UNISYS

1100/2200 MAPPER® 35R1 New Features and Migration

Student Guide

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MAPPER 35R1 Differences and Migration

Module

AL2816 **MAPPER 35R1 Differences & Migration**

Audience

Experienced MAPPER users who are considering or planning the migration to 1100/2200 MAPPER Level 35.

Objectives

Upon successful completion of this course, the student should be able to:

- o List the steps required for an orderly migration to level 35 MAPPER.
- o List and describe the new level 35 start parameters
- o Implement and use the new look screens feature of MAPPER 35R1
- o Modify existing MAPPER runs to incorporate the new look screen and context Help features.
- o Use new functions and utilities, including COUNT and Report Writer.
- o Describe new networking features, such as the @NET run function and the enhanced Relational Database Interface
- o List and identify MAPPER 35R1 performance enhancements.

Description

Through lecture, demonstrations and hands-on activities, you will see and use the new features & capabilities available in MAPPER Level 35. We will follow the steps required to implement Level 35 MAPPER, from the installation of the software through converting application runs. The new features in all areas of the MAPPER level 35 system (Manual,Run design, Coordination and Installation) are included, except APT functions which are covered in AL2814.

Topics

Start Parameters
Installation procedures
MAPPER New Look screens
256 character line conversion considerations
Performance enhancements
New Screen Control commands
New Help run
New utility runs
New manual and run functions
The New recovery
Report Writer
New Relational Database interface

Duration

3 full days

Prerequisites

MAPPER run design and/or coordination and operations experience.

MODULE 1

Introduction
To MAPPER
Level 35

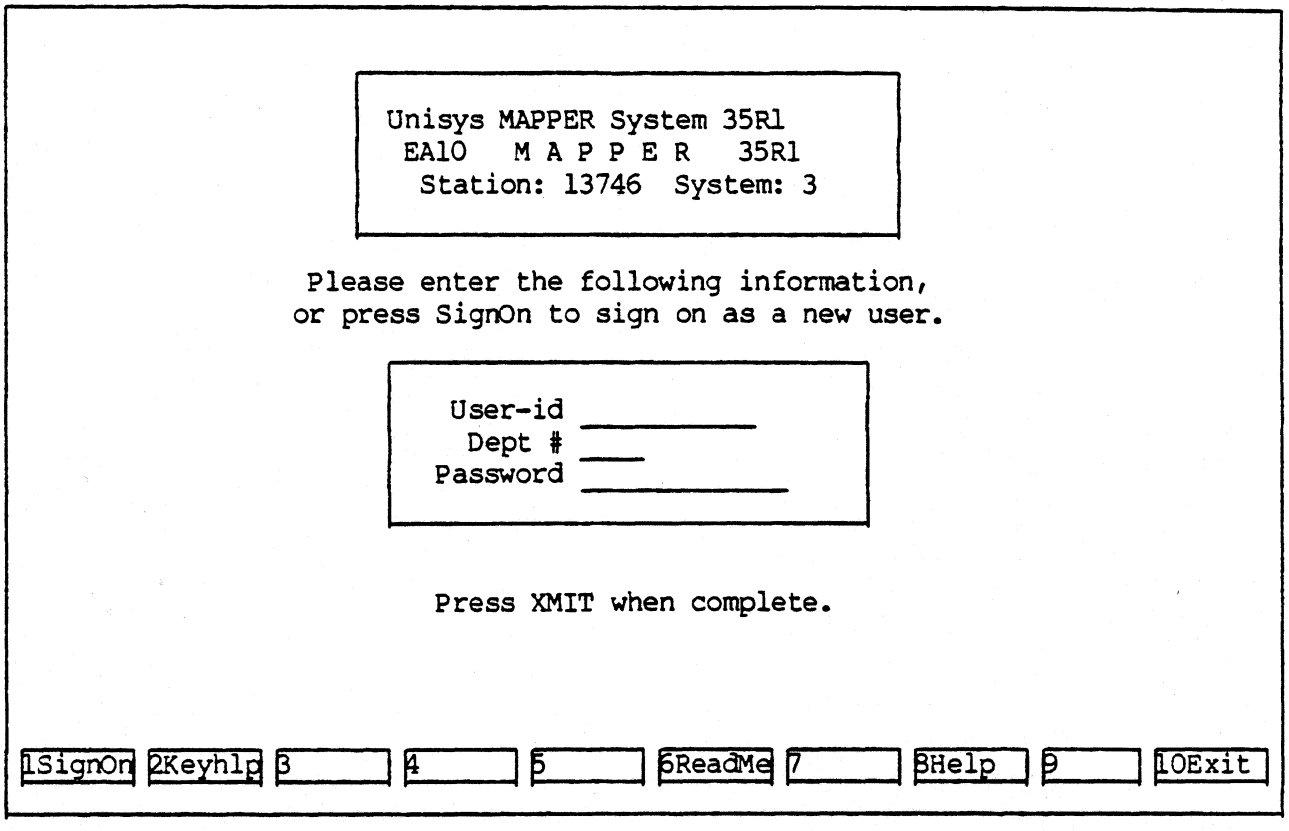
Module 1 Level 35 Introduction

Module Objectives

Upon completion of this module, you will be able to:

- Sign on to MAPPER Level 35
- Use the Level 35 new look menus
- Use the Level 35 HELP run

New Signon screen



- Function Key Bar

Most screens that MAPPER paints will have a Function Key bar on line 24. The function key choices depend upon the screen contents and the function that displayed the screen. In runs, the @SC function can also paint a function bar.

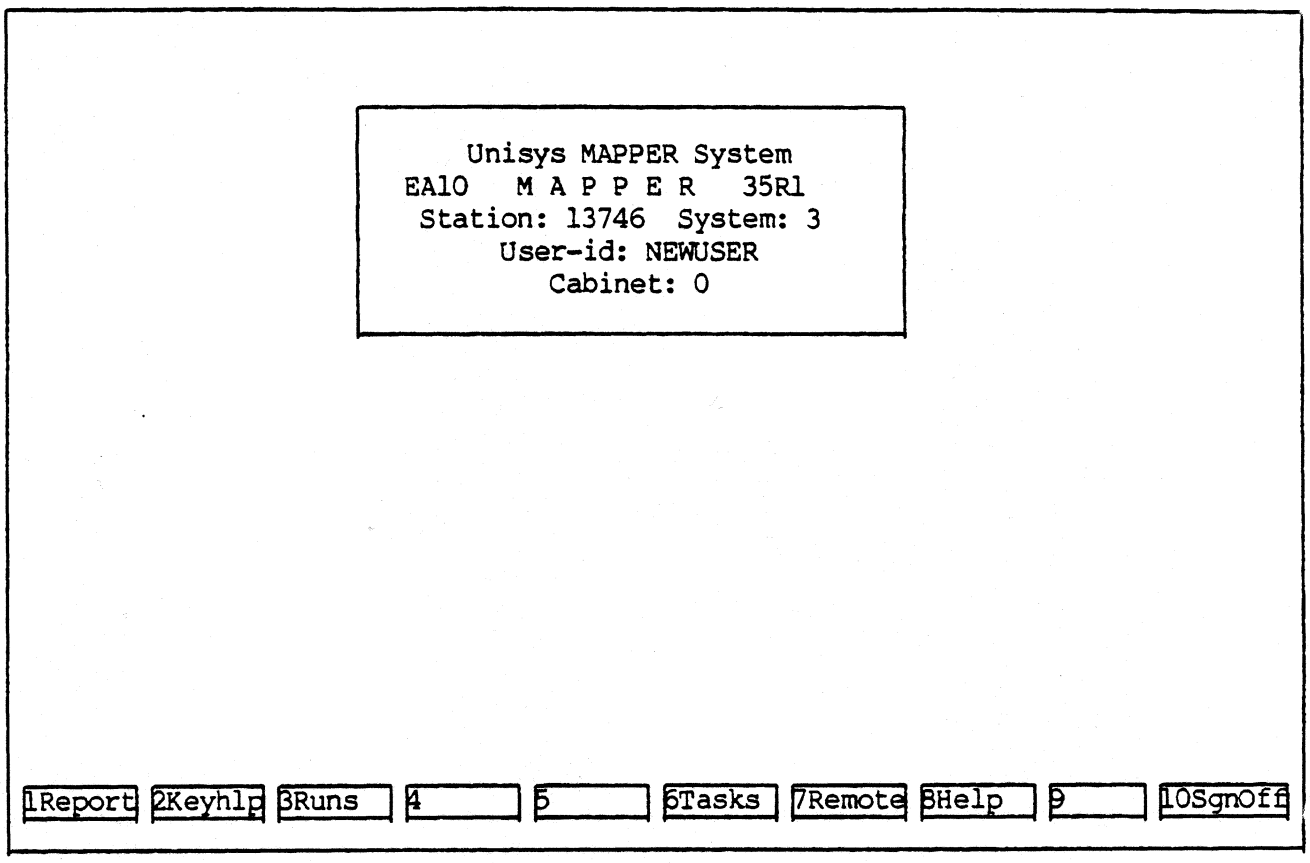
Signon screen Function Key Bar

Function 1 will sign you on as "NEWUSER", with access to cabinet 0.
Function 2 displays a keyboard map.
Function 6 replaces HELP,NEW
You can now call the HELP run (F8) before signing on to MAPPER.
Function 10 disconnects the terminal device from MAPPER

- LOOKSWITCH

The LOOKSWITCH function allows you to toggle between the old MAPPER screen format and the new look.

Logo screen



11/6202 Drawer access

- Function key bar

F1[Report] will list all drawers available to the user-id.

F3[Runs] lists all runs available to the user-id.

