****
 CPOOL-ACTIVE  30000 10:05:00  29.9  67.0                  29.9  67.0
 CORE-REQUEST        10:05:00              15.919   0.0               15.919   0.0
 FUNCS-ACTIVE    452 10:05:00   0.4   0.7                   0.4   0.7
 FUNC-REQUEST        10:05:00              0.0313 *****               0.0313 *****
 FPOS-ACTIVE       4 10:05:00  34.2  35.9                  34.2  35.9
 MPOS-ACTIVE      13 10:05:00   0.0   0.0                   0.0   0.0
 SPOS-ACTIVE      30 10:05:00   0.0   0.0                   0.0   0.0
 UPOS-ACTIVE     105 10:05:00  32.3  33.9                  32.3  33.9
 FILE-REQUEST        10:05:00              2.2102 *****               2.2102 *****
 LINES-ACTIVE     64 10:05:00  35.9  60.9                  35.9  60.9
 DROPS-ACTIVE     65 10:05:00  47.7  81.5                  47.7  81.5
 STATS-ACTIVE    450 10:05:00  51.1  87.1                  51.1  87.1
 AUXES-ACTIVE    350 10:05:00  46.3  78.9                  46.3  78.9
 COMM-REQUEST        09:55:00              78.482 *****               57.195 *****
 REPTS-ACTIVE    475 10:05:00   0.0   0.4                   0.0   0.4
 RECV-REQUEST        10:05:00              13.131   2.7               13.131   1.8
 USERS-ACTIVE    451 10:05:00   0.0   0.4                   0.0   0.4
 USER-REQUEST        09:55:00              2.0502 *****               4.3974 *****
                ..... END REPORT .....
```

Figure 4-7. Example of a STATL Function Result

4.8. STATS—Extracting/Summarizing from Accounting Log File

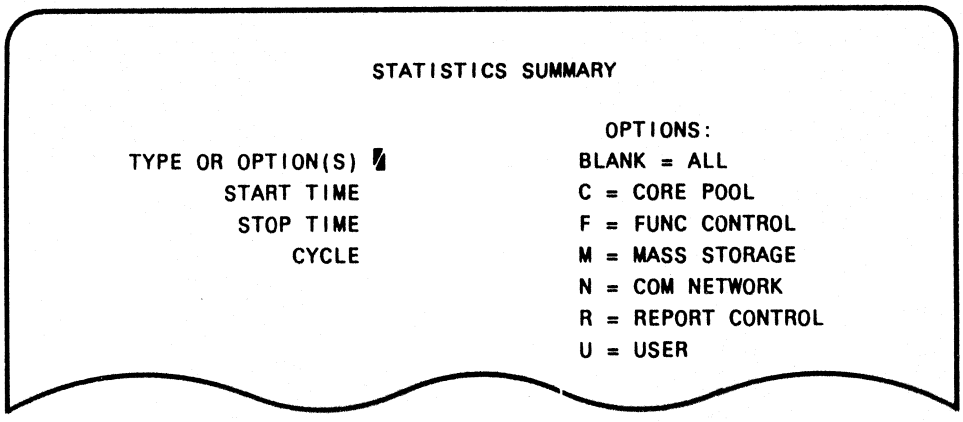
The STATISTICS SUMMARY (STATS) function extracts statistical information from the accounting log file and summarizes them by category.

You can request combinations of statistics, all of the statistics for a selected time frame, or any accounting log file cycle available.

To extract log entries, enter:

STATS

to display the function request message:



where:

TYPE OR OPTION(S)	options (leave blank to include statistics for all items; or enter a specific item)
START TIME STOP TIME	start and stop times and dates if different from those in the accounting log file cycle in the format *hhmmss* (blank=current log cycle; if you want information from a time frame in a previous accounting log file cycle, enter the date also in the format *hhmmss ddmmmyy*)
CYCLE	activity log file cycle (blank, -0, -1, etc.)

See 4.6 for a definition of the fields on the right side on the function request message.

Enter the appropriate information.

The result has five header lines indicating the starting and ending times of the log and the date, as well as the total time that the MAPPER processor was active during the time frame.

```
STATS SUMMARY: (12:05:00  14 APR 83) TO (13:00:00  14 APR 83) ACTIVE: 01:00:00
 CYCLE=(0)
*                                                  . MIN  . MAX  .      . MIN . MAX .
*    TYPE     . SIZE . AVG . MIN . MAX . RATE . RATE . RATE . QUE . QUE . QUE .
*============.======.=====.=====.=====.======.======.======.=====.=====.=====.
```

where:

TYPE	name of statistic (each line in the report defines a specific MAPPER statistic)
SIZE	maximum number possible for a particular item (only software-limited items appear in this field)
AVG	average number (percentage of maximum size for current 5-minute period)
MIN	smallest 5-minute average during time frame
MAX	largest 5-minute average during time frame
RATE	number of requests per second during time frame
MIN RATE	smallest 5-minute period rate during time frame
MAX RATE	largest 5-minute period rate during time frame
QUE	percentage of queued requests during time frame
MIN QUE	smallest 5-minute period queue during time frame
MAX QUE	largest 5-minute period queue during time frame

Figure 4-8 shows an example of a STATS function result.

```
STATS SUMMARY: (12:05:00  14 APR 83) TO (13:00:00  14 APR 83) ACTIVE: 01:00:00
 CYCLE=(0)
*            .      .     .     .     .      . MIN  . MAX  .     . MIN . MAX .
*     TYPE   . SIZE . AVG . MIN . MAX . RATE . RATE . RATE . QUE . QUE . QUE .
*============.======.=====.=====.=====.======.======.======.=====.=====.=====.
 CPOOL-ACTIVE  45000 52.89 49.60 57.91
 CORE-REQUEST                         50.786 41.425 66.033  0.40  0.00  2.29
 FUNCS-ACTIVE    702  0.20  0.09  0.38
 FUNC-REQUEST                         5.3076 3.0903 8.4783 ***** ***** *****
 FPOS-ACTIVE       4 45.35 42.70 49.51
 MPOS-ACTIVE      13 13.58  8.26 19.89
 SPOS-ACTIVE      90  0.85  0.01  2.64
 UPOS-ACTIVE     105 52.62 51.45 54.22
 FILE-REQUEST                         27.451 17.656 49.916 ***** ***** *****
 LINES-ACTIVE     64 65.63 65.63 65.63
 DROPS-ACTIVE     65 90.77 90.77 90.77 STATS-ACTIVE    700 77.55 77.43 77.83
 AUXES-ACTIVE    450 79.96 79.78 80.50
 COMM-REQUEST                         34.419 31.201 38.388 ***** ***** *****
 REPTS-ACTIVE    700  8.39  5.80 10.92
 RECV-REQUEST                         3.1200 0.8094 9.3980  1.13  0.00  2.28
 USERS-ACTIVE    702 10.17  8.85 12.04
                   ..... END REPORT .....
```

Figure 4-8. Example of a STATS Function Result

4.9. Charting Performance

You can use a performance chart like the one shown in Figure 4–9 to chart MAPPER performance, effectiveness, and growth.

Three items:

- BREAKPOINTS
- AVERAGE RESPONSE TIMES
- REP RATES

are especially important when analyzing MAPPER performance.

The performance chart provides an overview of performance and growth for a full month.

You can get most of the data for this charting from the RPG1 and LOGSA runs. Take items 1 through 5 from the RPG1 run (Figure 3–4); take items 6 through 14 from the LOGSA run (Figure 4–4).

For FILE/DEVICE ALLOCATION (item 15), enter a general comment (e.g., **OK** or **BAD**) on how the files have been managed.

MAPPER operators can give you the TOTAL UPTIME and MAPPER/EXEC ABORTS information for items 16 and 17.

Use the space at the top of the form to draw in two graphs on MAPPER performance: a light line to show the frequency of MAPPER or OS 1100 aborts, and a heavy line to show the percentage of uptime.

Review these performance statistics periodically.

MAPPER PERFORMANCE CHART

	MONTH: YEAR: OPERATION DATES:
ABORTS_____ UPTIME_____	
1 _____ 100% 2 _____ 3 _____ 4 _____ 75. 5 _____ 6 _____ 7 _____ 50. 8 _____ 9 _____ 10 _____ 25.	
1) DISPLAY TERMINALS	
2) AUXILIARY DEVICES	
3) TYPES	
4) RIDS (thousands)	
5) LINES (thousands)	
6) FUNCTIONS STARTS (thousands)	
7) BREAKPOINTS (thousands)	
8) PACKS	
9) LINES PROCESSED (millions)	
10) READS/WRITES (thousands)	
11) BATCH STARTS	
12) RUN STARTS (thousands)	
13) AVG. RESPONSE TIME (seconds)	
14) SEARCH/SORT REP RATES	
15) FILE/DEVICE ALLOCATION	
16) TOTAL UPTIME	
17) MAPPER/EXEC ABORTS	

Figure 4–9. Performance Chart

5. Communications

5.1. Online Terminal Configuration

The online terminal configuration reports in mode 218, form type B, list the control parameters for all display terminals used with MAPPER software.

Figure 5–1 shows the form type definition of a terminal configuration report; Figure 5–2 is an example of a terminal configuration report.

See report 10B in mode 218 for examples of terminal configurations.

Each terminal must have a registered remote identifier, station identifier, and device identifier (RID SID DID), as well as a unique MAPPER station number.

Each report in the configuration form type can define a different communications configuration. The MAPPER operator enters the configuration report at MAPPER startup time.

The IN and SCP-ID fields provide spaces for any additional indicator numbers and display terminal duplicate identifiers you may want to use for further identification.

You can update information in the terminal configuration reports at any time. Updates for dial-in communications line terminals take effect immediately; updates for leased lines require an II keyin or MAPPER software restart at the system console before becoming effective.

```
.DATE 08 DEC 82  13:13:13  RID      2    25 JAN 81  COORD
. MAPPER SYSTEM **** DESCRIPTION CONFIGURATION REPORT **** B3322
*LTNAME.W.RATE.U.T.MAX.MIN.DCY.SIZE.RID.SID.DID.STA.STATUS.IN.MX.SCP-ID.SER NO .LOCATION .RM-NO. EXT/PHONE    .ORGANIZATION
*.......*.*.....*.*.*.***.***.***.*****.***.***.***.***.*******.**.**.*******.********.*********.******.************.**********************.
*XXXXXX SYSTEM GEN NAME FOR RELATED CLT
*       X WORD LENGTH 1/4 OR 1/2 (Q/H)
*         XXXX LINE TRANSFER RATE (K)
*              X CLT TYPE (6 OR 7)
*                X LINE IDENTIFIER (LEASED OR DIAL-UP L/D)
*                  XXX MAX POLLING RATE (TIMES / SEC SCOPE IS POLLED)
*                      XXX MIN POLLING RATE (BASED ON USAGE)
*                          XXX NUMBER OF MINUTES OVER WHICH POLLING DELAY OCCURS (*=AUTOMATIC HANG UP OF DIAL-UP LINE AFTER DELAY)
*                              XXXX SCREEN SIZE (16X64 OR 12X80 OR 24X80)
*                                   XXXXXXX RID-SID MUST BE UNIQUE ON A GIVEN LINE OR AMONG DIAL-UP STATIONS
*                                   XXX TERMINAL REMOTE IDENTIFIER
*                                       XXX TERMINAL STATION IDENTIFIER
*                                           XXX AUXILIARY DEVICE IDENTIFIER
*                                               XXX STATION NUMBER WITHIN MAPPER (MUST BE UNIQUE FOR EACH STATION)
*                                               COP COMMUNICATION OUTPUT PRINTER
*                                               COP CORRESPONDENCE QUALITY PRINTER
*                                               TD1 DISKETTE 1
*                                               TD2 DISKETTE 2
*                                                   X M = MANNESMAN AUXILIARY PRINTER
*                                                   XXXXXX DISPLAY OPTIONS SEPARATED BY COMMAS (ENTER TYPE OF DEVICE FIRST)
*                                                    C = COORDINATOR STATION FOR RECEIPT OF ERRORS
*                                                    M  = UTS 400 MASTER
*                                                    P  = PROTECTED FORMAT DISPLAY (MUST ENTER P IF RUNNING UNDER CMS1100 & WANT PROTECT)
*                                                    S  = UTS 400 SLAVE
*                                                    T  = LOGO & AUX BLOCK AT INITIALIZE
*                                                    2S = UTS 20 SINGLE STATION
*                                                    2W = UTS 20 WORK STATION
*                                                    4S = UTS 40 SINGLE STATION
*                                                    4W = UTS 40 WORK STATION
*                                                    3S = TIGER GRAPHICS
*                                                   400 = UTS 400 MASTER WITH GRAPHICS
*                                                    2K = UTS 20 WITH KANJI
*                                                   2KW = UTS 20 WORK STATION WITH KANJI
*                                                    4K = UTS 40 WITH KANJI & GRAPHICS
*                                                   4KW = UTS 40 WORK STATION WITH KANJI & GRAPHICS
*                                                   4KC = UTS 40 WITH KANJI & COLOR GRAPHICS
*                                                    6S = LION COLOR GRAPHICS
*                                                  ISCG = INTERCOLOR HIGH RESOLUTION, VERSION G
*                                                  ISCI = INTERCOLOR HIGH RESOLUTION, VERSION I
*                                                  ISCR = INTERCOLOR HIGH RESOLUTION, VERSION R
*                                                   HP4 = H. P. PLOTTER, 4 PEN
*                                                   HP8 = H. P. PLOTTER, 8 PEN
*                                                  HP4A = H. P. PLOTTER, 4 PEN WITH PAPER ADVANCE (ROLL)
*                                                  HP8A = H. P. PLOTTER, 8 PEN WITH PAPER ADVANCE (ROLL)
*                                                   XXXXX CLT STATUS FLAG
*                                                         X > FIELDS ARE NOT MAPPER SOFTWARE SENSITIVE. CAN REDEFINE FOR SITE.
*                                                         XX INDICATOR NO.
*                                                            XX MULTIPLEXOR NO.
*                                                               XXXXXX SCOPE IDENTIFIER NO.
*                                                     DEVICE SERIAL NUMBER XXXXXXX
*                                                        PHYSICAL LOCATION OF UNIT XXXXXXXXX
*                                                                  ROOM/AREA DESIGNATION XXXXX
*                                                          VOICE COMMUNICATION PHONE NEAR THE UNIT XXXXXXXXXXXXX
*                                                                    USER GROUP / ORGANIZATION USING THE UNIT XXXXXXXXXXXXXXXXXXXXXX
                      ..... END REPORT .....
```

Figure 5-1. Form Type Definition: Terminal Configuration Report