F6[Tasks] lists report processing functions

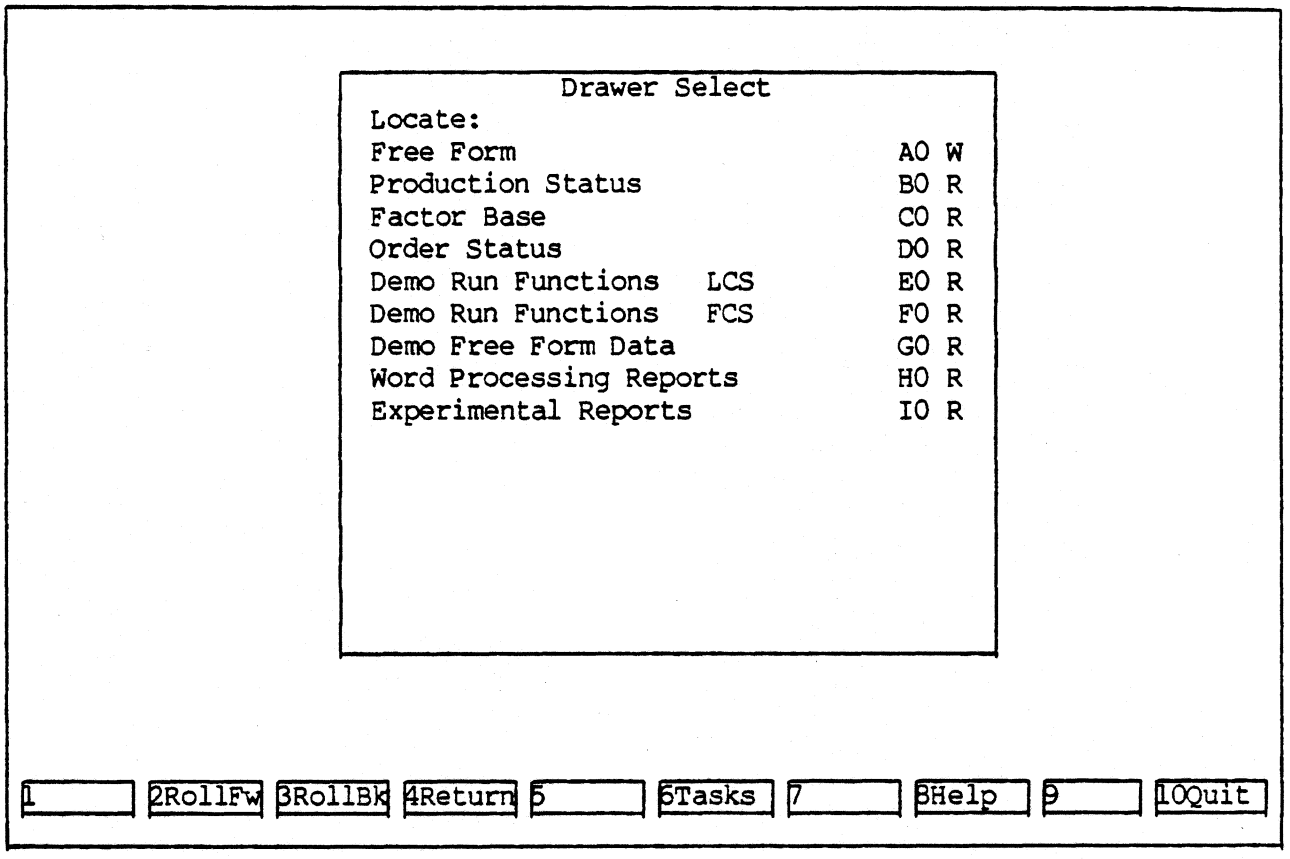
F7[Remote] lists available remote MAPPER systems

F8[Help] calls the on-line HELP run

F10[Sgnoff] signs the user-id off MAPPER

Drawer Selection

F1[Reports] lists all registered drawers available to your user-id. To switch to a drawer, you can tab to the drawer name and transmit.



F2 and F3 allow you to scroll through the list of drawers that you have permission to access.

F4 returns you to the previous screen. MAPPER can nest up to 10 screens for returns.

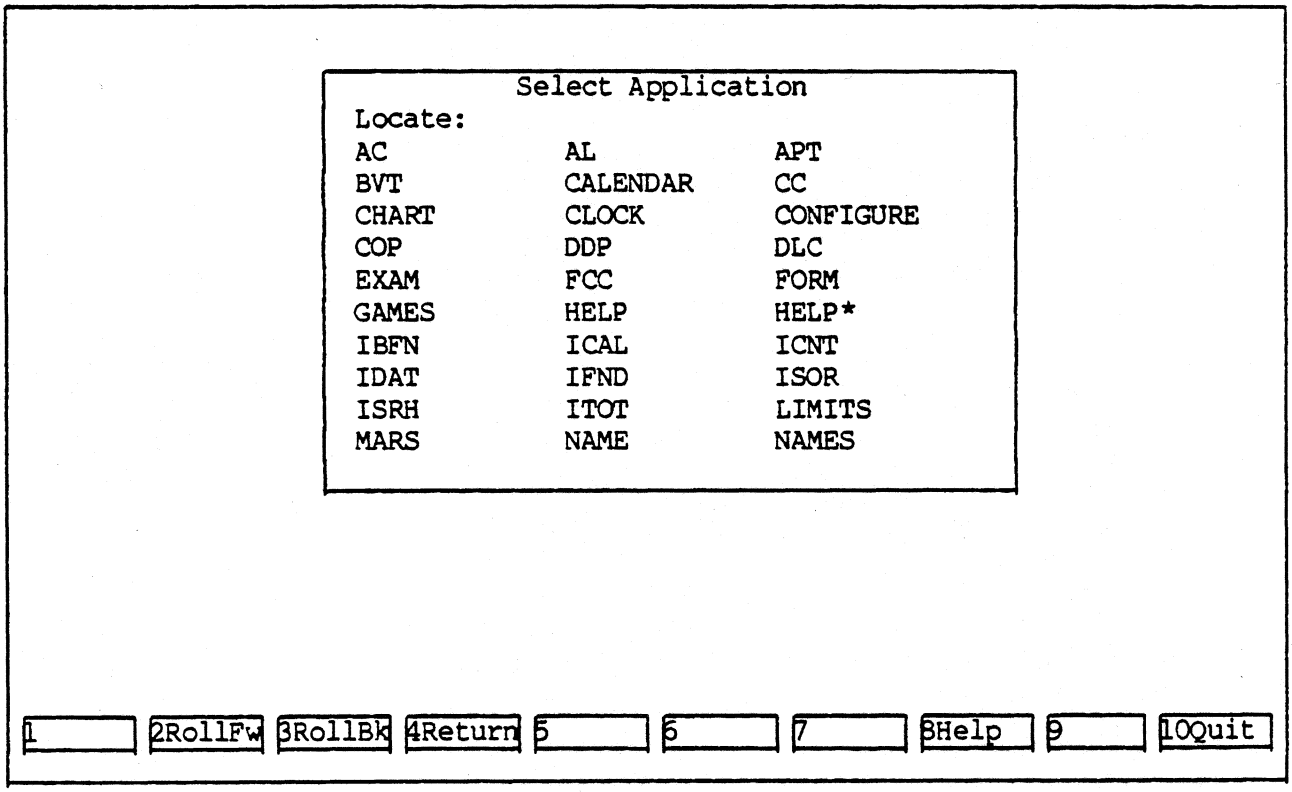
F10[Quit] returns you to the logo screen (release function).

3Runs

Available Runs

This function lists runs that your user-id can execute.

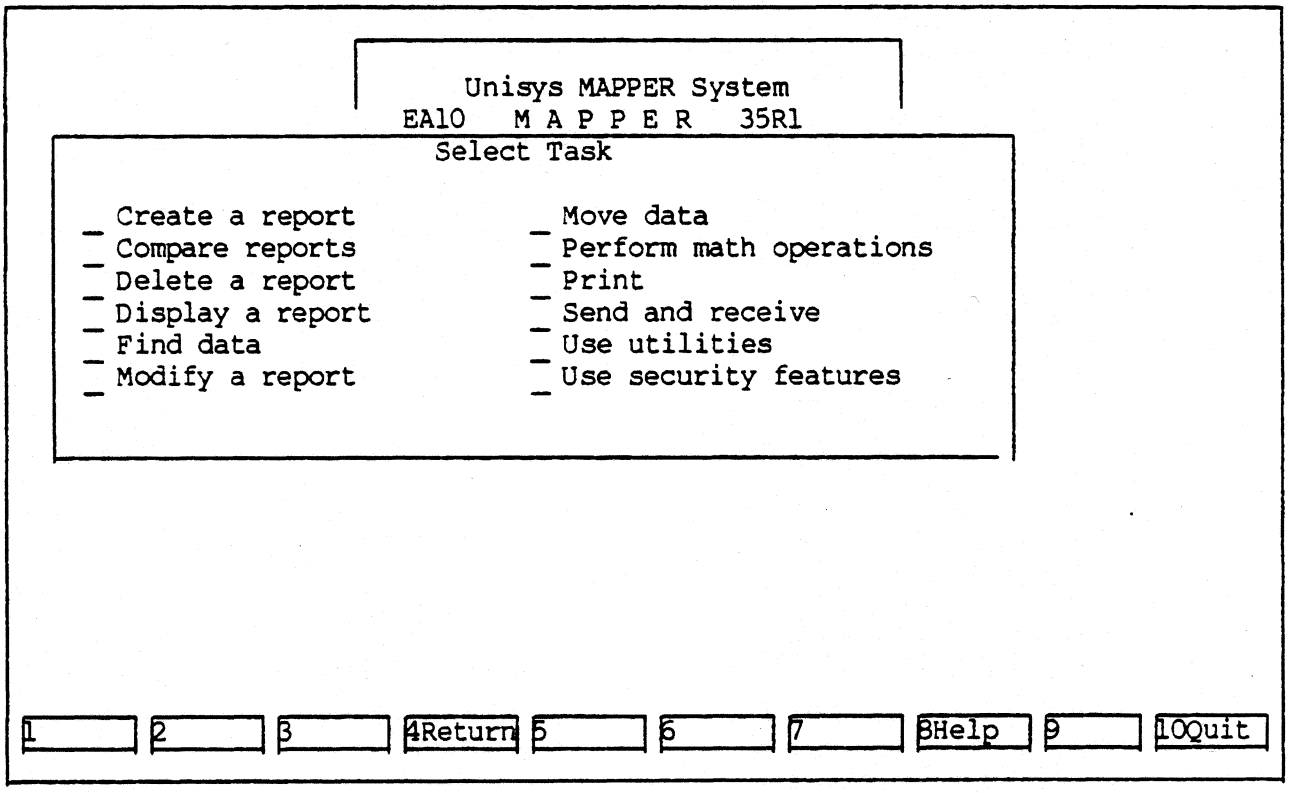
To execute a run, position the cursor at the run name and transmit



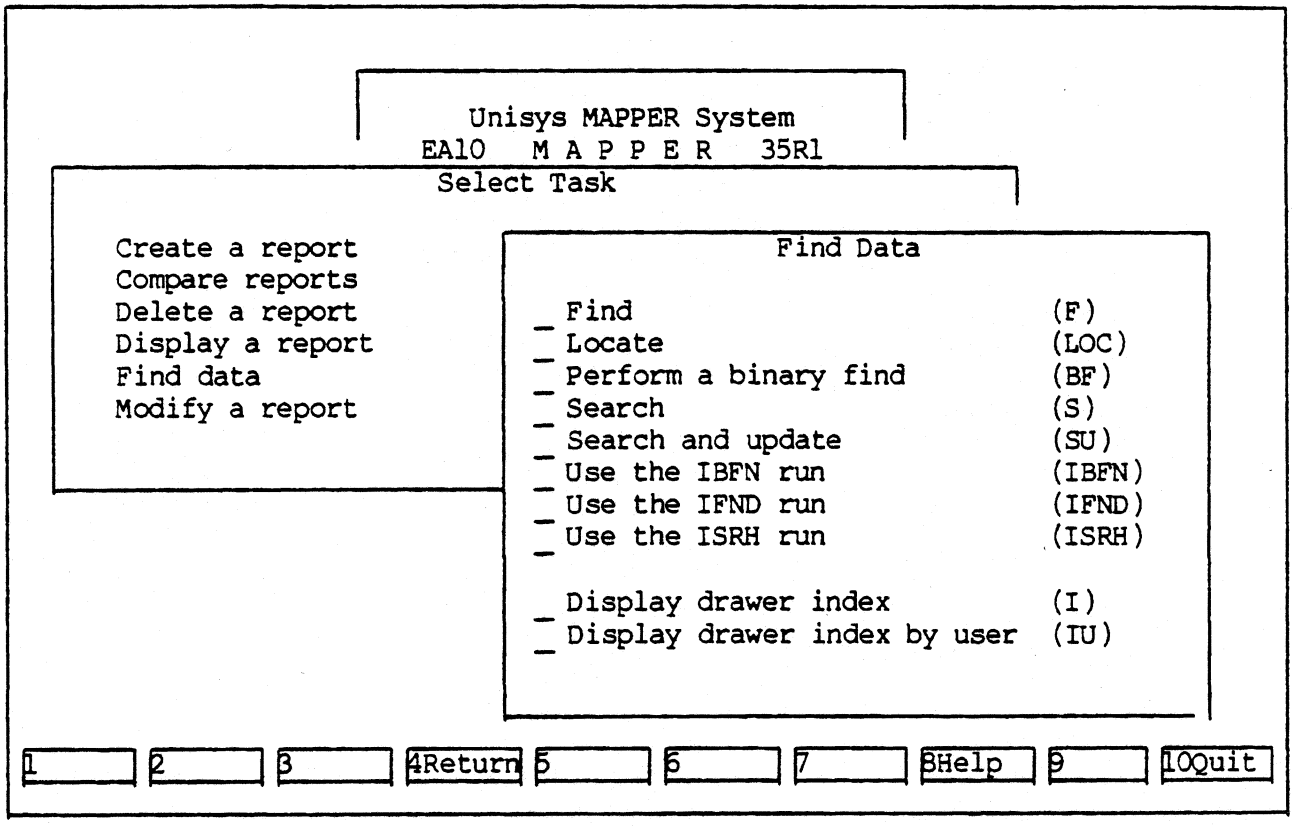
F6Tasks

Tasks Selection

To select a task, position the cursor to the task name and transmit. If there is more than one MAPPER function within the task description, a second menu will be displayed.



This is the menu displayed when "Find data" is selected from the Tasks menu. Note that the direct command is displayed within the menu.



NEW LOOK REPORT DISPLAY

Line 0 has been simplified. Only the Line and Roll functions remain. The other display functions (Shift, Hold characters, Hold lines) are now functions that can be selected via the VIEW function key (F7) or from line 0 with the function call (eg. S12 to shift 12 characters).

You can add or delete lines from the headers.

You no longer have to precede any updates with the SOE character.

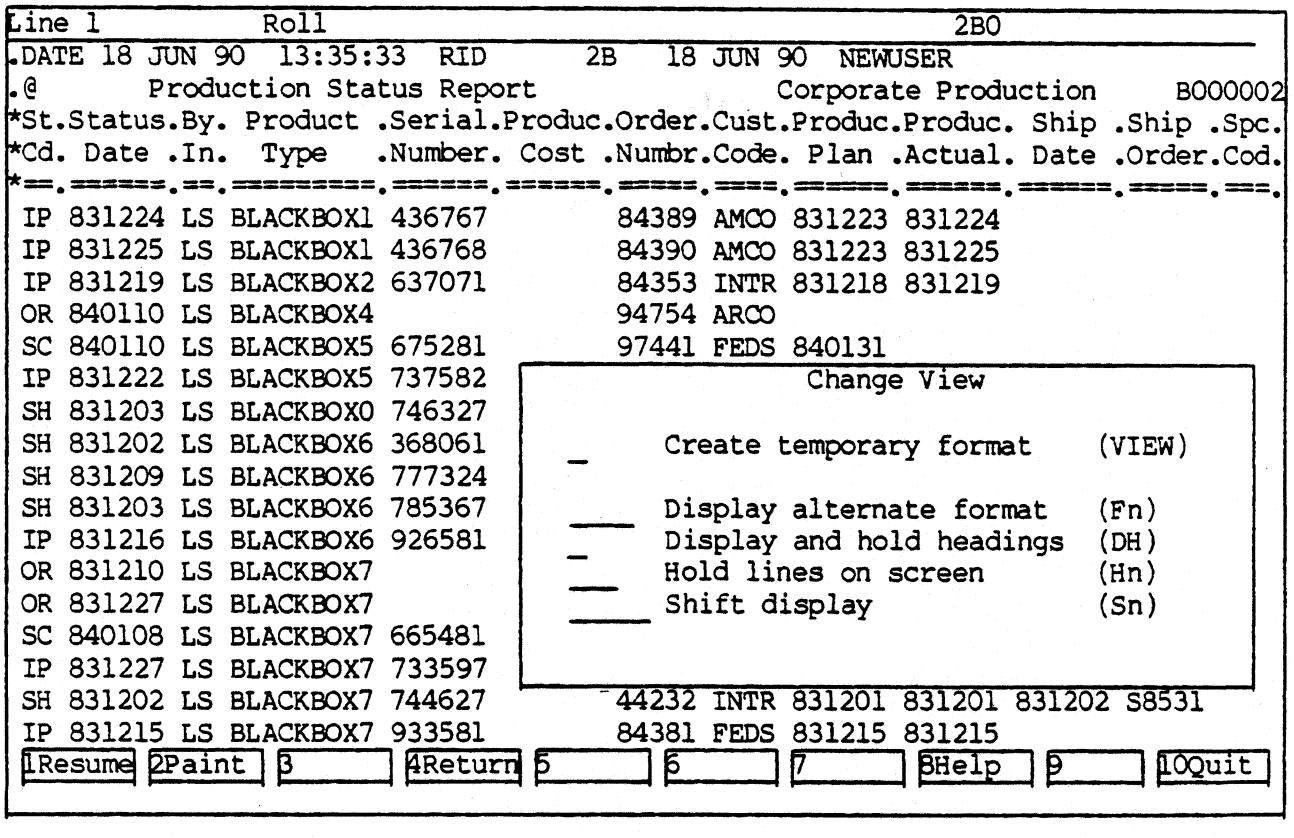
After performing any function, you have the option to cancel the result with the UNDO function (F9).

```
Line>1          Roll>                                          2B0
.DATE 18 JUN 90  13:35:33  RID      2B   18 JUN 90  NEWUSER
.@       Production Status Report              Corporate Production     B000002
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.========.======.======.=====.====.======.======.======.=====.===.
 IP 831224 LS BLACKBOX1 436767         84389 AMCO 831223 831224
 IP 831225 LS BLACKBOX1 436768         84390 AMCO 831223 831225
 IP 831219 LS BLACKBOX2 637071         84353 INTR 831218 831219
 OR 840110 LS BLACKBOX4                94754 ARCO
 SC 840110 LS BLACKBOX5 675281         97441 FEDS 840131
 IP 831222 LS BLACKBOX5 737582         84040 AMCO 831222 831222
 SH 831203 LS BLACKBOX0 746327         54237 FEDS 831201 831202 831203 S8738
 SH 831202 LS BLACKBOX6 368061         54438 FEDS 831201 831201 831202 S6937
 SH 831209 LS BLACKBOX6 777324         54232 DICO 831207 831208 831209 S8538
 SH 831203 LS BLACKBOX6 785367         52833 ARCO 831201 831202 831203 S8934
 IP 831216 LS BLACKBOX6 926581         89381 INTR 831215 831216
 OR 831210 LS BLACKBOX7                99842 FEDS
 OR 831227 LS BLACKBOX7                99725 INTR
 SC 840108 LS BLACKBOX7 665481         97541 FEDS 840122
 IP 831227 LS BLACKBOX7 733597         84351 AMCO 831227 831227
 SH 831202 LS BLACKBOX7 744627         44232 INTR 831201 831201 831202 S8531
 IP 831215 LS BLACKBOX7 933581         84381 FEDS 831215 831215
[1Resume][2Paint][3      ][4Return][5      ][6Tasks][7View ][8Help ][9      ][10Edit]
```