```
.DATE 08 DEC 82  11:11:11  RID      10    04 JUL 82  COORD
     MAPPER SYSTEM **** SAMPLE CONFIGURATION REPORT ****   B3322         SAVE
*
*LTNAME.W.RATE.U.T.MAX.MIN.DCY.SIZE.RID.SID.DID.STA.STATUS.IN.MX.SCP-ID.SER NO .LOCATION.RM-NO . EXT/PHONE    .ORGANIZATION          .
*=======.=.====.=.=.===.===.===.====.===.===.===.===.======.==.==.======.=======.=========.=====.=============.======================.
.          NOTE: THESE ARE INDIVIDUAL EXAMPLES, STATION NUMBERS
.                MUST BE UNIQUE.
.SAMPLE: REMOTE CCR TERMINAL FROM OTHER MAPPERS OR CMS7 OR CMS1100
.THE ONLY REQUIRED FIELDS ARE LTNAME (WHICH MUST EQUAL 'LINKST'), SIZE, and STA.
.THE RID AND SID FIELDS MUST BE 000.  THE STAT FIELD MUST MATCH THE PID FROM
.CMS OR THE STA FIELD FROM THE REMOTE MAPPER.
 LINKST                        2480 000 000 160 323 2S      CM     U40 SS
.SAMPLE; DIALUP LINES WITH THREE DIFFERENT SPEEDS

 CTM008 Q 4.8  6 D
 CTM023 Q 2.0  6 D
 CTM029 Q 9.6  6 D
.SAMPLE; DIALUP 1 - UTS 20 SINGLE STATION DISPLAY (WORK STATION = 2S)
 DIALUP             1   8   15  2480 042 152 160 323 2S      DU     U40 SS
.SAMPLE; DIALUP 1 - UTS 40 SINGLE STATION DISPLAY DESIGNATED A COORDINATOR STA.
 DIALUP             1   8   15  2480 042 152 160 323 4S,C    DU     U40 SS
.SAMPLE; DIALUP 1 - UTS 40 WORK STATION DISPLAY
 DIALUP             1   8   15  2480 042 152 160 323 4W      DU     U40WRK
.SAMPLE; DIALUP 2 - UTS 40W DISPLAYS (SINGLE STATIONS WOULD BE DESIGNATED 4S)
 DIALUP             1   8   15  2480 112 151 160 400 4W      DU     U40WRK
                                2480 112 152 160 401 4W      DU     U40WRK
.SAMPLE; DIALUP 2 - UTS40W, A MANNESMAN PRINTER, A COP PRINTER, A COP PRINTER
.        AND A UTS 40S WITH A MANNESMAN SCREEN BYPASS PRINTER ON A MULTIPLEXOR.
.        NOTE THAT THE SID OF THE BYPASS TERMINAL MUST BE HIGHEST ON THE
.        CONTROLLER (IN THIS CASE THE SINGLE STATION IS THE CONTROLLER).

.        THE STATION TO RECEIVE PRINT ERRORS iS DEFINED IN THE SIZE FIELD
.        FOR THE AUXILIARY DEVICE.
 DIALUP             1   8   15  2480 113 151 160 400 4W      DU     U40WRK
                                2480 113 152 160 401 4W      DU     U40WRK
                                             163 COP M       DU     MANESM
                                             164 COP         DU     COM PR
                                2480 113 143 160 402 4S      DU     U40 SS
                                2480 113 144 160 403 4S      DU SB BYPASS
                                400          163 COP M       DU SB MANESM
.SAMPLE; DIALUP 1 - MASTER UTS 400 DISPLAY
 DIALUP             1   8   15  2480 042 152 160 323 M      DU     U400MS
.SAMPLE; MASTER UTS 400 DIALUP WITH COP, 2 SLAVES AND A MANNESMAN SCREEN BYPASS
.        PRINTER. NOTE THAT THE SID FOR THE BYPASS TERMINAL MUST BE HIGHEST ON
.        THE GROUP CONTROLLER (IN THIS CASE THE UTS 400 MASTER).
.        THE STATION TO RECEIVE PRINT ERRORS IS DEFINED IN THE SIZE FIELD
.        FOR THE AUXILIARY DEVICE.
 DIALUP             1   8   15  2480 114 151 160 400 M      DU     U400MS
                                             163 COP         DU     COM PR
                                2480 114 152 160 401 S       DU     U400SL
                                2480 114 153 160 402 S       DU     U400SL
                                2480 114 154 160 403 S       DU SB BYPASS
                                400          163 COP M       DU SB MANESM
```

Figure 5-2. Terminal Configuration Report
(Part 1 of 2)

```
*LTNAME.W.RATE.U.T.MAX.MIN.DCY.SIZE.RID.SID.DID.STA.STATUS.IN.MX.SCP-ID.SER NO .LOCATION.RM-NO . EXT/PHONE    .ORGANIZATION          .
*=======.=.====.=.=.===.===.===.====.===.===.===.=======.==.==.=======.========.=========.=====.=============.======================.
.SAMPLE; DIALUP U400 MASTER DISPLAY WITH MANNESMAN PRINTER, CORRESPONDENCE
.        QUALITY PRINTER, NON-IMPACT PRINTER, CASSETTE AND DISKETTE.
 DIALUP              1   8   15  2480 115 124 160 246 M       DU     U400MS
                                             163 COP M       DU     MANESM
                                             164 CNP         DU     NIP PR
                                             165 COP         DU     QUALPR
                                         175 174 TC1         DU     CASS 1
                                         167 166 TC2         DU     CASS 2
                                         171 170 TD1         DU     DISK 1
                                         173 172 TD2         DU     DISK 2
.SAMPLE; DIALUP U200 DISPLAY WITH COMMUNICATIONS OUTPUT PRINTER
 DIALUP              1   8   15  2480 065 140 160 247         DU     U200
                                             163 COP                COM PR
.SAMPLE; DIALUP U100 DISPLAY WITH COMMUNICATIONS OUTPUT PRINTER
 DIALUP              1   8   15  1280 066 140 160 247         DU     U100
                                             163 COP                COM PR
.SAMPLE; U100 WITH PROTECT FORMAT ON LEASED LINE
 CTM004 Q 9.6  6 L 1   15  30  1280 066 123 160 012 P       04     U100 P
.SAMPLE; U200 WITH PROTECT FORMAT ON LEASED LINE
 CTM005 Q 9.6  6 L 1   15  30  2480 063 133 160 001 P       05     U200 P
.SAMPLE; ISC VERSION G, I & R COLOR GRAPHIC TERMINALS AND HEWLETT PACKARD
.8 & 4 PEN COLOR PLOTTERS CONFIGURED ON A LEASED LINE.
 CTM007 Q 9.6  6 L 1   15  30  2480 045 121 160 556 ISCG    07 GR
                                             163 COP HP8A    07 GR
                     1   15  30  2480 046 121 160 557 ISCG    07 GR
                                             163 COP HP4     07 GR
                     1   15  30  2480 047 121 160 558 ISCR    07 GR
                     1   15  30  2480 041 121 160 560 ISCG    07 GR
                     1   15  30  2480 042 121 160 561 ISCI    07 GR
.SAMPLE; MULTI DROP LEASED LINE
 CTM008 Q 9.6  6 L 1   15  30  2480 052 121 160 004 M       03     U400MS
                                             163 COP         08     COM PR
                                         165 164 TC1         08     CASS 1
                                         167 166 TC2         08     CASS 2
                                         172 171 TD1         08     DISK 1
                                         174 173 TD2         08     DISK 2
                                 2480 052 122 160 119 S      08     U400SL
                                 2480 052 123 160 002 S      SB     BYPASS
                                 4           163 COP M       SB     MANNES
                                 4       165 164 TC1         SB     CASS 1
                                 4       167 166 TC2         SB     CASS 2
                                 4       172 171 TD1         SB     DISK 1
                                 4       174 173 TD2         SB     DISK 2
                     1   15  30  2480 053 140 160 247         08     U200
                                             163 COP         08     COM PR
                                 1280 053 153 160 011         08     U100
                                             163 COP         08     COM PR
                                 1280 053 153 160 056 P       08     U100 P
                     1   15  30  2480 111 151 160 400 4W      08     U40WRK
                                 2480 111 152 160 401 4W      08     U40WRK
                                             163 COP M       08     MANESM
                                 2480 111 143 160 402 4S      08     U40SS
                                 2480 111 144 160 403 4S      08 SB  U40SS
                                             163 COP M       08 SB  MANESM
                       ..... END REPORT .....
```

Figure 5-2. Terminal Configuration Report
(Part 2 of 2)

5.2. Analyzing Communications Use and Errors

The MAPPER processor logs communications use and errors information in the accounting log file (see 4.1). The COMMUNICATIONS ERROR LIST (CEL) and COMMUNICATIONS ERROR SUMMARY (CES) functions analyze real-time communications use and error occurrences. Figures 5-3 through 5-8 show the form type definitions for these functions. See also the form type definitions in RID 1 of the CEL(D) and CES(I) types in mode 220.

NOTE: *If you are using Communications Management System (CMS 1100) instead of the MAPPER Communications Control Routine (CCR), the MAPPER processor does not record error and line data in the accounting log file, nor does this information appear in the CEL and CES function results.*

5.3. CEL—Getting a List of Communications Errors

The COMMUNICATIONS ERROR LIST (CEL) function provides a detailed list of communications error data in chronological order.

To get the error list, enter:

CEL

to display the function request message:

```
COMMUNICATIONS ERROR LIST

     DEPARTMENT /
           USER
     START TIME
      STOP TIME
        STATION
   LINE TERMINAL
          CYCLE
```

where:

DEPARTMENT	user's department
USER	user-id
START TIME STOP TIME	start and stop times and dates in the format *hhmmss ddmmmyy* (enter the date if different from the current cycle)
STATION	user's station (unit) number
LINE TERMINAL	line terminal identification
CYCLE	activity log file cycle (blank, -0, -1, etc.)

Figure 5-3 shows the CEL form type definition as well as data produced in CEL results. These results reside in mode 220, alphabetic form type D, numeric form type 3346.