F7View

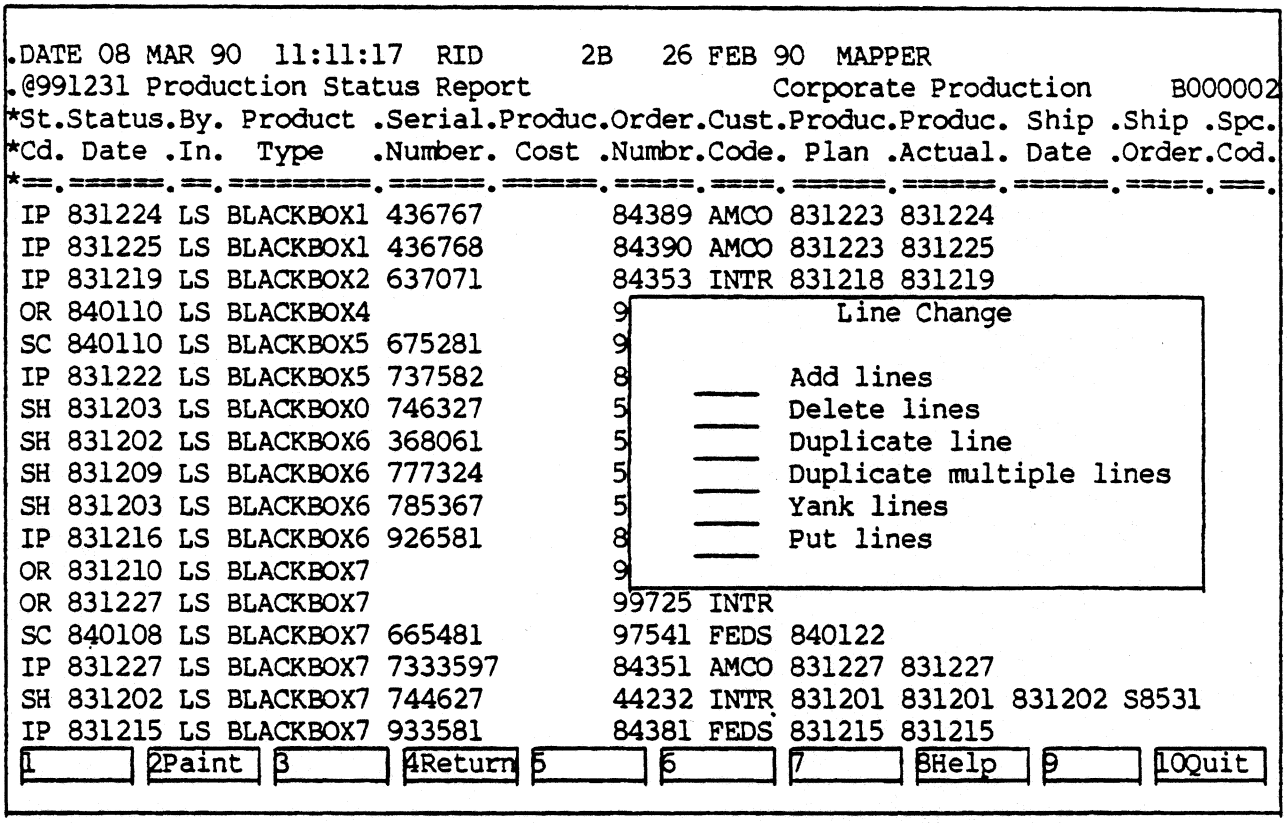
To use the View menu:

1. Position the cursor to the appropriate line within the report.
2. Depress the F7 key
3. Tab to the desired command on the menu
4. Enter a numeric value and transmit.



10Edit

The Edit menu is used to add, delete or move lines in a report.



Yank and Put

The Yank, Append and Put functions replace the Move and Insert line commands. With these commands, you can collect lines from multiple reports and insert them into 1 or more reports. You can create any number of buffers, as long as you do not exceed the maximum result report size (256,000 lines).

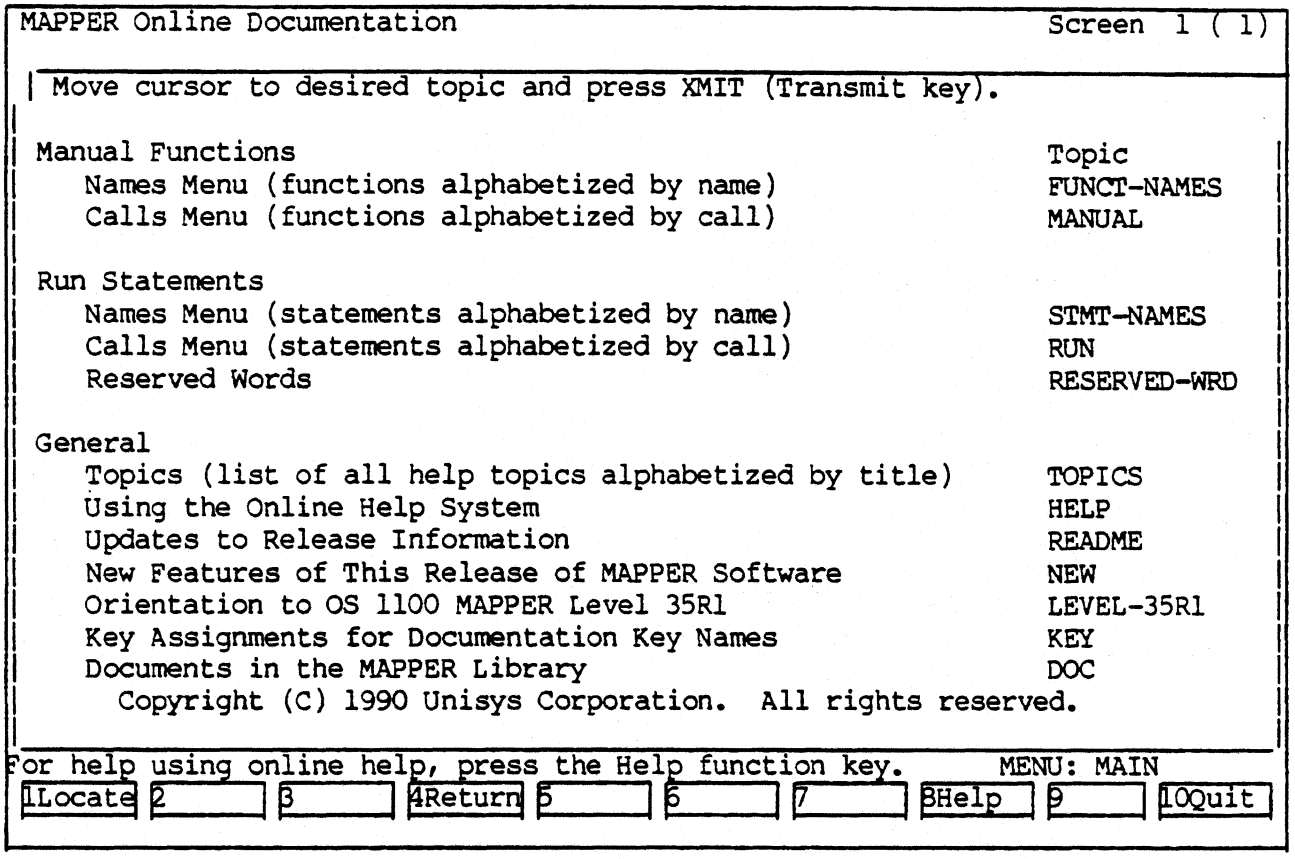
o Yank - This command creates a buffer and moves 1 or more lines into the buffer. The direct command is]qYb (q=quantity,b=buffer)

o Append - The Append command adds 1 or more lines to an existing Yank buffer. The direct command is]qAb

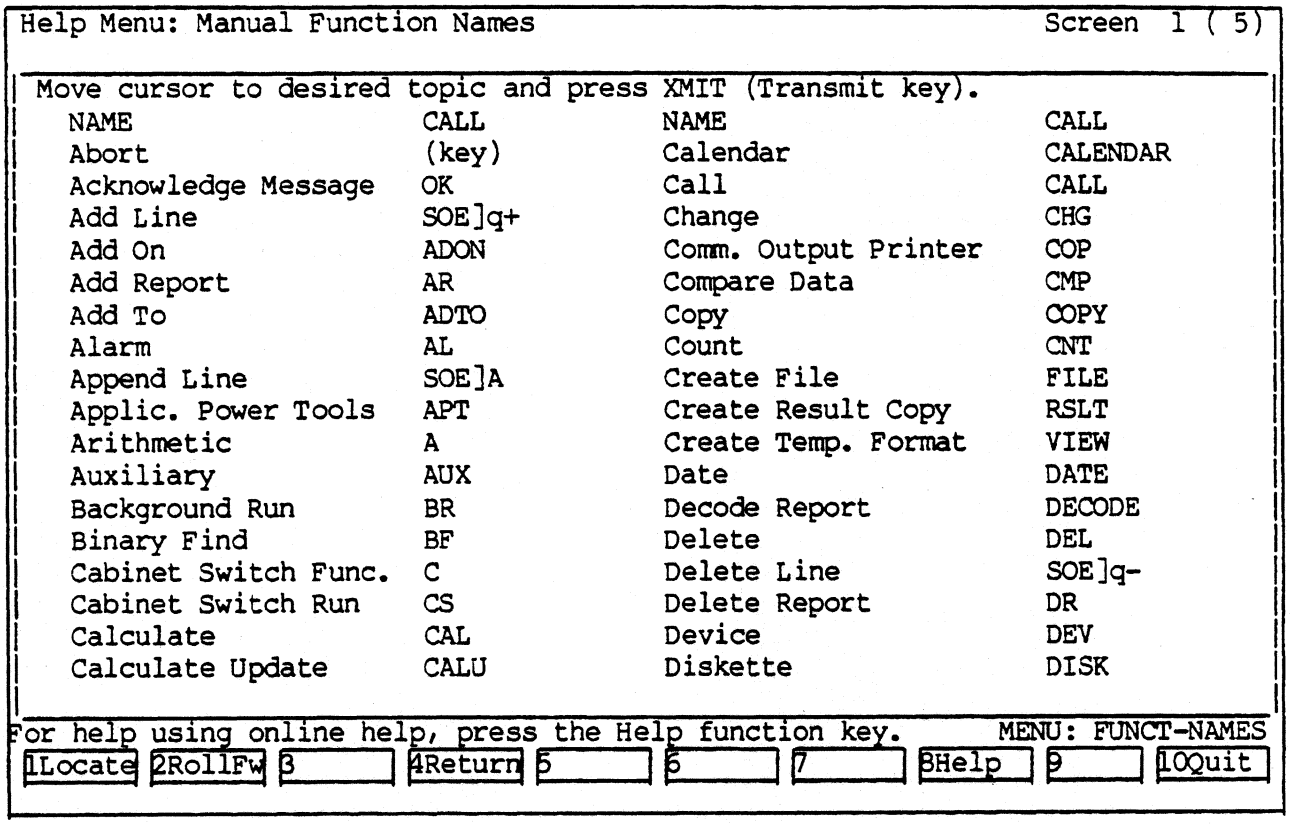
o Put - Put inserts the contents of a yank buffer into a report, starting at the line below the cursor position. The direct command is]Pb