```
.DATE 14 OCT 82  07:07:07  RID      1    11 AUG 82  COORD
. COMMUNICATIONS ERROR LIST:  TYPE DEFINITION

*LTNAME.UNIT.DEPARTMENT .    USER    .ERROR .MODE. IN  . OUT .TPOLL.APOLL. CHAR-I . CHAR-O .IR.OR.  TIME  .DP.
*.......****.**********.**********.******.****.*****.*****.******.******.********.********.**.**.********.**.
*XXXXXX LINE TERMINAL NAME AS DEFINED IN SYS GEN AND CONFIGURATION RID
*       XXXX STATION NUMBER IF IDENTIFIABLE
*            XXXXXXXXXX DEPARTMENT IF SIGNED ON AND STATION IDENTIFIABLE
*                       XXXXXXXXXX USER IF SIGNED ON AND STATION IDENTIFIABLE
*                                  XXXXXX MNEMONIC ERROR CODE
*
*                                  OVERFL INPUT BUFFER OVERFLOW. MORE CHARACTERS WERE RECEIVED THAN ANY SCOPE
*                                         CONFIGURED FOR THIS DROP COULD TRANSMIT.
*                                            RECOVERY ACTION:
*                                               GENERAL TRAFFIC POLL WITHOUT ACKNOWLEDGE.
*                                            EXPECTED RESPONSE:
*                                               IF INPUT WAS TURNED ON BY NOISE, EITHER NO-TRAFFIC OR TRAFFIC
*                                               FROM ONE OF THE SCOPES ON THE DROP.
*                                               IF INPUT WAS TURNED ON BY A SCOPE, REPLY REQUEST FROM THAT SCOPE.
*
*                                  PARITY INPUT CHARACTER PARITY ERROR.
*                                            RECOVERY ACTION:
*                                               GENERAL TRAFFIC POLL WITHOUT ACKNOWLEDGE.
*                                            EXPECTED RESPONSE:
*                                               REPLY REQUEST FROM THE SCOPE WHOSE MESSAGE CONTAINED THE ERROR.
*
*                                  TIMOUT NO RESPONSE WAS RECEIVED WITHIN A TIME DETERMINED BY THE LINE RATE
*                                         AND THE CHARACTERS TO BE TRANSFERRED. TIMEOUTS ARE LOGGED ONLY AS LONG
*                                         AS A DROP IS OPERATIONAL. IF A DROP TIMES OUT SIX (6) TIMES AND ALL
*                                         TRANSACTIONS FOR IT HAVE BEEN PROCESSED, IT IS PLACED IN AN OFF-LINE
*                                         PROBE STATE. NO FURTHER LOG ENTRIES WILL BE MADE UNTIL THERE IS SOME
*                                         RESPONSE. THE PROBE RATE IS DETERMINED BY THE MINIMUM POLL RATE
*                                         SPECIFIED FOR THE DROP IN THE CONFIGURATION RID.
*                                            RECOVERY ACTION:
*                                               GENERAL STATUS POLL WITHOUT ACKNOWLEDGE.
*                                            EXPECTED RESPONSE:
*                                               ANYTHING EXCEPT TEXT.
*
*                                  NO-ACK THE RESPONSE TO THE POLL TRAILING AN OUTPUT OF TEXT DID NOT CONTAIN AN
*                                         ACKNOWLEDGE. (OFTEN AS A RESULT OF A SCOPE-DETECTED PARITY ERROR)
*                                            RECOVERY ACTION:
*                                               EVENTUALLY, RETRANSMIT THE TEXT. SINCE THE RESPONSE WHICH FAILED
*                                               TO CONTAIN AN ACKNOWLEDGE WAS OTHERWISE ERROR FREE AND CAN
*                                               CONTAIN TRAFFIC FROM ANOTHER SCOPE, MESSAGE DISCIPLINE MAY REQUIRE
*                                               THAT OTHER ACTION BE TAKEN BEFORE RETRANSMITTING THE TEXT.
*
*                                  BCC    THE BLOCK CHECK CHARACTER WAS INCORRECT.
*                                            RECOVERY ACTION:
*                                               GENERAL TRAFFIC POLL WITHOUT ACKNOWLEDGE.
*                                            RESPONSE EXPECTED:
*                                               REPLY REQUEST FROM THE SCOPE WHOSE MESSAGE CONTAINED THE ERROR
*
*                                  NO-ETX TEXT WAS RECEIVED WHICH DID NOT CONTAIN AN ETX. (RARE, USUALLY AN
*                                         IMPROPERLY STRAPPED CLT)
*                                            RECOVERY ACTION:
*                                               GENERAL TRAFFIC POLL WITHOUT ACKNOWLEDGE
*                                            EXPECTED RESPONSE:
*                                               HOPING FOR REPLY REQUEST, BUT IF IT IS A STRAPPING PROBLEM THE
*                                               CLT IS INOPERATIVE.
*
*                                  AI-ERR AN AUX INTERFACE ERROR STATUS HAS BEEN REPORTED WHICH MAY HAVE BEEN
*                                         CAUSED BY A COMMUNICATIONS LINE HIT OR AN AI/AUX DEVICE TIMING PROBLEM.
*                                         A RECOVERY ATTEMPT WILL BE MADE BASED ON THE ASSUMPTION THAT THE ERROR
*                                         WAS NOT CAUSED BY A HARDWARE MALFUNCTION (SCOPE, AI, OR DEVICE). ONLY
*                                         ERRORS WHICH MAY BE RECOVERABLE ARE LOGGED. NONRECOVERABLE ERRORS
*                                         ARE REPORTED AT THE SCOPE AND REFLECT THE ACTUAL ERROR STATUS RECEIVED.
*
*                                         THE FOLLOWING CONDITIONS ARE NOT COMMUNICATIONS ERRORS AND ARE NOT
*                                         COUNTED AS SUCH BY THE CES FUNCTION. THEY ARE LOGGED AS NOTEWORTHY
*                                         OCCURRENCES WHICH MAY BE HELPFUL IN DEFINING COMMUNICATIONS PROBLEMS.
*
*                                  RPLREQ A STATION TRANSMITTED A REPLY REQUEST.
*                                            ACTION:
*                                               IF THE LAST GOOD INPUT RECEIVED ON THIS DROP WAS TEXT
*                                               FROM THIS STATION, SEND SPECIFIC TRAFFIC POLL WITH ACKNOWLEDGE.
*                                               IN ALL OTHER CASES, SEND RETRANSMIT.
*
```

Figure 5-3. Form Type Definition: CEL Function Result
(Part 1 of 2)

```
*LTNAME.UNIT.DEPARTMENT .     USER    .ERROR .MODE. IN  . OUT .TPOLL.APOLL. CHAR-I . CHAR-O .IR.OR.  TIME  .DP.
*=======.====.===========.==========.======.====.=====.=====.=====.=====.========.========.==.==.========.==.
*                                    NO-DEF AN INPUT WAS BURNED BECAUSE IT CONTAINED A RID/SID NOT CONFIGURED
*                                           FOR THIS DROP.
*                                              ACTION:
*                                                 SEND GENERAL TRAFFIC POLL WITH ACKNOWLEDGE.
*
*                                    RJ-BSY AN INPUT WAS BURNED BECAUSE A JOB WAS ALREADY ACTIVE FOR THIS STATION.
*                                           (USER PROBABLY CLEARED THE WAIT LIGHT AND HIT TRANSMIT AGAIN)
*                                              ACTION:
*                                                 SEND GENERAL TRAFFIC POLL WITH ACKNOWLEDGE.
*
*                                    AUPD   ACTIVITY UPDATE. MAPPER WAS TERMINATING AND ACTIVITY COUNTERS WERE
*                                           LOGGED WITH THIS ENTRY.
*                                              ACTION:
*                                                 N/A
*
*                                    ACK?   AN ACKNOWLEDGE WAS RECEIVED FROM A STATION WHICH HAD NO REASON TO SEND
*                                           ONE.
*                                              ACTION:
*                                                 SEND GENERAL TRAFFIC POLL WITH ACKNOWLEDGE.
*
*                                    IV-SOE AN INVALID SOE POSITION WAS REPORTED BY THE TERMINAL.
*                                              ACTION:
*                                                 SEND GENERAL TRAFFIC POLL WITHOUT ACKNOWLEDGE.
*
*                                           THE FOLLOWING ENTRIES DEFINE EXTRAORDINARY CCR ACTION TAKEN AS A RESULT
*                                           OF THE ERROR IMMEDIATELY PRECEDING THIS ENTRY.
*
*                                    LOGOFF THE COMMUNICATIONS ERROR LOG HAS BEEN DISABLED BECAUSE THE SYSTEM-
*                                           DEFINED NUMBER OF SUCCESSIVE ERRORS TO BE LOGGED HAS BEEN EXCEEDED.
*
*                                    LOG-ON THE ERROR LOG HAS BEEN ENABLED FOR THIS LINE UPON RECEIPT OF A VALID
*                                          TEXT INPUT.
*
*                                    SUMTIN AN INTERRUPT WAS RECEIVED ON A PREVIOUSLY DEAD LINE IN RESPONSE TO AN
*                                           OFF-LINE PROBE. THE LINE WILL BE TURNED OVER TO THE POLL ROUTINE.
*
*                                    DROP-S THIS STATION WAS SET OFF-LINE AS BEING INOPERATIVE
*
*                                    DROP-D THIS DROP WAS SET OFF-LINE AS BEING INOPERATIVE
*
*                                    DROP-L THIS LINE WAS SET OFF-LINE AS BEING INOPERATIVE
*
*                                           XXXX MODE. DEFINES THE REASON THE CCR INITIATED ACTIVITY ON THIS LINE
*
*                                           ACK  THE LINE WAS ACTIVATED BY THE INPUT MODULE OF THE CCR TO SEND AN
*                                                ACKNOWLEDGE.
*
*                                           OUT  THE LINE WAS ACTIVATED BY THE OUTPUT MODULE OF THE CCR TO SEND TEXT.
*
*                                           IN   THE LINE WAS ACTIVATED BY THE CCR POLL MODULE TO SOLICIT INPUT.
*
*                                           PRB   THE LINE WAS IN AN OFFLINE PROBE STATE WHEN AN INTERRUPT WAS
*                                                 DETECTED.
*
*                                           NBZ   THE LINE WAS NOT BUSY BUT A LOG ENTRY WAS REQUIRED TO PREVENT THE
*                                                 POSSIBLE LOSS OF TRANSFER COUNTS.  THE SYSTEM IS GOING DOWN
*                                                 EITHER ON PURPOSE OR VIA CRASH.
*
*                                               XXXXX THE NUMBER OF GOOD INPUT TEXT MESSAGES SENT SINCE THE PREVIOUS
*                                                     LOG ENTRY.
*                                                     XXXXX THE NUMBER OF SUCCESSFUL OUTPUT TEXT MESSAGES SENT SINCE
*                                                           THE PREVIOUS LOG ENTRY.
*                                                           XXXXX THE NUMBER OF TRAFFIC POLLS SENT SINCE THE PREVIOUS
*                                                                 LOG ENTRY.
*                                                                 XXXXX THE NUMBER OF ACKNOWLEDGE POLLS SENT SINCE
*                                                                       THE PREVIOUS LOG ENTRY.
*  THE NUMBER OF INPUT CHARACTERS, INCLUDING ENVELOPES THAT TRANSFERRED  XXXXXXXX
*  SUCCESSFULLY SINCE THE PREVIOUS LOG ENTRY. (DOES NOT INCLUDE NONTEXT
*  RESPONSES.)
*            THE NUMBER OF OUTPUT CHARACTERS, INCLUDING ENVELOPES, THAT          XXXXXXXX
*            TRANSFERRED SUCCESSFULLY SINCE THE PREVIOUS LOG ENTRY. (DOES NOT
*            INCLUDE TRAFFIC OR ACKNOWLEDGE POLLS.)
*              INPUT RETRY COUNTER.                                                    XX
*                 OUTPUT RETRY COUNTER.                                                   XX
*                        TIME OF LOG ENTRY.                                                  XXXXXXXX
*                           DROP NUMBER.                                                           XX
*                     ..... END REPORT .....
```

Figure 5-3. Form Type Definition: CEL Function Result
(Part 2 of 2)

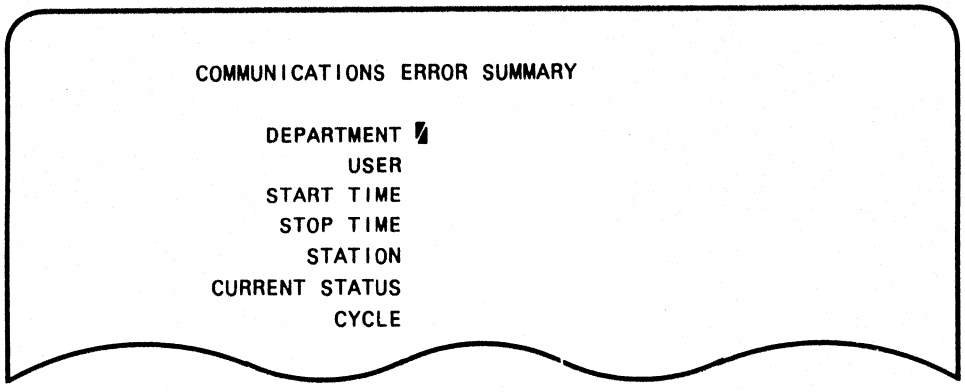
5.4. CES—Getting a Communications Summary

The COMMUNICATIONS ERROR SUMMARY (CES) function provides a summary of communications by communications line terminal.

To get the summary, enter:

CES

to display the function request message:



where CURRENT STATUS is one of four selections: A (active), D (drop), S (station), and U (user), and provides an analysis of communications activity at the moment of execution. All other fields have the same information as that in the CEL function request message (5.3).

run control statement format

@CES '□ *department*, □ *user*, □ *start*, □ *stop*, □ *station-number*, □ *status*, □ *cycle*'

NOTE: *Since all the items constitute one field, the entire field is enclosed in apostrophes. The quadrate (□) represents a tab character.*

where:

department	11-character department name
user	user-id
start	start time and date in the format *hhmmss ddmmmyy*
stop	stop time and date in the format *hhmmss ddmmmyy*
station-number	station number
status	current status (A, D, S, or U) (if blank, result resides in form type specified in CESTYP start parameter; otherwise, result resides in type specified in CSTTYP start parameter)
cycle	log cycle