On-Line Help Menu

F8Help



Manual command Help Menu



Help Menu: Manual Function Names — Screen 1 (5)

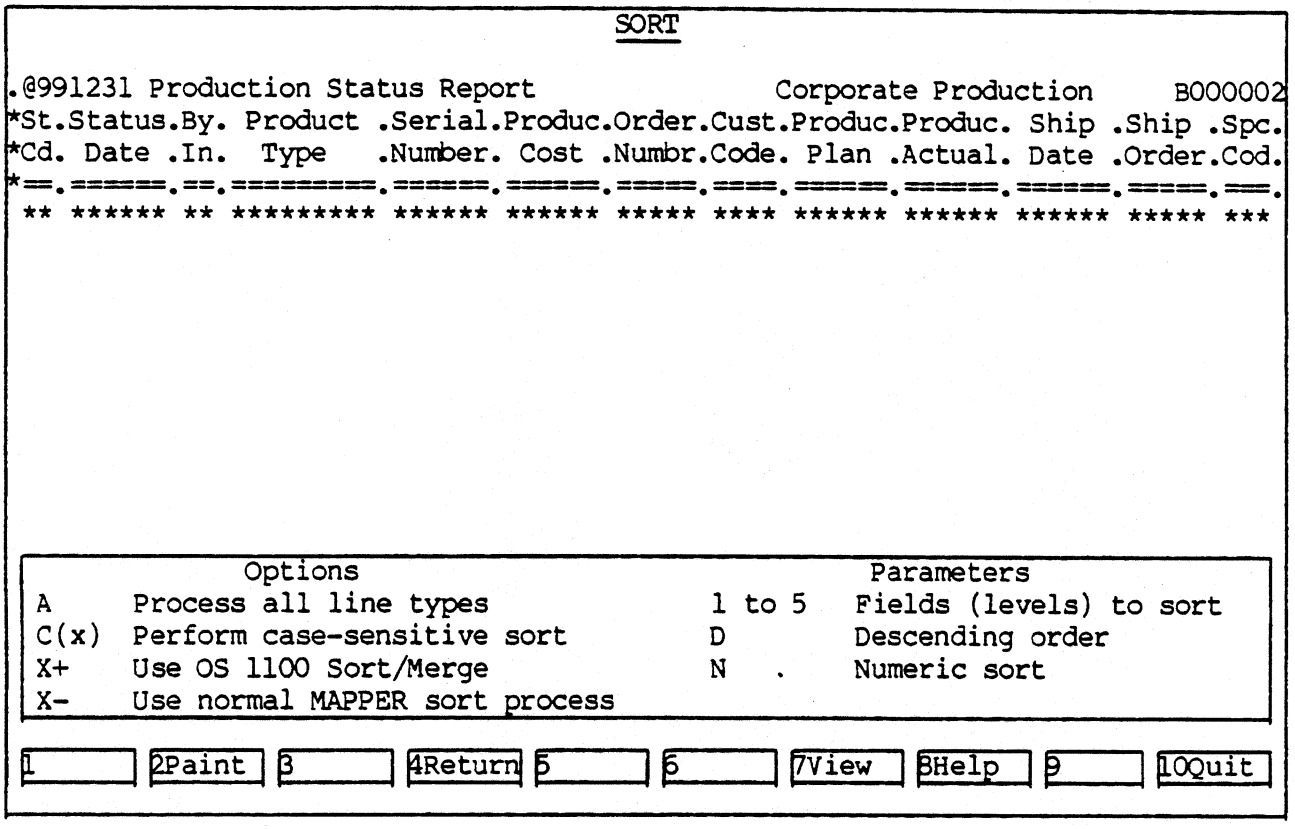
Move cursor to desired topic and press XMIT (Transmit key).

NAME	CALL	NAME	CALL
Abort	(key)	Calendar	CALENDAR
Acknowledge Message	OK	Call	CALL
Add Line	SOE]q+	Change	CHG
Add On	ADON	Comm. Output Printer	COP
Add Report	AR	Compare Data	CMP
Add To	ADTO	Copy	COPY
Alarm	AL	Count	CNT
Append Line	SOE]A	Create File	FILE
Applic. Power Tools	APT	Create Result Copy	RSLT
Arithmetic	A	Create Temp. Format	VIEW
Auxiliary	AUX	Date	DATE
Background Run	BR	Decode Report	DECODE
Binary Find	BF	Delete	DEL
Cabinet Switch Func.	C	Delete Line	SOE]q-
Cabinet Switch Run	CS	Delete Report	DR
Calculate	CAL	Device	DEV
Calculate Update	CALU	Diskette	DISK

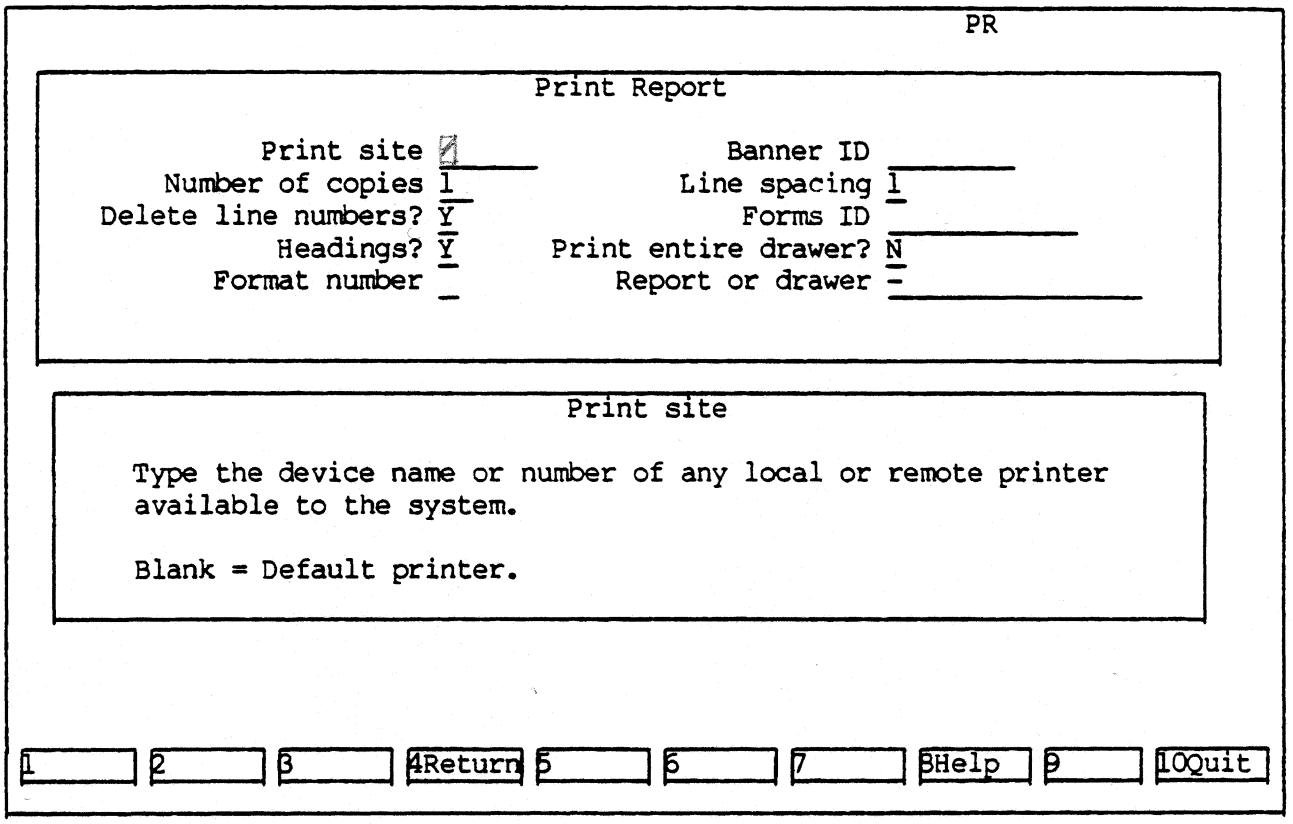
For help using online help, press the Help function key. MENU: FUNCT-NAMES

1Locate | 2RollFw | 3 | 4Return | 5 | 6 | 7 | 8Help | 9 | 10Quit

F8Help with a function Mask on Display



F8Help when cursor is positioned at an input field



MODULE 2

Manual Functions

Module 2 Manual functions

Upon completion of this module, you will be able to:

- Use the new manual functions available in level 35 MAPPER
- Use new function options
- Use automatic SORT/MERGE access
- Create a print report using Report Writer

SORT

The SORT function now has the capability of calling the external SORT-MERGE process. A new start parameter EXTSRT determines the threshold value that causes MAPPER to call SORT-MERGE instead of using it's internal sort.
The external sort can be forced by using the "X" option on a SORT.