```
.DATE 08 DEC 80  08:09:10  RID     1    06 DEC 80  COORD
.COMMUNICATIONS ERROR SUMMARY: TYPE DEFINITION    BASIC FORMAT       13360
*LTNAME.ERRORS.INPUTS.OUTPUT.TPOLLS.APOLLS.CHAR-IN .CHAR-OUT.LAST-ENT.O QUEUE .ON-LINE . ACTIVE .
*=======.=======.=======.=======.=======.=======.========.========.========.========.========.========.
*XXXXXX LINE TERMINAL NAME AS DEFINED IN SYSGEN AND CONFIGURATION RID.
*
*       XXXXXX THE NUMBER OF COMMUNICATIONS ERRORS.
*
*              XXXXXX THE NUMBER OF GOOD INPUT MESSAGES THAT CONTAINED TEXT.
*
*                     XXXXXX THE NUMBER OF SUCCESSFUL TEXT OUTPUT MESSAGES SENT.
*
*                            XXXXXX THE NUMBER OF POLLS SENT FOR THE SOLE PURPOSE OF SOLICITING TRAFFIC.
*
*                                   XXXXXX THE NUMBER OF POLLS SENT TO ACKNOWLEDGE SCOPE TEXT OR ACKNOWLEDGES.
*
*                                          (THESE MAY ALSO SOLICIT TRAFFIC.)
*
*                                          XXXXXXXX TOTAL INPUT CHARACTERS TRANSFERRED IN VALID TEXT MESSAGES.
*
*                                                  XXXXXXXX TOTAL CHARACTERS SUCCESSFULLY TRANSFERRED FOR TEXT OUTPUT.
*
*                                                           XXXXXXXX THE TIME OF THE LAST ENTRY FOR THIS LINE ON THIS SUMMARY
*                                                                    REPORT.  IF DELIMITERS WERE SPECIFIED IN THE OPTIONS MASK,
*                                                                    THIS IS THE TIME OF THE LAST LOG ENTRY.  IF NO DELIMITERS WERE
*                                                                    SPECIFIED, INCORE COUNTERS OF ACTIVITY SINCE THE LAST LOG
*                                                                    ENTRY WILL BE ADDED TO THE SUMMARY REPORT AND THIS IS THE
*                                                                    TIME OF THE LAST TEXT INPUT.
*
* OUTPUT QUEUE TIME.  THE ACCUMULATED TIME THAT TEXT MESSAGES WERE    XXXXXXXX
* DELAYED IN THE OUTPUT QUEUE DUE TO OTHER LINE ACTIVITY.  THIS IS
* AN INDICATOR, BUT NOT AN ABSOLUTE MEASURE, OF DELAY EXPERIENCED
* BY THE USER DUE TO LINE SATURATION.  INPUT DELAY DUE TO OTHER LINE
* ACTIVITY IS NOT DETECTABLE FROM THE COMPUTER.  FURTHER, THE
* MAPPER 1100 CCR FORCES INPUTS TO TOGGLE WITH OUTPUTS AS LONG AS AN
* OUTPUT QUEUE EXISTS.  IF THERE IS ALSO A MEMORY QUEUE, IT SHUTS
* DOWN ALL INPUTS ON A LINE UNTIL ITS OUTPUT QUEUE HAS FLUSHED.
* AS A RESULT, THE TOTAL DELAY DUE TO LINE LOAD IS PROBABLY AT
* LEAST DOUBLE THE TIME REFLECTED HERE.
*
*        ON LINE TIME.  THE TOTAL TIME THAT THIS LINE WAS RESPONDING TO POLLS  XXXXXXXX
*                 ACTIVE TIME.  THE TOTAL TIME THIS LINE WAS IN USE
*
                    ..... END REPORT .....
```

Figure 5-4. Form Type Definition: CES Function Result

```
.DATE 14 APR 82  08:09:10  RID                         COORD
.FORM DEFINITION FOR CES CURRENT STATUS A (ACTIVE) OPTION, BASIC FORMAT
*      .T.D.         .   LAST   .STAN.              .             . FUNCTION OR .
*LTNAME.Y.P. STATUS . TRAFFIC .NUM .    USER     . DEPARTMENT .STA .SON.ACT .
*======.=.=.========.=========.====.============.============.====.===.====.
*XXXXXX NAME OF CLT OR LINE
*       X TYPE OF LINE D = DIAL-UP L = LEASED
*         X DROP NUMBER
*           XXXXXXXX ACTIVITY STATUS
*                    XXXXXXXXX TIME OF LAST TRAFFIC
*                              XXXX STATION NUMBER
*                                   XXXXXXXXXXXX USER SIGN-ON NAME
*                       SIGN-ON DEPARTMENT NAME XXXXXXXXXXXX
*                                          ACTIVE FUNCTION XXXXXXXXXXXXX
                       ..... END REPORT .....
```

Figure 5-5. Form Type Definition: CES Function Current Status A (Active)

```
.DATE 14 JUL 82  09:10:11  RID                         COORD
.FORM DEFINITION FOR CES WITH CURRENT STATUS D (DROP) OPTION, BASIC FORMAT
*      .T.D.         .   LAST   .STAN.              .             .NUM.NUM.NUM.
*LTNAME.Y.P. STATUS . TRAFFIC .NUM .    USER     . DEPARTMENT .STA.SON.ACT.
*======.=.=.========.=========.====.============.============.===.===.===.
*XXXXXX NAME OF CLT OR LINE
*       X TYPE OF LINE D = DIAL-UP L = LEASED
*         X DROP NUMBER
*           XXXXXXXX STATUS OF THE DROP
*                    XXXXXXXXX TIME OF LAST TRAFFIC FROM DROP
*                              XXXX STATION NUMBER PROVIDING LAST TRAFFIC
*                                   XXXXXXXXXXXX USER IF SIGNED ON
*                       DEPARTMENT IF SIGNED ON XXXXXXXXXXXX
*                      NUMBER OF STATIONS CONFIGURED ON DROP XXX
*                       NUMBER OF SIGNED-ON STATIONS ON THE DROP XXX
*                              NUMBER OF STATIONS ACTIVE ON THE DROP XXX
                       ..... END REPORT .....
```

Figure 5-6. Form Type Definition: CES Function Current Status D (Drop)

```
.DATE 11 AUG 82  11:12:13  RID                         COORD
.FORM DEFINITION FOR CES CURRENT STATUS S (STATION) OPTION, BASIC FORMAT
*      .T.D.         .   LAST   .STAN.              .             .NUM.NUM.NUM.
*LTNAME.Y.P. STATUS . TRAFFIC .NUM .    USER     . DEPARTMENT .STA.SON.ACT.
*======.=.=.========.=========.====.============.============.===.===.===.
*XXXXXX X X NOT PROVIDED UNDER THIS OPTION
*           XXXXXXXX ACTIVITY STATUS
*                    XXXXXXXXX TIME OF LAST TRAFFIC
*                              XXXX STATION NUMBER
*                                   XXXXXXXXXXXX USER SIGN-ON NAME
*                       SIGN-ON DEPARTMENT NAME XXXXXXXXXXXX
*                                          LAST FUNCTION XXXXXXXXXXX
                       ..... END REPORT .....
```

Figure 5-7. Form Type Definition: CES Function Current Status S (Station)

```
.DATE 14 OCT 82  13:14:15  RID                          COORD
.FORM DEFINITION FOR CES CURRENT STATUS U (USER) OPTION, BASIC FORMAT
*       .T.D.          .   LAST  .STAN.          .              .NUM.NUM.NUM.
*LTNAME.Y.P. STATUS  . TRAFFIC .NUM .    USER     . DEPARTMENT  .STA.SON.ACT.
*=======.=.=.========.=========.====.============.============.===.===.===.
*XXXXXX X X NOT PROVIDED UNDER THIS OPTION
*           XXXXXXXX ACTIVITY STATUS
*                    XXXXXXXXX TIME OF LAST TRAFFIC
*                              XXXX STATION NUMBER
*                  USER SIGN-ON NAME XXXXXXXXXXXX
*                         SIGN-ON DEPARTMENT NAME XXXXXXXXXXXX
*                                                LAST FUNCTION XXXXXXXXXXX
                     ..... END REPORT .....
```

Figure 5-8. Form Type Definition: CES Function Current Status U (User)

5.5. ALERT—Sending a Message to All Users

The ALERT function inserts a message in the second line of station idle logos to advise users of such things as a change in purge time or a planned shutdown of MAPPER software.

To send a message, enter this information in home position:

ALERT *up-to-30-character-message*

After transmitting, the MAPPER processor inserts the message, highlighted by blinking characters, in the second line of all station idle logos and activates the beeper at the terminal. After pressing MSG WAIT , signed-on users receive a message in the control line that a new MAPPER status message has been entered in the logo. If another message is queued to a user's station, the logo message takes priority when the user presses MSG WAIT .

To remove a message from MAPPER logos, send the message:

CANCEL

Whenever a user sends an ALERT message from a display terminal, the system console displays the sending station number and the sender's sign-on name.

Once registered in their user registration report in mode 218, type F, MAPPER operators and other support personnel can use the ALERT function. MAPPER operators can send ALERT messages from the system console with an II keyin.

5.6. AQ—Analyzing/Altering Queued Reports/Messages

The ANALYZE/ALTER QUEUE (AQ) function lets you analyze and alter auxiliary reports and messages that are still queued for printing, acknowledgment, etc.

Use AQ to:

- examine message and auxiliary reports or results queued to a station;
- requeue them to another station;
- change the order of reports or results in a queue; and
- delete queued reports.

To analyze or alter the queue, enter:

AQ

to display the function request message:

```
ANALYZE/ALTER QUEUES REQUEST

                USERID
               STATION
         AUX RID NUMBER        (ENTER '_' FOR ALL)
      OR MSG RID NUMBER        (ENTER '_' FOR ALL)
PLACE IT AFTER RID NUMBER      (ENTER '_' FOR DELETE)
REQUEUE TO STATION NUMBER
     NEW AUX DEVICE NAME COP
```

where:

USERID	user-id of reports by which to analyze queues
STATION	station number and letter by which to analyze queues

NOTE: *Leave the USERID and STATION fields blank to display a summary of all queues.*

AUX RID NUMBER	RID number of auxiliary report to requeue or delete
OR MSG RID NUMBER	RID number of message to requeue or delete
PLACE IT AFTER RID NUMBER	RID number after which to requeue auxiliary report or message
REQUEUE TO STATION NUMBER	station number to which to requeue auxiliary report or message in place of station to which it is already queued
NEW AUX DEVICE NAME	device name to which to requeue auxiliary report or message

Figure 5-9 shows the form type definition of the result.

```
.
.       SUMMARY OF AUX AND MESSAGE RIDS QUEUED
.
* STA .L.DEV.A-RID(S). A-LINES .M-RID(S). M-LINES .     USER     .         .
*=====.=.===.========.=========.========.=========.============.========.
 XXXXX STATION NUMBER WHICH HAS MESSAGES OR AUX REPORTS ON QUEUE
       X STATION LETTER DESIGNATOR (ROUTER KEY)
         XXX DEVICE NAME (COP,CP1,ETC)
             XXXXXXXX RID NUMBER (IF ANY) OF AUX REPORTS
                      QUEUED FOR OUTPUT TO THE DEVICE
                      XXXXXXXXX NUMBER OF LINES IN THE AUX REPORT
                                XXXXXXXX RID NUMBER OF MESSAGE
                                         (STATION TO STATION)
                                         IN QUEUE FOR THIS DEVICE
           NUMBER OF LINES IN THE MESSAGE XXXXXXXXX
            USER WHO SENT THE MESSAGE OR AUX REPORT XXXXXXXXXXXX
```

Figure 5-9. Form Type Definition: AQ Function Result

run control statement format

@AQ[, *user,station-number,station-letter,auxiliary-rid,message-rid,requeue-rid, requeue-station,requeue-station-letter,device*]

where:

user	user-id by which to analyze queue
station-number	station number by which to analyze queue
station-letter	station letter
auxiliary-rid	RID number of auxiliary report
message-rid	RID number of message

NOTE: *To requeue all messages, enter a minus sign (-) in the auxiliary-rid or message-rid field. To delete messages or print reports at an auxiliary printer, enter a minus sign (-) in the requeue-rid field.*

requeue-rid	RID number after which to requeue *auxiliary-rid* or *message-rid*
requeue-station	station number to which to requeue *auxiliary-rid* or *message-rid*
requeue-station-letter	requeue station letter
device	device name

examples

```
@AQ  .                          CREATE RESULT SUMMARIZING MESSAGES & REPORTS
                                QUEUED FOR PRINTING

@AQ DSP,0,1,-0  .               SAME AS ABOVE, & DISPLAY RESULT

@AQ,JDOE DSP,0,1,-0  .          CREATE RESULT OF ALL ITEMS PLACED IN QUEUE BY
                                JDOE & DISPLAY RESULT
```

5.7. Control Messages

Reports in mode 244 define control messages. These reports are sensitive to line position: you ***must not*** add or delete lines within the text of these reports because such changes would affect MAPPER software references to these reports.

You can modify the text of the control message for your site; however, you ***must not*** alter the parameter field sizes between the tab characters and commas. Again, the software is sensitive to such changes.

6. Registering and Analyzing Runs

6.1. Responsibility

As a MAPPER coordinator, you are responsible for registering and analyzing runs, setting appropriate limits, and security. Only trained, experienced, and knowledgeable users should design runs and generate reports. Users should test their skills with the EXAM run.

Make the appropriate entry to enable or disable run execution and error display to specific users in the RUN and RNE columns under the heading USER RESTRICTIONS in the user registration report (see Figure 2–1).

The MAPPER Software Reference, UP–9193 (see Preface), recommends procedures for users to follow in establishing new runs, and includes a list of efficient run design techniques.

6.2. Run Registration Reports

Register each run in a run registration report in mode 218, form type E (see the form type definition in Figure 6–1). Maintain a RID–to–RID departmental relationship between types E and F registration reports in mode 218. Users registered in a given department in a report in type F can execute runs registered in the corresponding report in type E.

To reduce the PRE–RUN* overhead for any run registration RID, sort it by run name and enter the word:

SORTED

immediately following the first tab character in line 3. The MAPPER processor then executes a binary search of that RID.

* *See Figure 4–4 under the heading FUNCTION for some PRE–RUN overhead figures.*

You must remove the word SORTED whenever you update a run registration report. After updating the report:

- sort it;
- replace it; and
- enter **SORTED** again.

Or, you can execute the BINARY FIND (BF) function to find where the run name needs to be inserted.

If a specific run has multiple user, station, or time slot limitations, register the run with the different limit combinations on separate lines.

NOTES: 1. *Put run design form types in a mode related to the user department. Don't allow run design in free form (form type A).*

2. *Mode 218, report 104E has runs related to MAPPER demonstration, training, and coordination. Mode 218, report 46E has a brief description of these runs.*

Establish controls on run execution in the run registration report in mode 218, type E. Set specific limits for user; station; begin and end time slot; number of I/O units and logic lines allowed to be processed before automatic termination (normally, 1,000 is adequate for each); and modes accessed.

The best measures of a run's impact on the MAPPER processor are the number of I/O requests and logic lines processed. You can check these any time with these reserved words in the run:

- **IO$**
- **LLP$**

You should also encourage user to analyze their runs with the RUNA run. Use the RUNA run yourself to analyze runs.

Once a run is ready for production use, measure its actual I/O and logic line requirements using the RUNA run or the LOGL function and the LOGLA analysis run. The results from the RUNA run or from LOGL/LOGLA give you a reference point from which you can determine limits.

6.3. High-Impact Runs

Execute high-impact runs (e.g., runs requiring over 1,000 I/O units) that demand heavy processing, many sorts, matches, etc., during periods of low use and in specific time slots.