SORTR

A new function, Sort Replace (SORTR) automatically does a replace after sorting a report. A result report is not created.

REPR

CMP

A new function, Compare (CMP) performs a line by line match between two reports. When used manually, if there is a discrepency,the receiving report is displayed at the first no-match line. In a run (@CMP), the line number is returned in a resulting variable.

TOT

The TOTALIZE function can now do hierarchal subtotaling. Use the parameters S1 thru S5 to identify key sequence. Concatenated keys are also allowed.

DR

The Delete Report function now allows you to use fast access. With the report to be deleted on display, you can enter DR rb.

```
Line 1          Roll DR 10B                                    10BO
.DATE 18 JUL 90  08:07:53  RID     10B   18 JUL 90  MAPCOORD
.abc box factory                                Corporate Production     B000002
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.========.======.======.=====.====.======.======.======.=====.===.
 IP 831224 LS BLACKBOX1 436767         84389 AMCO 831223 831224
 IP 831225 LS BLACKBOX1 436768         84390 AMCO 831223 831225
 IP 831219 LS BLACKBOX2 637071         84353 INTR 831218 831219
 OR 840110 LS BLACKBOX4                94754 ARCO
 SC 840110 LS BLACKBOX5 675281         97441 FEDS 840131
                     ..... END REPORT .....
```

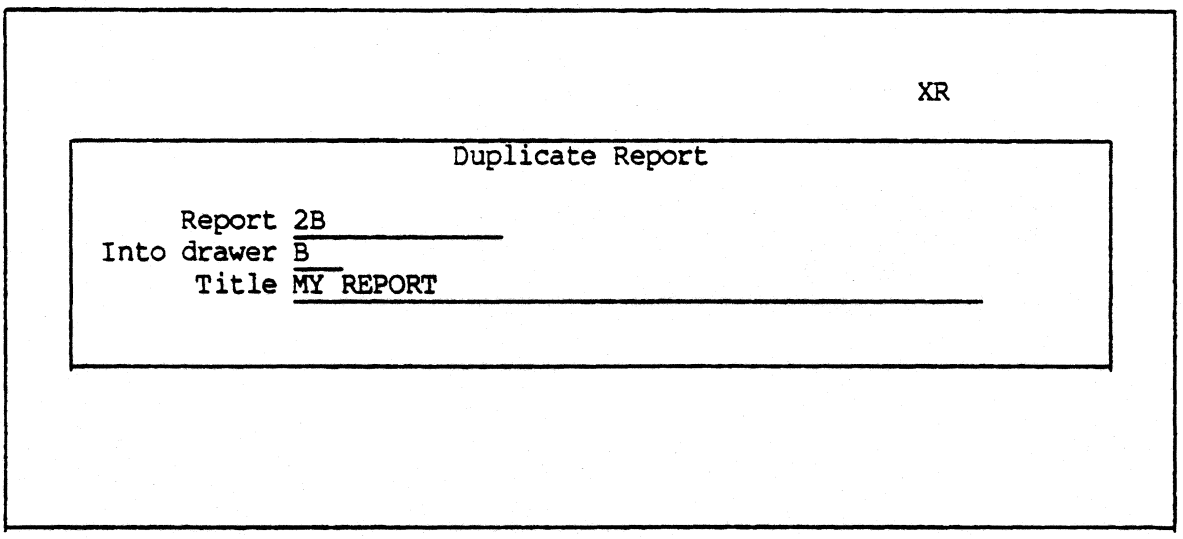
Report Titles

When manually creating a new report, with AR or XR, MAPPER now requires a report title. The title is placed on line 2.

Direct access - To duplicate report 2B in drawer B and call the new report "MY REPORT".

```
XR 2B,B,MY REPORT
```

Function request screen -

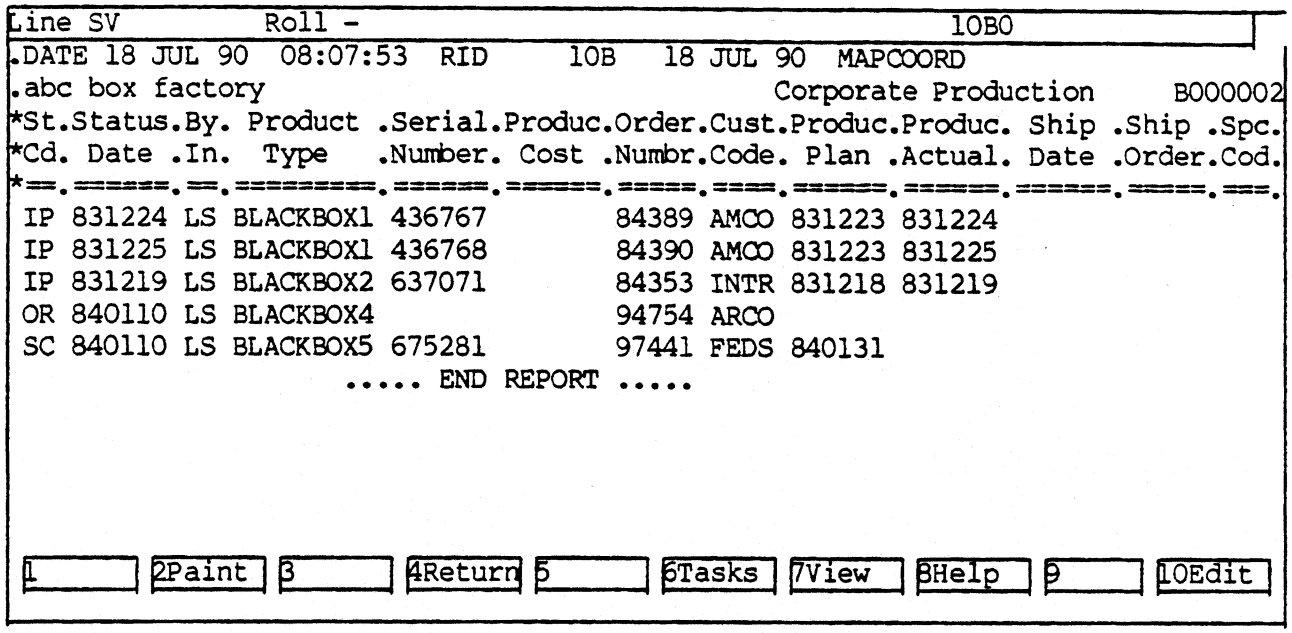


Save Report Version (SV)

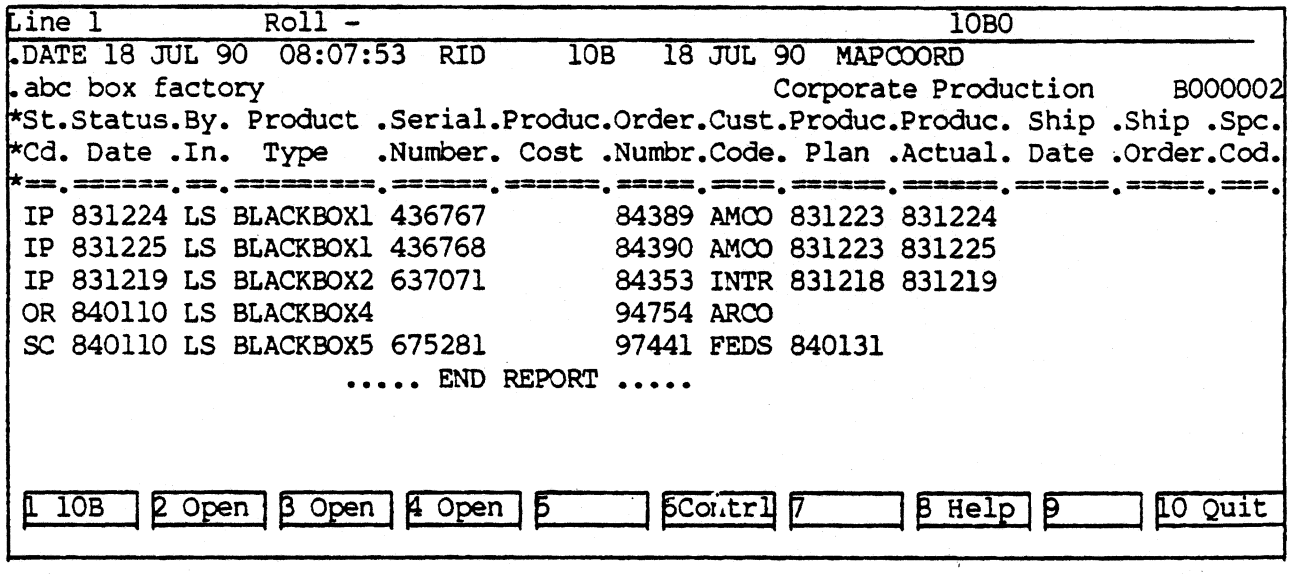
With the SV function, you can manually save up to 4 reports. When you have reports saved, they are retrieved using the F1-F4 keys. Reports are saved until you call a report processing function or execute a run.

With this function, you can copy reports to another cabinet by saving the report, using the C function to switch cabinets (not CS, it's a run!), and then depressing the F1 key to display the saved report. XR or REP would be used to assign a report ID.

- With report on display, enter SV on the control line



- The report is redisplayed. Note the function key bar. The saved report is now assigned to F1.



Count function (CNT)

CNT function is a powerful new function with the following features:

- Compute subtotals
- Compute averages
- Compute percentages
- Process accross multiple reports
- no pre-sorting necessary
- Display only specified fields in the result
- Use field rounding parameters

Compute percentages with Count

```
Line cnt          Roll -                                      10B0
.DATE 18 JUL 90  08:07:53  RID     10B   18 JUL 90  MAPCOORD
.ABC box factory                             Corporate Production     B000002
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
 IP 831224 LS BLACKBOX1 436767        84389 AMCO 831223 831224
 IP 831225 LS BLACKBOX1 436768        84390 AMCO 831223 831225
 IP 831219 LS BLACKBOX2 637071        84353 INTR 831218 831219
 OR 840110 LS BLACKBOX4               94754 ARCO
 SC 840110 LS BLACKBOX5 675281        97441 FEDS 840131
                   ..... END REPORT .....

 1Resume 2Paint  3       4Return 5       6Tasks  7View   8Help   9       10Edit
```

```
                                     COUNT

                                              Corporate Production

*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
 ** ****** ** ********* ****** ****** ***** **** ****** ****** ****** ***** ***
                                           1    %

                Options                           Operators/Parameters
 A                    All line types       1-9  Keys           A-Z  Labels
 P                    Pack result fields   =    Entry Count    %    Percentage
 Rx-y,z               Range of reports     +    Subtotal       +%   Subtotal %
 Sn(intv[/min/max]) Scaling (numeric)      x+   Cumulative x (=+,%+,++,+%+)
 T                    Grand totals         /    Average        <,>  Min,Max
 Others: B,C,D,E,F,H,I,N,O,U,V,W,Z,*       !-   Std. Dev.      !!-  Variance
 1Resume 2Paint  3       4Return 5       6       7View   8Help   9       10Quit
```

```
Line 1            Roll -                                      ^RESULT^
.DATE 18 JUL 90  08:07:53  RID     10B   18 JUL 90  MAPCOORD
.ABC box factory                              Corporate Production
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
                                            AMCO  40.00
                                            ARCO  20.00
                                            FEDS  20.00
                                            INTR  20.00
                   ..... END REPORT .....

 1Resume 2Paint  3       4Return 5       6Tasks  7View   8Help   9Undo   10Edit
```

Entry counting with CNT

```
Line cnt          Roll -                                          10BO
.DATE 18 JUL 90   08:07:53   RID     10B    18 JUL 90  MAPCOORD
.abc box factory                                    Corporate Production    B000002
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
 IP 831224 LS BLACKBOX1 436767        84389 AMCO 831223 831224
 IP 831225 LS BLACKBOX1 436768        84390 AMCO 831223 831225
 IP 831219 LS BLACKBOX2 637071        84353 INTR 831218 831219
 OR 840110 LS BLACKBOX4               94754 ARCO
 SC 840110 LS BLACKBOX5 675281        97441 FEDS 840131
                     ..... END REPORT .....

 1Resume 2Paint 3 4Return 5 6Tasks 7View 8Help 9 10Edit
```

```
                                     COUNT

.abc box factory                                    Corporate Production    B000002
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
 ** ****** ** ********* ****** ****** ***** **** ****** ****** ****** ***** ***
                                             1    =

               Options                           Operators/Parameters
 A                   All line types          1-9  Keys            A-Z  Labels
 P                   Pack result fields      =    Entry Count     %    Percentage
 Rx-y,z              Range of reports        +    Subtotal        +%   Subtotal %
 Sn(intv[/min/max])  Scaling (numeric)       x+   Cumulative x (=+,%+,++,+%+)
 T                   Grand totals            /    Average         <,>  Min,Max
 Others: B,C,D,E,F,H,I,N,O,U,V,W,Z,*         !-   Std. Dev.       !!-  Variance
 1Resume 2Paint 3 4Return 5 6 7View 8Help 9 10Quit
```

```
Line 1            Roll -                                        .RESULT.
.DATE 18 JUL 90    08:07:53   RID     10B    18 JUL 90  MAPCOORD
.ABC box factory                                     Corporate Production
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
                                             AMCO      2
                                             ARCO      1
                                             FEDS      1
                                             INTR      1
                     ..... END REPORT .....

 1Resume 2Paint 3 4Return 5 6Tasks 7View 8Help 9Undo 10Edit
```

Send to User function (SNU)

The SNU function allows you to send a report to a user instead of station.

```
Line SNU        Roll -                                          10B0
.DATE 18 JUL 90  08:07:53  RID     10B   18 JUL 90  MAPCOORD
.abc box factory                                Corporate Production     B000002
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type   .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.=========.======.======.=====.====.======.======.======.=====.===.
 IP 831224 LS BLACKBOX1 436767        84389 AMCO 831223 831224
 IP 831225 LS BLACKBOX1 436768        84390 AMCO 831223 831225
 IP 831219 LS BLACKBOX2 637071        84353 INTR 831218 831219
 OR 840110 LS BLACKBOX4               94754 ARCO
 SC 840110 LS BLACKBOX5 675281        97441 FEDS 840131
                    ..... END REPORT .....

 1Resume | 2Paint | 3 | 4Return | 5 | 6Tasks | 7View | 8Help | 9 | 10Edit
```

SNU Request screen

```
                                                              SNU

                          Send User

                    Send to user-id JIMD
                  Department number 10
               Request acknowledgment? N
```

BF — F - Specifies order of sorted fields

MA — E - Do not move blanks from issuing report

Q - Similar to P, but does not even check for sorted status

SS — C - Clears the screen

TOT — C - Case sensitive on subtotal operation

N - Used with S, Displays 3 blank lines between subtotals and eliminates grand totals

RF — Fast access now permitted

CAL — New commands:

SKIP - Processing on current line terminate

EXIT - Ends calculations. Result contains all lines up to but not including the data line where the EXIT condition occurred.

The RPW run is a part of the Application Power Tools (APT) available in MAPPER Level 35. This run allows a user to interactively create a finished, professional looking report without any knowledge of run design.

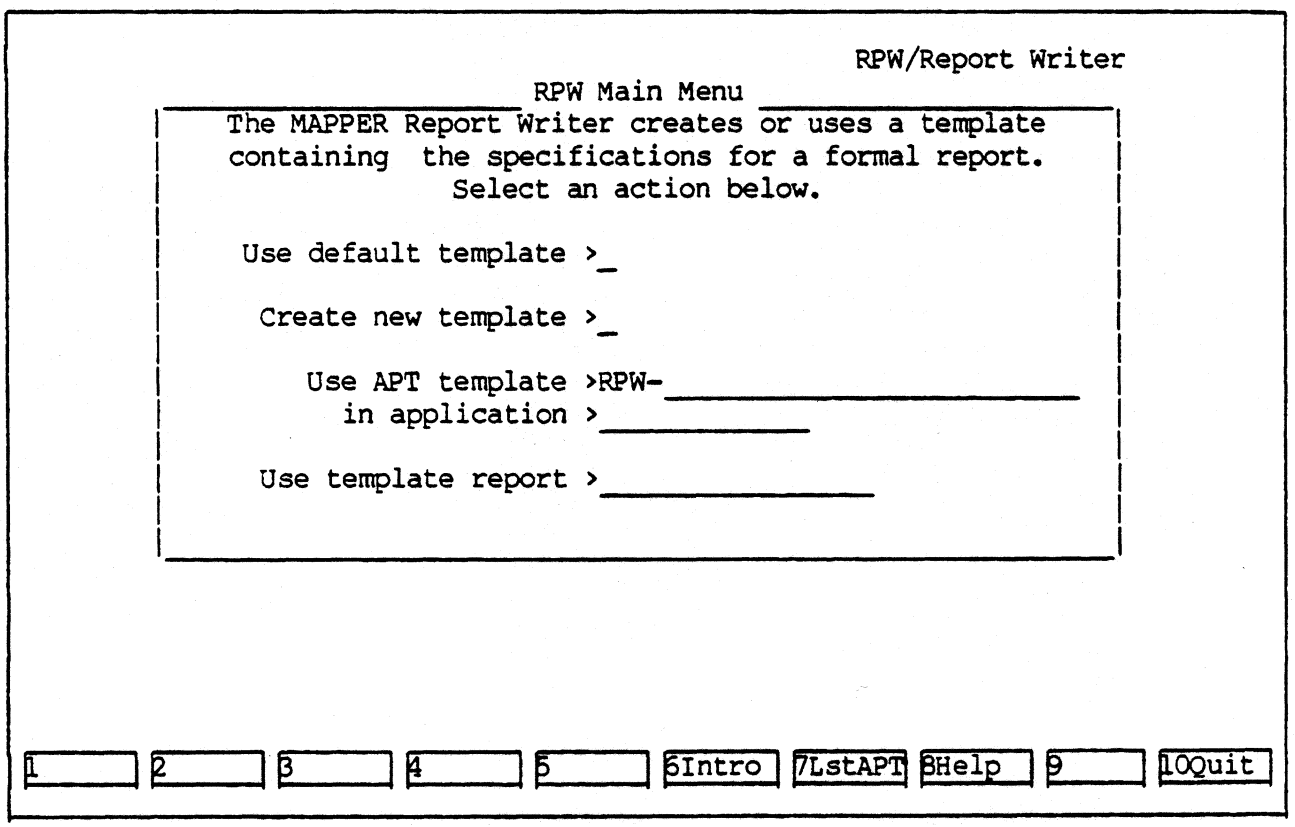
To use RPW, first display the input report.

```
Line RPW          Roll                                              2B0
.DATE 10 JUL 90  12:26:20  RID      2B   26 FEB 90  ACAS
.@991231 Production Status Report                Corporate Production     B000002
*St.Status.By. Product .Serial.Produc.Order.Cust.Produc.Produc. Ship .Ship .Spc.
*Cd. Date .In.  Type    .Number. Cost .Numbr.Code. Plan .Actual. Date .Order.Cod.
*==.======.==.========.======.======.=====.====.======.======.======.=====.===.
 IP 831224 LS BLACKBOX1 436767         84389 AMCO 831223 831224
 IP 831225 LS BLACKBOX1 436768         84390 AMCO 831223 831225
 IP 831219 LS BLACKBOX2 637071         84353 INTR 831218 831219
 OR 840110 LS BLACKBOX4                94754 ARCO
 SC 840110 LS BLACKBOX5 675281         97441 FEDS 840131
 IP 831222 LS BLACKBOX5 737582         84040 AMCO 831222 831222
 SH 831203 LS BLACKBOX0 746327         54237 FEDS 831201 831202 831203 S8738
 SH 831202 LS BLACKBOX6 368061         54438 FEDS 831201 831201 831202 S6937
 SH 831209 LS BLACKBOX6 777324         54232 DICO 831207 831208 831209 S8538
 SH 831203 LS BLACKBOX6 785367         52833 ARCO 831201 831202 831203 S8934
 IP 831216 LS BLACKBOX6 926581         89381 INTR 831215 831216
 OR 831210 LS BLACKBOX7                99842 FEDS
 OR 831227 LS BLACKBOX7                99725 INTR
 SC 840108 LS BLACKBOX7 665481         97541 FEDS 840122
 IP 831227 LS BLACKBOX7 733597         84351 AMCO 831227 831227
 SH 831202 LS BLACKBOX7 744627         44232 INTR 831201 831201 831202 S8531
 IP 831215 LS BLACKBOX7 933581         84381 FEDS 831215 831215
[1Resume][2Paint][3      ][4Return][5      ][6Tasks][7View ][8Help ][9      ][10Edit]
```