```
.DATE 14 OCT 82  15:15:15  RID     46     11 AUG 82  COORD
.         RUN CONTROL REPORT FOR:     DESCRIPTION & USAGE INFORMATION       E3370
*XXXXXXXXXXXXXXXX = RESPONSIBLE SUPERVISOR'S/MANAGER'S NAME
*  RUNID       .    USER      .UNIT. TYPE . RID.F. B TIME . E TIME . I/O .LINES.MODES                 . ACT . RESPONSIBLE.M.ST.PK TIME .XT.
*============.============.====.======.====.=.========.========.=====.=====.==================.=====.============.=.==.========.==.
*XXXXXXXXXXXX RUN IDENTIFIER                                                        USED AS A DATA FIELD BY CERTAIN RUNS XXXXXXXX
*             XXXXXXXXXXXX USER AUTHORIZED TO EXECUTE RUN (RECOMMEND USING THE RUN DESIGNER ID DURING RUN DEBUG)    UNUSED FIELD XX
*                          XXXX STATION NUMBER OF USABLE DISPLAY
*                               XXXXXX OCTAL TYPE WHERE RUN CONTROL REPORT RESIDES
*                                      XXXX REPORT NO. WHERE RUN CONTROL REPORT RESIDES
*                                           X Y=PREVIOUS FORMAT IN OUTPUT
*        RUN TIME SLOT, BEGIN TIME (HH:MM:SS) XXXXXXXX
*                 RUN TIME SLOT, END TIME (HH:MM:SS)    XXXXXXXX
*          MAXIMUM I/O'S ALLOWED FOR RUN (2000 = DESIGN PHASE)    XXXXX
*          MAXIMUM LOGIC LINES ALLOWED FOR RUN (2000 = DESIGN PHASE)    XXXXX
*       ALLOWABLE MODE/S (UP TO 5 SEPARATED BY COMMAS,   GROUPS BY DASH (-)) XXXXXXXXXXXXXXXXXX (A OR BLANK = ALL MODES ACCESSIBLE)
*                                                                  LARGEST/ACTUAL I/O'S USED    XXXXX UPDATED BY THE RUN 'RUNACTUAL'
*                                                                         RESPONSIBLE RUN DESIGNER XXXXXXXXXXXX
*                                                                    M = RUN REGISTERED FOR USE BY MULTIPLE DEPT'S X
*                                                                    T = RUN REGISTERED FOR TESTING PURPOSES ONLY  X
*                                                                   AN = RUN ANALYZED WITH LOGL BY THE COORDINATOR XX
*                                                                   A? = RUN ANALYZED - IMPROVEMENT INDICATED      XX
*                                                                   RD = RUN ANALYZED - REDESIGN REQUIRED          XX
*                                                                                    SCRATCH FIELD USED BY RUN XXXXXXXX
*
*               EXAMPLES OF RUN REGISTRATION
*               ============================
.FOLLOWING IS AN EXAMPLE OF A RUN REGISTERED AS IN DESIGN. IT IS LIMITED TO
.1000 I/O AND 2000 LOGIC LINES AND FOR USE IN MODE 0
*NAME                         000206    1                1000  2000 0                         DOE, JOHN
.FOLLOWING IS AN EXAMPLE OF A RUN REGISTERED AS ANALYSED (I/O = 999, LOGIC LINES
.1999, ST CD = AN). IT IS FURTHER LIMITED TO USE IN MODE 0 AND ONLY BY
.JDOE AT STATION 1. IT HAS BEEN REGISTERED UNDER MORE THAN ONE DEPARTMENT (M).
*NAME         JDOE        1   000206    1                 999  1999 0                         DOE, JOHN    M AN
.FOLLOWING IS AN EXAMPLE OF A RUN REGISTERED AS ANALYSED (I/O = 999, LOGIC LINES
.1999, ST CD = AN). IT IS FURTHER LIMITED TO USE IN MODE 0 AND ONLY BY
.JDOE AT STATION 1 AND JSMITH AT STATION 2 FROM THE TIME 08:00 TO 16:00.
.IT IS FURTHER RESTRICTED TO RUN AT BATCH PRIORITY (B IN 130-1)
*NAME         JDOE        1   000206    1  08:00:00 16:00:00  999  1999 0                      DOE, JOHN      AN
*NAME         JSMITH      2   000206    1  08:00:00 16:00:00  999  1999 0                      DOE, JOHN      AN
.FOLLOWING IS AN EXAMPLE OF A RUN REGISTERED AS ANALYZED. IT IS LIMITED TO
.9999 I/O AND 19999 LOGIC LINES AND FOR USE IN MODES 0, 4, AND 100 THROUGH 150.
.DUE TO ITS SIZABLE POTENTIAL I/O AND LOGIC LINE IMPACT IT IS LIMITED TO
.EXECUTE IN TWO LOW USE TIME PERIODS; 12:00 TO 13:00 AND 17:00 TO 07:00
*NAME                                      12:00:00 13:00:00 9999 19999 0,4,100-150            DOE, JOHN      AN
*NAME                                      17:00:00 07:00:00 9999 19999 0,4,100-150            DOE, JOHN      AN
.FOLLOWING IS EXAMPLE OF A RUN REGISTERED AS  ANALYSED. IT IS LIMITED TO
. 999 I/O AND 1999 LOGIC LINES AND REGISTERED FOR USE IN ALL MODES. DUE TO ITS
.MODE ACCESSIBILITY SUCH A RUN SHOULD BE INACCESSIBLE FOR MODIFICATION .
*NAME                                                    999  1999              A          DOE, JOHN      AN
                    ..... END REPORT .....
```

Figure 6-1. Form Type Definition: Run Registration Report

7. Generating Form Types

7.1. Responsibility and Requirements

As a MAPPER coordinator, you are responsible for generating new form types. Since you have more overall knowledge of MAPPER software than users, you can keep duplication of form types and data to a minimum. Where similar form types exist, direct users to existing form types and the data base owners. You can also enhance existing form types to cover new needs.

Users define their planned use for a form type on an Authorization and Justification form (Figure 3-1), and should resubmit this authorization form upon any significant change in the application, or upon any deviation from their form type's planned use.

You can improve reporting through form type mergers and by developing interfaces to Executive applications.

You must also see that sufficient MAPPER storage is available. In planning and justifying new form types or changes to existing ones, ensure that MAPPER storage needs are adequate by considering a new form type's impact on current and anticipated storage needs.

Encourage users to lay out their new form type in an experimental report. Use the experimental report as input to the GEN function, which you then use to create the new RID 0.

Check that users have followed all form design requirements, and that they have laid out the experimental report in accordance with the guidelines set forth in the MAPPER Software Reference, UP-9193 (see Preface).

7.2. Experimental Reports

These are the basic characteristics of an experimental report:

- from one to seven header lines following the software-generated standard line 1;
- up to six predefined lines (including the blank line with tab characters that is presented when no predefined line type is requested), unless you used fewer than eight header lines, in which case you can add predefined lines to make up the difference (header lines + predefined lines = 14 maximum);
- one line defining input edit codes; and
- from one to six format lines denoting up to six formats with an X in column 1 and X's in the character positions to be included in the format.

Here's an experimental report:

```
.DATE 04 MAY 80  M16 F1 132C              24 OCT 80          JDOE
.CORPORATE ORDER STATUS                   BY:                                D0206
*ST.ORDER . PRODUCT .ORD.CUST.  UNIT  .EXTENDED.REQ'D .SALE.
*CD.NUMBER.  TYPE   .QTY.CODE. RETAIL . RETAIL .DELIVR.REP .    CUSTOMER     .    ADDRESS    .      CITY    .STATE. ZIP .
*==.======.=========.===.====.========.========.======.====.=================.===============.=============.=====.=====.
0 0     0        0  0   0      0        0      0   0                 0                0             0    0     0
X                                                          XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X  XXXXXXX              XXXXX                          XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X                                                      XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXX                XXXXXXXXX                              XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X                                  XXXXXXXXX               XXXXXXXXXXXXXXXXXXX
```

The first line is the standard line 1. The second line is a period line with the title of the report. The third and fourth lines are asterisk lines, which define the fields in the report. The fifth line is a header-divider line (an asterisk line followed by equal signs with periods separating the fields). The sixth line defines input edit codes. This example has no predefined lines.

The last six lines are format lines, where X's denote character positions to be included in each of the formats, 1 through 6. The first format line is format 1, the second is format 2, etc. Formats include fields from the basic report format going from left to right. You cannot interchange field positions.

7.3. GEN—Generating a New RID 0

The GENERATE (GEN) function generates a new RID 0 in the mode in which the new form type is to reside.

To generate the RID 0 for a new form type:

- get in the mode where the new form type is to reside; and
- enter **GEN**

to display the function request message:

```
                      FORM TYPE GENERATION

          FILE NUMBER TO INSERT TYPE █
     NUMBER OF CHARACTERS FOR FORM      (80 THROUGH 132)
                     CHARACTER SET      (L, F, OR U)
                              TYPE      (B THROUGH I)
                 INPUT HEADER MODE
                 INPUT HEADER TYPE      (A THROUGH I)
                  INPUT HEADER RID
                REPORT DESCRIPTION
                         REQUESTER
```

After FILE NUMBER TO INSERT TYPE, select the MAPPER file number (MAPER1,..., *n*) to which the form type is to be allocated. The maximum number of reports allowed in any one file is 5000. If this number is exceeded, MAPPER software does not purge. However, to make room for expansion, allow no more than 3,000 reports into any one file. If you wish to add a new file, a MAPPER support programmer must also add the new file to the PREMAP runstream. (See also Appendix A and the SYSENT start parameter in the release documentation.)

NOTES: *1. The maximum number of reports per form type is 2,000. Multiple types may exist in one file. These files exist in OS 1100 program file storage: the type is an element; the RIDs are element versions.*

2. Before generating a new form type and creating a RID 0, delete any existing RID 0 in the form type.

After NUMBER OF CHARACTERS FOR FORM, specify the standard line length for the new type (from 80 to 132 characters).

After CHARACTER SET, specify the character set for the new form type:

L limited character set
F full character set
U full character set Uppercase

After TYPE, enter the alphabetic form type designator for the new type, usually the next type available within the mode.

If you are ***not*** using an experimental report, leave the remaining fields blank to create a blank RID 0 in which you can enter the rest of the form type information.

If you ***are using*** an experimental report, fill in the remaining fields.

After INPUT HEADER MODE, enter the mode number in which the experimental report resides.

After INPUT HEADER TYPE, enter the alphabetic form type in which the experimental report resides.

After INPUT HEADER RID, enter the RID number of the experimental report.

After REPORT DESCRIPTION, enter the name of the reporting. The GEN function enters this information in the form type description under the respective mode in mode 218, report 101G (see Figure 2-2); in the form type analysis report (see Figure 3-2); and under the DESCRIPTION field for the type in the purge index report (see Figure 3-3).

After REQUESTOR, enter the name of the person responsible for the form design. The GEN function enters this information in line 17 of RID 0.

After filling in these fields, transmit to produce a result with the completed RID 0. Examine this result and make any changes necessary manually, then resume to make the result the new RID 0 for the form type. The GEN function registers the name of the new form type in mode 218, report 101G and in the form type analysis report, and a new RID 0 line appears in the purge index reports for the related MAPPER file.

With the new RID 0 on display, execute the REG0 run to complete the registration of the new form type in the purge index report (alphabetic form type, mode, and responsibility code), and in the form type analysis report (mode 230, report 2C).

making changes in RID 0

If you are not using an experimental report, or if you need to make changes to a completed RID 0, you must enter all data in RID 0 with the SOE UPDATE function.

MAPPER software creates all RID 0 reports with exactly 39 lines.

7.4. Entering New Form Type Information

1. Define the mask for parameter input to any of the general-purpose report processing functions such as MATCH, SEARCH, SORT, or TOTALIZE, starting at line 3, consisting of:

   - One or two asterisk field header lines (*)
   - A header-divider line (*=)
   - A line of asterisks with spaces where the fields divide (***** ****)

   NOTES: 1. *Don't put tab characters in the asterisk field header lines or in the field divider line so that users can tab directly from the line above the function mask to the tab type lines below.*

   2. *If general-purpose report processing functions that don't require header-divider lines are not to be used in this form type, you may substitute a period type line for the mask line.*

   - Enter tab type lines for general function input parameters through line 16.

2. Define the blank form to be presented in ADD REPORT function requests in lines 17 through 31, consisting of:

   - A line with the entry .DATE starting in the first character position for insertion of standard line 1. In actual reports, MAPPER software provides the data for standard line 1. Use the rest of line 17 to log the form designer's name, the file number, the assigned mode, and the number of characters per line.
   - One to four general nonedited period type header lines. The first of these, the one below standard line 1, indicates the general report subject and responsible person. In this line, character position 74 denotes the related alphabetic form type, and positions 75 through 80 denote the numeric form type, e.g., B000202 (see Figure 7-1).

- One or two comment (*) field header lines and a header-divider (*=) line. Neither is required if general-purpose report processing functions are ***not*** to be used; however, you may put them in anyway.

- *n* number of line types (through line 30) provided as types of predefined data lines. Usually, the first of these, below the header-divider line, is a blank line with tab characters between fields and is presented in ADD LINE function requests that don't specify a type. The remaining lines, including line 30, can be predefined data lines which users can specify individually in ADD LINE requests as types 1 through *n*. If no predefined lines are provided, enter tab characters at field boundaries in the lines between the header lines and line 32, unless the form type is free form.

You can enter calls within the fields of RID 0 predefined lines to cause specific current data to be inserted in the relative field with ADD LINE function requests (Table 7-1).

Table 7-1. RID 0 Predefined Line Field Calls

Call	Data	Characters	Format	Example
DATE0$	current date	5	*YMMDD*	41231
DATE1$	current date	6	*YYMMDD*	841231
DATE2$	current date	9	*DD MMM YY*	31 DEC 84
DA3$	current date	4	*YDDD*	4365
DAT4$	current date	5	*YYDDD*	84365
DATE5$	current date	6	*DDMMYY*	311284
DATE6$	current date	8	*MM/DD/YY*	12/31/84
DATE7$	current date	18	*MONTH DD, YYYY*	December 31, 1984
TIME$	current time	8	*HH:MM:SS*	23:59:59
TIM1$	current time	5	*HH:MM*	23:59
USER$	sign-on	11	*USER-ID*	'JDOE△△△△△△△'
UUU	sign-on (first 3 characters)	3	*ABC*	JDO

NOTE: Enter these calls in uppercase. The number of data characters presented is greater than the call for DATE2$, DATE6$, DATE7$, TIME$, and USER$; therefore, enter these calls in fields that have enough character positions to hold the actual data to be presented.

3. In line 32, specify input edit codes for each character position of the data lines (Table 7-2).

Table 7-2. Input Edit Codes

Code:	defines:
Blank	no editing.
0	a tab position.
1	a numeric (required; cannot be blank).
2	a numeric or blank.
3	an alphabetic (required; cannot be blank).
4	an alphabetic or blank.
5	content (must have data; cannot be blank).
6	a blank (may not have data).
7	Kanji characters.
8	Kanji characters or blank.

4. Leave line 33 blank.

5. In lines 34 through 39, respectively, define the formats (1 through 6), relative to the type. Enter an X in the respective character position to include that format.

After entering the required information in RID 0, enter the new form type's name under its relative mode in mode 218, report 101G, and in type H of the coordinator's mode as a new RID 0. Also, enter the information from the authorization form in the form type analysis report (Figure 3-2) in mode 230, report 2C.

7.5. Checking and Locking

When a RID 0 is complete, position to these lines and check them:

Line 3 — The general function mask should appear starting in line 3.

Line 17 — The entry .DATE, which denotes the standard line 1, should appear in the first character position in line 17 with the related headers (up to eight) and predefined lines through line 30.

Line 32 — The character edit specifications should be in line 32 followed by a blank line and up to six format specification lines.

After completing all checks, enter a password to lock the report and prevent inadvertent or unauthorized updating.

Figures 7-1 and 7-2 show 80- and 132-column RID 0 examples, which you can see online in mode 16, types B and D, respectively.

7.6. Deleting a Form Type

The daily PURGE or MERGE process deletes form types from the MAPPER data base, removing the associated RID 0 and all other reports of the type, as well as any indication of these reports from the purge index.

To delete a form type, enter:

DELETE

in uppercase letters in the first six character positions of line 2 of the associated RID 0. The PURGE process deletes the form type.

For more details about the MERGE and PURGE processes, see the MAPPER 1100 Operator's Reference, UP-9195 (see Preface).

NOTE: *If your MAPPER processor is using the CYCLE/MERGE process instead of the daily PURGE, you must allow a deleted form type to go through two MERGE processes before reusing it as a new form type.*

Manually delete registration information about the deleted form type in mode 218, report 101G, and mode 230, report 2C.

7.7. Converting the Character Set of a Form Type

You can convert a form type from one character set to another during the PURGE process, but ***not*** during the MERGE process.

To convert a form type, enter one of these starting in the first character position of line 2 ***in uppercase letters***:

LCS convert to limited character set

FCS convert to full character set

FCSU convert to full character set uppercase

NOTE: *Remember to remove your entry after PURGE and PREMAP.*

7.8. Modifying a Form Type

You can modify the formats (1 through 6) at any time at the form designer's request by updating the related RID 0. You can also modify the form type and function mask headers. Try to limit these changes, however, and don't change field sizes. Users must update all reports in the form type to agree with the current formatting if any modifications have been made.

If you must change the design of a form extensively, generate the new form type under a different type. Move the usable data from the old form type to the new type with the REFORMAT function.

If the form type has numerous reports, you can design a run using an @RDC statement to convert and move the data to the new form type. (See also the MAPPER Software Reference, UP-9193, and the MAPPER Software Run Designer's Reference, UP-9662 [see Preface].)

7.9. Changing the Line Length of an Existing Form Type

To change the line length of an existing form type and to retain the data in the existing form type, move the data to a temporary holding type with the REPLACE function (either manually or in a run). Next, delete the form type and regenerate the new RID 0 in the expanded line length with GEN. With a run, move the data back to the newly expanded form type.

7.10. Changing a File Number

If you want to change the file number for an existing form type, generate it with the new file number (see 7.6 and A.2). Move the data using a run. You should not copy files by batch or demand processes.

```
1.      .DATE 14 APR 82  07:07:07  RID      0     14 APR 82  COORD
2.
3.      *ST.STATUS.BY. PRODUCT .SERIAL.PRODUC.ORDER.CUST.PRODUC.PRODUC. SHIP .SHIP .SPC.
4.      *CD. DATE .IN.  TYPE   .NUMBER. COST .NUMBR.CODE. PLAN .ACTUAL. DATE .ORDER.COD.
5.      *==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
6.       ** ****** ** ********* ****** ****** ***** **** ****** ****** ****** ***** ***
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.     .DATE 14 JUL 81   JDOE                          F1 M16 80 C COORD
18.     .                 CORPORATE PRODUCTION STATUS                          B000202
19.     *ST.STATUS.BY. PRODUCT .SERIAL.PRODUC.ORDER.CUST.PRODUC.PRODUC. SHIP .SHIP .SPC.
20.     *CD. DATE .IN.  TYPE   .NUMBER. COST .NUMBR.CODE. PLAN .ACTUAL. DATE .ORDER.COD.
21.     *==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
22.
23.      OR        XX      BOX                      XXXX
24.         DATE1$
25.
26.
27.
28.
29.
30.
31.
32.     03301111110330333333331022222202222220111110333300      0      0      0     0   0
33.
34.     X
35.     X
36.     X
37.     X
38.     X
39.     X
                              ..... END REPORT .....
```

Figure 7-1. 80-Column RID 0

Figure 7-2 is an example of a 132-column RID 0 created in file 1, mode 16, alphabetic form type D, numeric form type 206.

```
.DATE            16:38:33  RID     0    08 DEC 82  COORD

*ST.ORDER . PRODUCT .ORD.CUST.  UNIT  .EXTENDED.REQ'D .SALE.
*CD.NUMBER.  TYPE   .QTY.CODE. RETAIL . RETAIL .DELIVR.REP .     CUSTOMER      .    ADDRESS     .      CITY      .STATE. ZIP .
*==.======.=========.===.====.========.========.======.====.=================.===============.==============.=====.=====.
 ** ****** ********* *** **** ******** ******** ****** **** ***************** *************** ************** ***** *****











                                                              (—next line is line 17— )
.DATE 08 DEC 82         JDOE                                F1 M216 132C  COORD
.CORPORATE ORDER STATUS:                            BY:                                 D000206
*ST.ORDER . PRODUCT .ORD.CUST.  UNIT  .EXTENDED.REQ'D .SALE.
*CD.NUMBER.  TYPE   .QTY.CODE. RETAIL . RETAIL .DELIVR.REP .     CUSTOMER      .    ADDRESS     .      CITY      .STATE. ZIP .
*==.======.=========.===.====.========.========.======.====.=================.===============.==============.=====.=====.












                                                              (—next line is line 32— )
0  0      0        0   0   0        0       0     0   0                0               0              0     0     0
                                                            (—this is line 33, a blank line— )
X                                                            XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X   XXXXXXX           XXXXX                                 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X                                                           XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXX                 XXXXXXXXX                                   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X                                         XXXXXXXXX              XXXXXXXXXXXXXXXXXXXX
                      ..... END REPORT .....
```

Figure 7-2. 132-Column RID 0

Appendix A. MAPPER Files

A.1. Internal, Special, and External Files

The PURGE and MERGE processes process report data in 1100 OS program files. The form type is the element; the RID is the version. Whenever MAPPER software is initialized, it assigns files named MAPER1, MAPER2,..., MAPER*n*. To refer to RID 1, form type A, in file 1, use:

```
MAPPER*MAPER1.TYPE-1/RID-1
```

The MAPPER processor copies MAPPER reports in reverse order to MAPDAT tapes during the PURGE or MERGE process.

The MAPPER processor maintains internal, special, and external files.

Internal files are files that the PURGE and MERGE processes process, after which the PREMAP runstream loads the contents of internal files. Internal files are reflected in the purge index reports in mode 218, form type 3336. The processor records updates or changes made to reports residing in internal files on the recovery tape. Internal files are therefore recoverable.

Special files are internal files, except that they are maintained on a separate tape. The SPFILE start parameter defines special files.

External files: you can create files external to the MAPPER processor in MAPPER file format. The EXFILE start parameter defines external files; the EXTENT start parameter limits the size of external files (i.e., the number of RIDs). External files can be loaded by the PREMAP runstream. An external file can also be assigned with the operator II keyin **AFILE** while the processor is operating, and can be purged to a separate tape while MAPPER is operating with an operator keyin of **PRG** *n* , where *n* is the file number. The recovery tape does not record updates to external files. The PURGE process does not process external files. The MERGE process processes external files, but does not produce a tape copy of them.

NOTES: 1. *Since external files are not recoverable, you should use them primarily as reference with limited updating. Capture updates made to an external file on the external file tape with an online purge (PRG).*

2. *Since the normal PURGE process does not process external files, their contents are not reflected in purge index reports. The MERGE process produces related purge index data.*

A.2. Adding Files

The MAPPER element MTABLE initially defines 24 files for use, internally designated MAPER0,..., 9 and a,..., *n*. Refer to these files as 1 through 24 when generating a new RID 0 (see 7.3). When more than these initial 24 files are required, a MAPPER support programmer must expand the element MTABLE. The internal file MAPER1 resides initially in MAPPER software.

adding internal files

To add an internal file:

1. Add a report to the purge index, mode 218, form type H, with the same RID number as the new file number. Identify the new file in this report header.

2. Generate a form type and assign it to the new file number.

3. Execute the REG0 run, which registers the new form type in the purge index report and enters the data in mode 230, form type C, the form type analysis report.

The next PURGE process—not MERGE—then adds this new file to the MAPDAT tape. The support programmer must add the new file assignment to the PREMAP runstream, whose subsequent execution includes the new file.

adding special files

The SPFILE start parameter must define a special file before you can add it. The process thereafter is the same as that for adding an internal file, except that the software purges or merges a special file onto a separate tape.

adding external files

The EXFILE start parameter must define an external file before you can add it. You can then generate the new form type into the file and execute an online purge (PRG) to copy the data to a tape. The GEN function adds a new report to the purge index for this file. Since the PURGE process does not process external files, it deletes this report.

Appendix B. Daily Reports

You might want to follow this procedure at the start of each day:

1. Execute the RPG1 or RPG2 run (see 3.3).

   This run analyzes the terminal configuration report, mode 218, report 1B, and the purge index reports, mode 218, form type H, and gives you a status report.

2. Print the result of the RPG1 (or RPG2) run for your records.

3. Execute the LOGS function: enter a **Y** after DECIMAL TIME and **-1** after CYCLE (see 4.2).

4. Execute the LOGSA run with the result of the LOGS function from step 3 on display (see 4.4).

5. Print the result of the LOGSA run for your records.

6. Record the statistics from these reports in the performance chart (Figure 4–9).

Appendix C. Report Form Type Descriptions

These report form type descriptions (Figures C-1 through C-7) identify the kinds of data found in the modes commonly used by MAPPER coordinators.

FILE CABINET - MODE 202/203 DRAWER - TYPE

.C. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.C. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	RUN DATA	003122	F	EXAM RUN LOG	003132
C	FCS FREE FORM	003124	G	EXAM ASSIGNMENTS	003134
D	FCS UPPER/LOWER	003126	H	OPEN	003136
E	QUESTIONS & ANSWERS	003130	I	OPEN	003140

Figure C-1. Form Type Description Report for Mode 202/203

FILE CABINET - MODE 208/209 DRAWER - TYPE

.C. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.C. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	RUN LOG	003202	F	RUN DATA	003212
C	SCRATCH FILES	003204	G	MODE SWITCH REG.	003214
D	MAPPER HISTORY	003206	H	LOG LIST RESULTS	003216
E	PURGE RESULTS	003210	I	RUN DATA	003220

Figure C-2. Form Type Description Report for Mode 208/209

```
-----------   FILE CABINET - MODE 218/219 DRAWER - TYPE   -----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.     DESCRIPTION        . TYPE .D.     DESCRIPTION        . TYPE .
.=.======================.======.=.======================.======.
 B SYSTEM CONFIGURATION     003322 F USER I.D. INFORMATION    003332
 C SYSTEM MESSAGES          003324 G SYSTEM MESSAGES          003334
 D MESSAGE SWITCHING        003326 H SYSTEM PURGE INDEX       003336
 E RUN CONTROL REPORTS      003330 I AUX DEVICE COLLECTION    003340
```

Figure C-3. Form Type Description Report for Mode 218/219

```
-----------   FILE CABINET - MODE 220/221 DRAWER - TYPE   -----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.     DESCRIPTION        . TYPE .D.     DESCRIPTION        . TYPE .
.=.======================.======.=.======================.======.
 B CURRENT SYSTEM STATUS    003342 F MAPPER TRANSMITTAL BASE  003352
 C MAPPER ASSEMBLIES        003344 G LOG SUMMARY              003354
 D COMM ERROR LIST          003346 H LOG LIST                 003356
 E SYSTEM DOCUMENTATION     003350 I COMM ERROR SUMMARY       003360
```

Figure C-4. Form Type Description Report for Mode 220/221

```
-----------   FILE CABINET - MODE 222/223 DRAWER - TYPE   -----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.     DESCRIPTION        . TYPE .D.     DESCRIPTION        . TYPE .
.=.======================.======.=.======================.======.
 B BATCH RETRIEVE           003362 F OPEN                     003372
 C U400 ASSEMBLIES          003364 G OPEN                     003374
 D OPEN                     003366 H OPEN                     003376
 E OPEN                     003370 I OPEN                     003400
```

Figure C-5. Form Type Description Report for Mode 222/223

```
-----------   FILE CABINET - MODE 226/227 DRAWER - TYPE   -----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.      DESCRIPTION       . TYPE .D.      DESCRIPTION       . TYPE .
.=.======================.======.=.======================.======.
 B OPEN                    003422 F RETRIEVE REQUEST         003432
 C OPEN                    003424 G OPEN                     003434
 D RUN DATA            LCS 003426 H RUN DATA          80fcs 003436
 E OPEN                    003430 I RUN DATA         132fcs 003440
```

Figure C-6. Form Type Description Report for Mode 226/227

```
-----------   FILE CABINET - MODE 230/231 DRAWER - TYPE   -----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.      DESCRIPTION       . TYPE .D.      DESCRIPTION       . TYPE .
.=.======================.======.=.======================.======.
 B U & L FREE FORM         003462 F VALUE ANALYSIS           003472
 C TYPE ANALYSIS           003464 G DIAL-UP TRAFFIC          003474
 D MAPSTPT TYPE USAGE      003466 H EXAMPLE DATA 80          003476
 E RUNSTREAM DATA          003470 I EXAMPLE DATA 132         003500
```

Figure C-7. Form Type Description Report for Mode 230/231

Appendix D. Coordinator Reserved Words

These reserved words are for coordinator runs only:

AUXTYP$	Auxiliary report numeric form type
CELTYP$	Communications error log numeric form type
CESTYP$	Communications error summary numeric form type
CFGRD$*	Current configuration RID number
CFGTYP$	Configuration numeric form type
COORD$	Coordinator station number
CSTTYP$	Communications error summary numeric form type (current status)
LGLTYP$	Log list numeric form type
LGSTYP$	Log summary numeric form type
MESTYP$	Message report numeric form type
MSGRD$*	Message RID number
MSGTYP$*	Message numeric form type
MSTRD$	Master run registration RID number
PRGTYP$	Purge index numeric form type
RUNTYP$	Run registration numeric form type
TYPRD$	Type mask RID number (relative mode screens)
TYPTYP$	Type mask numeric form type
USRTYP$	User registration numeric form type

* *CFGRD$, MSGRD$, and MSGTYP$ replace CONFG$, ERRD$, and ERTYP$, respectively.*

Both the Summary card (UP-9196) and the MAPPER Software Run Designer's Reference, UP-9662 (see Preface), list reserved words for users.

Appendix E. ESF Run, Color Graphics, Languages

E.1. ESF Run

To install the ESF run at your site, you must load the associated data base, register related runs, and issue the necessary security clearances.

Do these things:

- Assign each user department a unique name.
- If a department changes its name, change RIDs 2B and 2F in mode 234.
- Make sure that each ESF user has a unique MAPPER sign-on.
- Tell users not to change their sign-ons or ESF security passwords.
- Limit internal mail (stored in mode 236) to 16,000 items.
- Don't execute the KILLER and PRIMER runs against ESF control modes.
- Register users for functions as appropriate.

retrieving ESF run data from the release tape

Execute the PURGE process and the PREMAP runstream, and do these things before starting up MAPPER software:

- Copy the ESF information from the release tape to a temporary file.
- Copy the data to the desired MAPER files.
- Start the MAPPER processor and enter the RID 0's in the purge index reports.

You can use these @COPY statements to retrieve the ESF information from the release tape:

```
@COPY,G IN.,TEMPFILE .                    COPY FILE 5 FROM THE RELEASE TAPE
@COPY,VS TEMPFILE.TYPE-03600/r**********,MAPER1.  COPY IN RUN FUNCTIONS
@COPY,VS TEMPFILE.TYPE-03576/r**********,MAPER1.  COPY SUPPORT DATA
@COPY,S  TEMPFILE.TYPE-03522/RID-0,MAPER1.        REG-1 RID 0
@COPY,S  TEMPFILE.TYPE-03524/RID-0,MAPER1.        BULLETIN TOC RID 0
@COPY,S  TEMPFILE.TYPE-03526/RID-0,MAPER9.        CO BULLETINS RID 0
@COPY,S  TEMPFILE.TYPE-03530/RID-0,MAPER9.        DEPT BULLETINS RID 0
@COPY,S  TEMPFILE.TYPE-03532/RID-0,MAPER8.        REG-2 RID 0
@COPY,VS TEMPFILE.TYPE-03534/R**********,MAPER1.  ERROR DATA
@COPY,S  TEMPFILE.TYPE-03542/RID-0,MAPER7.        MAIL BAG 1 RID 0
@COPY,S  TEMPFILE.TYPE-03544/RID-0,MAPER7.        MAIL BAG 2 RID 0
@COPY,S  TEMPFILE.TYPE-03546/RID-0,MAPER6.        MAIL BAG 3 RID 0
@COPY,S  TEMPFILE.TYPE-03550/RID-0,MAPER6.        MAIL BAG 4 RID 0
@COPY,S  TEMPFILE.TYPE-03552/RID-0,MAPER5.        MAIL BAG 5 RID 0
@COPY,S  TEMPFILE.TYPE-03554/RID-0,MAPER5.        MAIL BAG 6 RID 0
@COPY,S  TEMPFILE.TYPE-03556/RID-0,MAPER4.        MAIL BAG 7 RID 0
@COPY,S  TEMPFILE.TYPE-03560/RID-0,MAPER4.        MAIL BAG 8 RID 0
@COPY,S  TEMPFILE.TYPE-03562/RID-0,MAPER1.        MAIL TOC RID 0
@COPY,S  TEMPFILE.TYPE-03564/RID-0,MAPER1.        DISTRIBUTION LIST RID 0
@COPY,S  TEMPFILE.TYPE-03566/RID-0,MAPER1.        ACTIVITY LOG RID 0
@COPY,S  TEMPFILE.TYPE-03570/RID-0,MAPER1.        CALENDAR RID 0
@COPY,S  TEMPFILE.TYPE-03572/RID-0,MAPER1.        TICKLER RID 0
@COPY,S  TEMPFILE.TYPE-03574/RID-0,MAPER1.        PHONE RID 0
```

Use MAPER file numbers appropriate to your site.

installing the ESF run

Install the model ESF run and its associated subroutines in any four adjacent mode pairs. You don't need to modify the run.

Mode 240 is reserved for possible ESF run expansion.

The ESF run uses these modes:

- Mode 234
  - RID 0 and RIDs 1 through 103 must exist in type B.
  - RID 0 and RID 1 must exist in type C.
  - RID 0 must exist in type D.
  - RID 0 must exist in type E.
  - RID 0 and RIDs 1 through 103 must exist in type F.
  - RIDs 0 and 1 must exist in type G; they are on the release tape.

  Only the RID 0's are included on the release tape; the rest are added the first time the ESF run is executed.
- Mode 236

  RID 0 for each of the eight form types must exist; they are included on the release tape.
- Mode 238
  - RID 0 for each of the eight form types must exist; they are included on the release tape.
  - RIDs 1 through 10 must exist in type H; they are included on the release tape.
  - RIDs 1 through 54 must exist in type I; they are included on the release tape.

probable RID quantities

Here are the probable RID quantities:

- Mode 234
  - Types B and F: RID 2 has department registration information; RIDs 3 through 103 have user registration.
  - Type C: has the table of contents (TOC) for the BULLETINS facilities. RID 1, company bulletins TOC, must exist. Each ESF department has one RID for its TOC.
  - Type D: has company bulletins. Plan for up to 2000 RIDs.
  - Type E: has department bulletins. Plan for up to 2000 RIDs.
  - Type G: has error data. Plan fewer than 100 RIDs.
- Mode 236
  - All eight form types are the same—they have mail items. Plan for up to 2,000 RIDs for each form type.
- Mode 238
  - Types B through G: have the DISTRIBUTION LIST TOCs, TICKLERS, PHONE, CALENDARS, and ACTIVITY LOGS.

    Each type (B through G) has one RID for each registered ESF user. Plan one RID for each user expected to use ESF. Type C has DISTRIBUTION LISTS. Besides each user's distribution list, each department can have one RID. The ACTIVITY LOGS in type D are implicitly limited to the department quantity--one activity log for each department registered.
  - Type H: has miscellaneous ESF Control RIDs (1 through 10) and defined forms. Plan for up to 2000 RIDs (forms).
  - Type I: has ESF run control reports. Plan for fewer than 1000 RIDs.

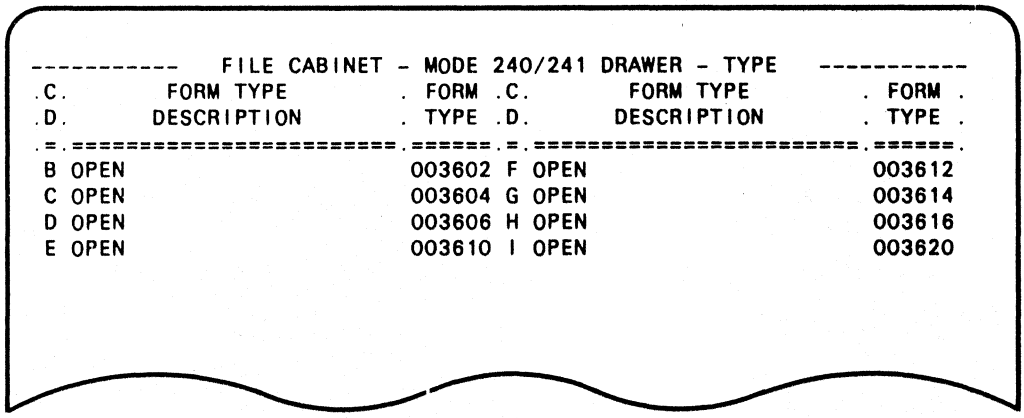
examples of mode/type displays

Here are the mode/type displays for the four adjacent ESF modes. Mode 240/241 is reserved for future ESF run enhancements.

```
----------   FILE CABINET - MODE 234/235 DRAWER - TYPE   ----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.      DESCRIPTION       . TYPE .D.      DESCRIPTION       . TYPE .
.=.======================.======.=.======================.======.
 B ESF USER REG-1          003522 F ESF USER REG-2          003532
 C BULLETIN BOARD TOC      003524 G ESF ERROR DATA          003534
 D CO BULLETIN BOARD       003526 H OPEN                    003536
 E DEPT BULLETIN BOARD     003530 I OPEN                    003540
```

```
----------   FILE CABINET - MODE 236/237 DRAWER - TYPE   ----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.      DESCRIPTION       . TYPE .D.      DESCRIPTION       . TYPE .
.=.======================.======.=.======================.======.
 B GROUP 1 MAIL            003542 F GROUP 5 MAIL            003552
 C GROUP 2 MAIL            003544 G GROUP 6 MAIL            003554
 D GROUP 3 MAIL            003546 H GROUP 7 MAIL            003556
 E GROUP 4 MAIL            003550 I GROUP 8 MAIL            003560
```

```
----------   FILE CABINET - MODE 238/239 DRAWER - TYPE   ----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.      DESCRIPTION       . TYPE .D.      DESCRIPTION       . TYPE .
.=.======================.======.=.======================.======.
 B MAIL TOC                003562 F TICKLER FILES           003572
 C DISTRIBUTION LISTS      003564 G PHONE/VISIT LOGS        003574
 D DEPT ACTIVITY LOGS      003566 H GENERAL DATA            003576
 E PERSONAL CALENDARS      003570 I RUN DATA                003600
```



```
-----------   FILE CABINET - MODE 240/241 DRAWER - TYPE   -----------
.C.       FORM TYPE        . FORM .C.       FORM TYPE        . FORM .
.D.      DESCRIPTION       . TYPE .D.      DESCRIPTION       . TYPE .
.=.======================.======.=.======================.======.
 B OPEN                    003602 F OPEN                    003612
 C OPEN                    003604 G OPEN                    003614
 D OPEN                    003606 H OPEN                    003616
 E OPEN                    003610 I OPEN                    003620
```

registering the ESF run

The ESF run consists of a run and subroutines. You should register it under the name ESF, its name in MAPPER documentation.

Set the I/O limit to 5999 initially; set the logic line limit to 7999. Then, as your user community and data base grow, you can adjust these limits.

The ESF run is released in mode 238, type I (numeric type 003600). Place the ESF run in modes 234 through 238, as on the release tape. The ESF run control report is RID 10.

Register the run for access to all modes.

the first ESF run

When you execute the ESF run the first time, it adds all mandatory RIDs not on the release tape. It also tests report 2B in mode 234 for the word "initial" in the headers: if it finds the word, the run continues; if it does not find the word, it writes it.

Next, the security check screen appears. Enter:

INIT000

The run continues and adds a department.

Add:

- your department,
- a department ESF authority, and
- a user.

The ESF run is now ready to use.

E.2. Color Graphics

To install color graphics at your site, you must load the associated data base, register related runs, and issue the necessary security clearances.

Do these things:

- Register graphics terminals.
- Register users for functions as appropriate.

Color graphics control data resides in mode 242 on the release tape; you can, however, install it in any new mode.

Each form type has a RID 0. These have all the information needed to generate the form types.

This table shows the release tape element name/alphabetic form type relationship:

Element	Version	Type	Description
TYPE-03624	RID-0	C	Graph code examples
TYPE-03632	RID-0	F	DLL code
TYPE-03634	RID-0	G	Graph examples
TYPE-03636	RID-0	H	Documentation
TYPE-03640	RID-0	I	Run data

After generating the form types, place each graphic RID into the new mode. Place each RID so that it maintains its RID/alphabetic form type relationship. For example, place TYPE-03632/RID-2 in report 2F; place TYPE-03640/RID-5 in report 5I, etc.

Next, register the runs. You can make the graphics runs available to all users, since they are written to conform to MAPPER security guidelines: users can gain access only to reports in their modes, or to reports sent to their terminals.

You should also register the runs for use in all modes.

Here is run registration information for color graphics:

Run	RID	I/O	Lines
BARG	6	999	9999
CHART	2	999	9999
CHART-RPX	10	999	9999
DISPLAY	4	999	1999
GRID	3	1999	2999
LINEG	7	999	9999
PIEG	5	999	9999
SCAT	9	999	1999
TEXT	8	999	9999
GR	13	999	9999
GR-RPX	14	999	9999
GR-RPX	15	999	9999

Next, sign on and execute the INSTALL run, which resides in RID 11, type I:

1. Enter **INSTALL** to start the run.

2. Read the displayed information, and resume.

The INSTALL run checks out and modifies the CHART runs for your site and displays any errors in the checkout procedure on your terminal.

Try some of the graphics capabilities on a color terminal to verify the installation.

For help, enter **CHART** and transmit; then tab to HELP DOCUMENTS and transmit. Read the online HELP information as well as the graphics procedures in the MAPPER Software Reference, UP-9193 (see Preface).

E.3. Languages for Messages and HELP

You need to clear out and reserve an entire mode (mode 244) for messages in the languages of your choice. The default language should reside in form type B. Generate only those form types having a language.

Enter a language code (0 through 7; 0 or blank=default) in column 132 of the user registration report for the user's language for messages.

Also, change the HELP data base for the LANGUAGE (LANG) function (report 173E) to reflect the languages available at your site.

Index

MAPPER RUN ADMINISTRATION - TEST VS PRODUCTION

1. INTRODUCTION

THERE ARE A NUMBER OF RULES GOVERNING THE SEPARATION OF THE TEST FROM THE PRODUCTION ENVIRONMENT AND THE TRANSFER OF PROGRAMS FROM THE FORMER TO THE LATTER WHICH ARE WIDELY IGNORED WHEN IT COMES TO MAPPER RUN DESIGN.

THE PURPOSE OF THIS DOCUMENT IS TO RE-EMPHASIZE THE NEED FOR BETTER CONTROL IN THIS AREA, AND TO SHOW HOW IT CAN BE REALIZED IN A MAPPER ENVIRONMENT.

2. CONTROL PRINCIPLES

- THE USER HAS NO ACCESS TO THE PROGRAM CODE.
- THE USER HAS A RIGHT TO CONTINUED USE OF HIS PROGRAMS, BE THEY BATCH OR ON-LINE APPLICATIONS. THIS SERVICE MUST NOT BE INTERRUPTED BECAUSE DEBUGGING OR ENHANCEMENTS ARE IN PROGRESS.
- THE IMPLEMENTATION OF CHANGES MUST BE DOCUMENTED.
- THERE MUST BE A METHOD TO FALL BACK TO THE PREVIOUS VERSION IF A PROGRAM CHANGE WENT TERRIBLY WRONG.

WHEN THESE PRINCIPLES ARE TRANSPORTED INTO THE MAPPER ENVIRONMENT THE FOLLOWING GUIDELINES RESULT.

- ALL RUNS ARE LOCATED IN A MODE WHICH CANNOT BE ACCESSED BY USERS.
- A TEST VERSION OF EACH MAPPER RUN MUST BE KEPT SEPARATE FROM THE PRODUCTION VERSION.
- CHANGES ARE APPLIED TO THE TEST VERSION ONLY - NEVER TO THE PRODUCTION VERSION.
- TRANSFER OF TEST RUNS TO THE PRODUCTION SYSTEM MUST BE DOCUMENTED.
- A SEPARATE BACKUP VERSION MUST BE AVAILABLE FOR RECOVERY.

MODE 46 HAS BEEN ASSIGNED TO CONTAIN ALL MAPPER RUNS MAINTAINED BY I.S. & C. ID (ESSG). THE PRODUCTION VERSION OF ALL RUNS IS STORED IN TYPE I, THE TEST VERSION IN TYPE H AND THE BACKUP VERSION IN TYPE G. THIS CONCEPT IS BASED ON THE FACT THAT THE SAME RUN NAME CAN BE REGISTERED TO EXECUTE DIFFERENT RIDS FOR DIFFERENT USER DEPARTMENTS. THUS, THE CALL OF A RUN BY AN IS&C RUN DESIGNER WILL CAUSE THE CODE IN TYPE H TO BE EXECUTED, WHILE THE SAME RUN CALL BY A USER WILL EXECUTE THE VERSION IN TYPE I.

THUS, A RUN CALLING ANOTHER RUN DOES NOT NEED TO BE MODIFIED BEFORE BEING COPIED TO THE PRODUCTION SYSTEM. THE SAME ADAVANTAGE APPLIES TO RUNS CONTAINING 'GTO RPX' STATEMENTS.

A MAPPER RUN 'RUN-ADMIN' HAS BEEN DEVELOPED TO FACILITATE AND CONTROL THE MOVEMENT OF RUNS BETWEEN TYPES.

3. RUN-ADMIN - CHANGE IN A CONTROLLED ENVIRONMENT

RUN-ADMIN OFFERS THE FOLLOWING FUNCTIONS:

- OPEN A NEW RUN
- COPY THE COMPLETED RUN TO THE PRODUCTION SYSTEM
- RE-OPEN A RUN FOR MODIFICATION
- RECOVER A RUN FROM BACKUP

3.1 OPEN A NEW RUN

THIS FUNCTION IS USED WHEN A RUN DESIGNER STARTS A NEW RUN. RUN-ADMIN REQUESTS THE RUN NAME, SYSTEM OR DEPARTMENT NAME AND A SHORT DESCRIPTION OF THE RUNS PURPOSE. THE NEXT AVAILABLE RID IN TYPE H IS ASSIGNED TO THE NEW RUN AND THE STANDARD RUN SKELETON IS AUTOMATICALLY COPIED INTO THE ALLOCATED RID. THE NEW RUN IS ALSO ENTERED INTO THE RUN INDEX.

3.2 COPY COMPLETED RUN TO PRODUCTION SYSTEM

THIS FUNCTION IS USED AFTER RUN DESIGN OR MODIFICATION HAS BEEN COMPLETED AND THE RUN HAS BEEN TESTED SUCCESSFULLY. THE TEST RUN WILL BE COPIED INTO THE PRODUCTION RID AND BOTH VERSIONS ARE LOCKED AGAINST FURTHER UPDATES. THIS FUNCTION ALSO REQUESTS AN UPDATE REASON WHICH IS ENTERED INTO THE UPDATE LOG.

3.3 RE-OPEN RUN FOR MODIFICATION

THIS FUNCTION IS USED, WHEN CHANGES HAVE TO BE MADE TO A RUN WHICH IS ALREADY IN USE. BEFORE REMOVING THE UPDATE LOCK, RUN-ADMIN WILL COPY THE TEST VERSION INTO THE BACKUP RID. AN ENTRY IS ALSO MADE INTO THE RE-OPEN LOG.

3.4 RECOVER RUN FROM BACKUP

THIS FUNCTION CAN BE USED, WHEN A RUN HAS BEEN PARTLY OR ENTIRELY DESTROYED DURING MODIFICATION. THE VERSION WHICH WAS SAVED DURING THE LAST RE-OPEN PROCESSING WILL BE COPIED BACK INTO THE TEST RID. IN SOME CASES, HOWEVER, IT MAY BE MORE ADVANTAGEOUS TO USE THE MAPPER RECOVERY FROM HISTORY (RET P) FUNCTION.

..... END REPORT .....

RUN-ADMIN INSTALLATION GUIDE

1. REQUIREMENTS

RUN-ADMIN REQUIRES THREE DIFFERENT TYPES TO STORE THE BACKUP, TEST, AND PRODUCTION VERSION OF ALL RUNS. THESE TYPES SHOULD BE GENERATED WITH 80 CHARACTERS LINE LENGTH.

FURTHERMORE 4 RIDS ARE REQUIRED FOR THE INDICES AND ACTIVITY LOGS. THERE IS NO NEED TO RESERVE AN ENTIRE TYPE FOR THIS PURPOSE. ANY FOUR RIDS IN A GENERAL TABLE OR FREE FORM TYPE OF 132 CHARACTERS CAN BE USED.

2. THE SYSTEM INDEX

RUN-ADMIN HAS THE CAPABILITY TO ADMINSTRATE MULTIPLE APPLICATIONS LOCATED IN VARIOUS MODES. EACH FUNCTION REQUESTS THE SYSTEM NAME WHICH IS USED TO ACCESS THE SYSTEM INDEX AND TO DETERMINE THE MODE, TYPES AND RIDS WHERE THE RUNS, THE RUN INDEX AND THE LOGS ARE LOCATED. MULTIPLE SYSTEMS CAN BE LOCATED IN THE SAME MODE, USING THE SAME INDEX.

3. RUN MODIFICATIONS

THE MAJORITY OF MODE, TYPE AND RID NUMBERS REQUIRED IN THE RUN-ADMIN UTILITY ARE PICKED UP FROM THE SYSTEM INDEX. HOWEVER THE VARIABLES DEFINING THE LOCATION OF THE SYSTEM INDEX MUST BE MODIFIED WHEN TRANSPORTING THE RUN TO A DIFFERENT ENVIRONMENT. THESE ARE:
ALL MODE, TYPE AND RID NUMBERS ARE DEFINED IN THE INITIALIZATION SECTION OF THE RUN AND NEED TO BE MODIFIED WHEN TRANSPORTING THE RUN TO A DIFFERENT ENVIRONMENT. THESE ARE:
SYSTEM INDEX MODE (V90) - PRESENTLY SET TO 46
SYSTEM INDEX TYPE (V91) - PRESENTLY SET TO 562
SYSTEM INDEX RID (V92) - PRESENTLY SET TO 7

4. SYSTEM SET-UP

TO INSURE THE CORRECT FUNCTIONING OF RUN-ADMIN HIGH-RIDS (SUGGESTED HIGH RID = 1001) MUST BE ESTABLISHED IN THE THREE RUN TYPES. MOST USER DEPARTMENTS HAVE ALREADY DEVELOPED THEIR OWN UTILITIES FOR THIS PURPOSE. IF YOU NEED ANY HELP, CONTACT I.S.&C. ID.

RUN-ADMIN WORKS ON THE BASIS OF A STANDARDIZED LAYOUT OF THE RID HEADLINES FOR ALL RUN RIDS, AS SHOWN IN THE RUN SKELETON. RUN-ADMIN WILL AUTOMATICALLY UPDATE THE SYSTEM NAME, RUN NAME, RUN-DESCRIPTION, UPDATE DATE, AND USER-ID. IT IS THEREFORE RECOMENDED NOT TO CHANGE LINES 3 AND 4 OF THE RUN SKELETON.

5. FURTHER HINTS

THE IMPLEMENTATION PACKAGE INCLUDES A RUN INDEX WITH SPACE FOR 1000 RIDS WHERE BOTH THE RUN NAME AND THE SYSTEM NAME ARE SET TO 'OPEN'. THE FUNCTON 'OPEN NEW RUN' WILL SEARCH THIS INDEX FOR THE FIRST LINE WITH 'OPEN' IN BOTH FIELDS AND ASSIGN

THE RID NUMBER IN THIS LINE TO THE NEW RUN AND COPY THE RUN SKELETON INTO THIS RID.
THEREFORE, RIDS GENERATED BY THE AR OR XR FUNCTION WILL BE OVERWRITTEN UNLESS THEY ARE ENTERED INTO THE RUN INDEX.
ANY RUNS WHICH EXIST ALREADY AT SYSTEM INITIALIZATION TIME AND ARE TO BE CONTROLLED VIA RUN-ADMIN SHOULD BE ENTERED INTO THE INDEX AT THIS TIME. FURTHER MANUAL CHANGES OF THE RUN INDEX ARE NOT POSSIBLE, AS RUN-ADMIN PROTECTS IT WITH A PASSWORD.
THE RIDS USED FOR THE RE-OPEN AND UPDATE LOGS ARE UPDATED EVERY TIME THE RESPECTIVE FUNCTIONS ARE EXECUTED. UPDATING USES THE NEXT AVAILABLE LINE (NAL) TECHNIQUE; THE NAL-POINTER IS LOCATED IN LINE 3 STARTING IN COLUMN 3.
THE UPDATE LOG CONTAINS A COMPLETE HISTORY OF ALL CHANGES TO THE RUNS CONTROLLED BY THIS SYSTEM. IT CAN BE INSPECTED TO GET ALL CHANGES BY SYSTEM, RUN, OR USER.

..... END REPORT .....