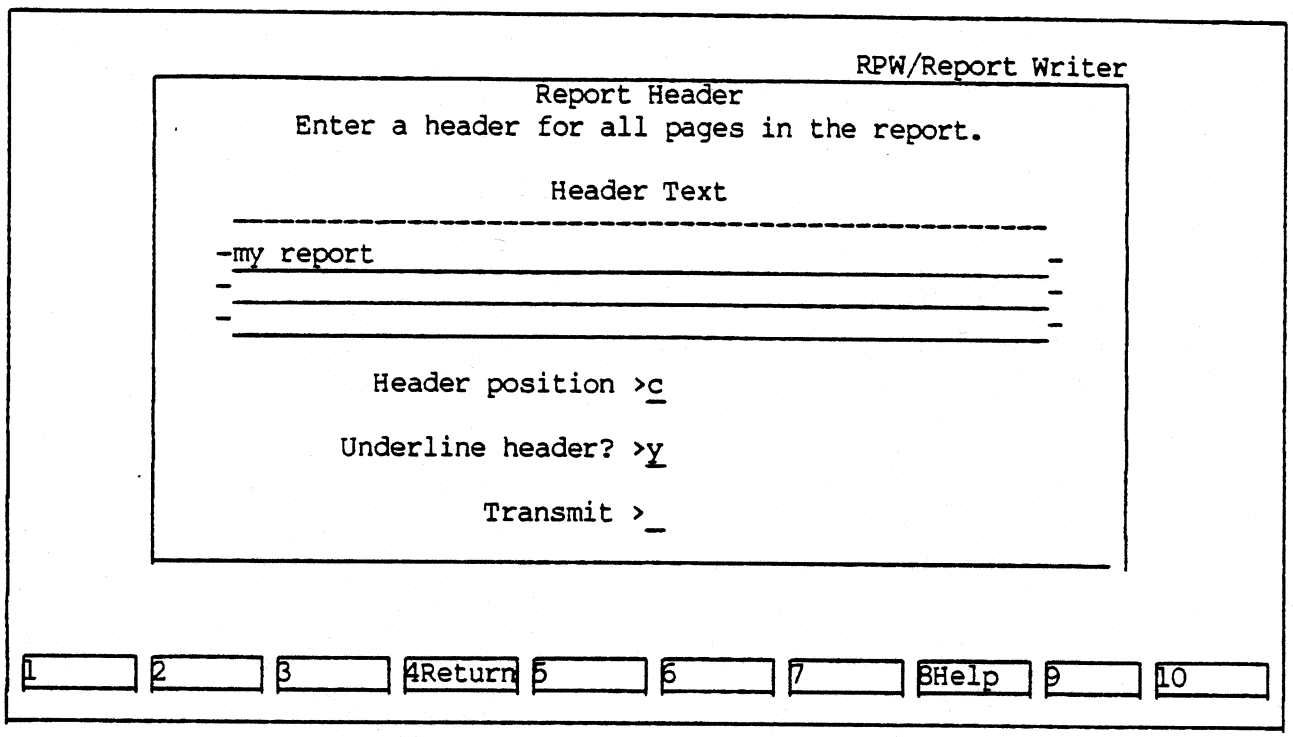
The RPW Main menu is displayed

A template is a set of parameters for printing a formatted report. You have three basic options:

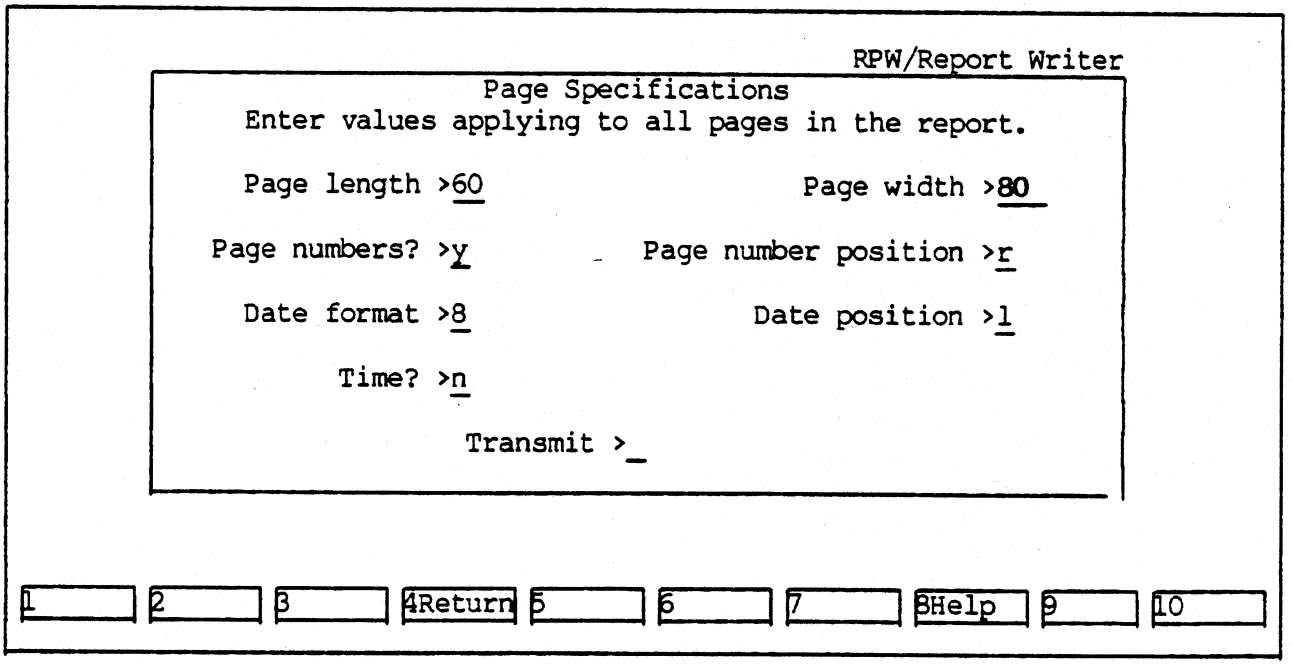
1. Default to the fields and headers from the input report.
2. Enter (create) a new set of parameters
3. Use a stored set of parameters



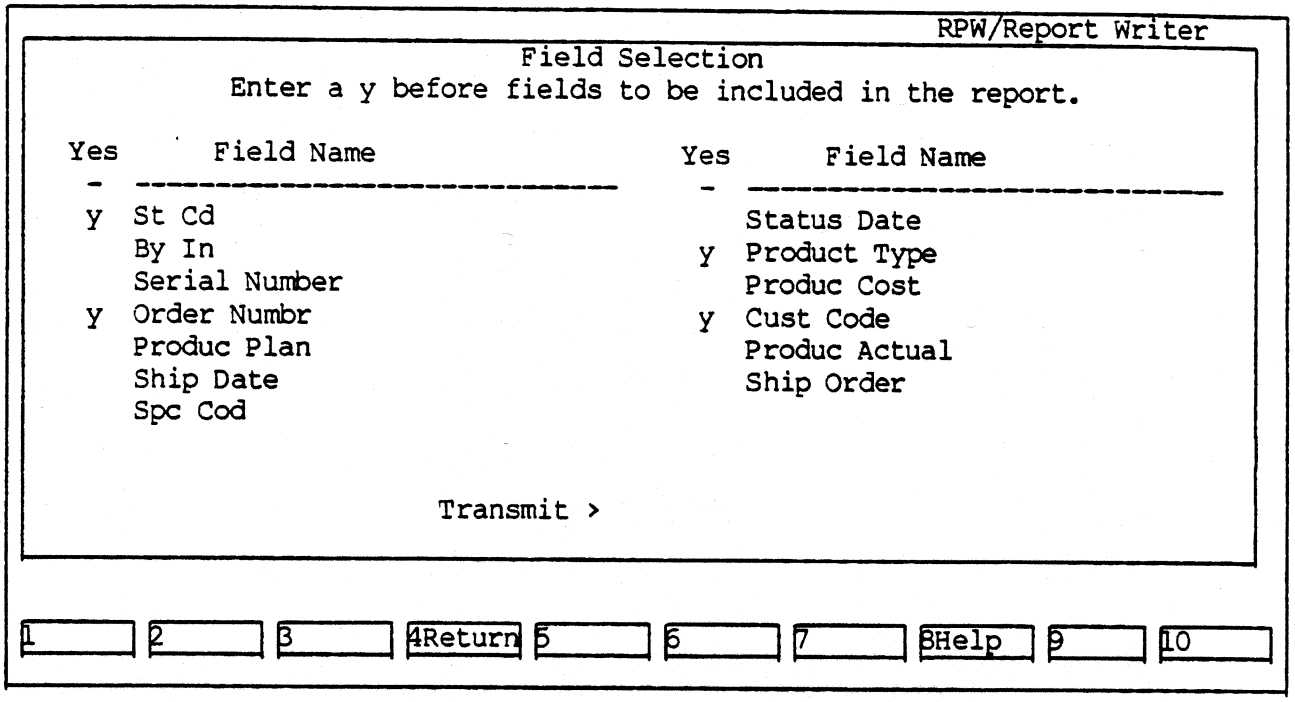
Enter Report Heading



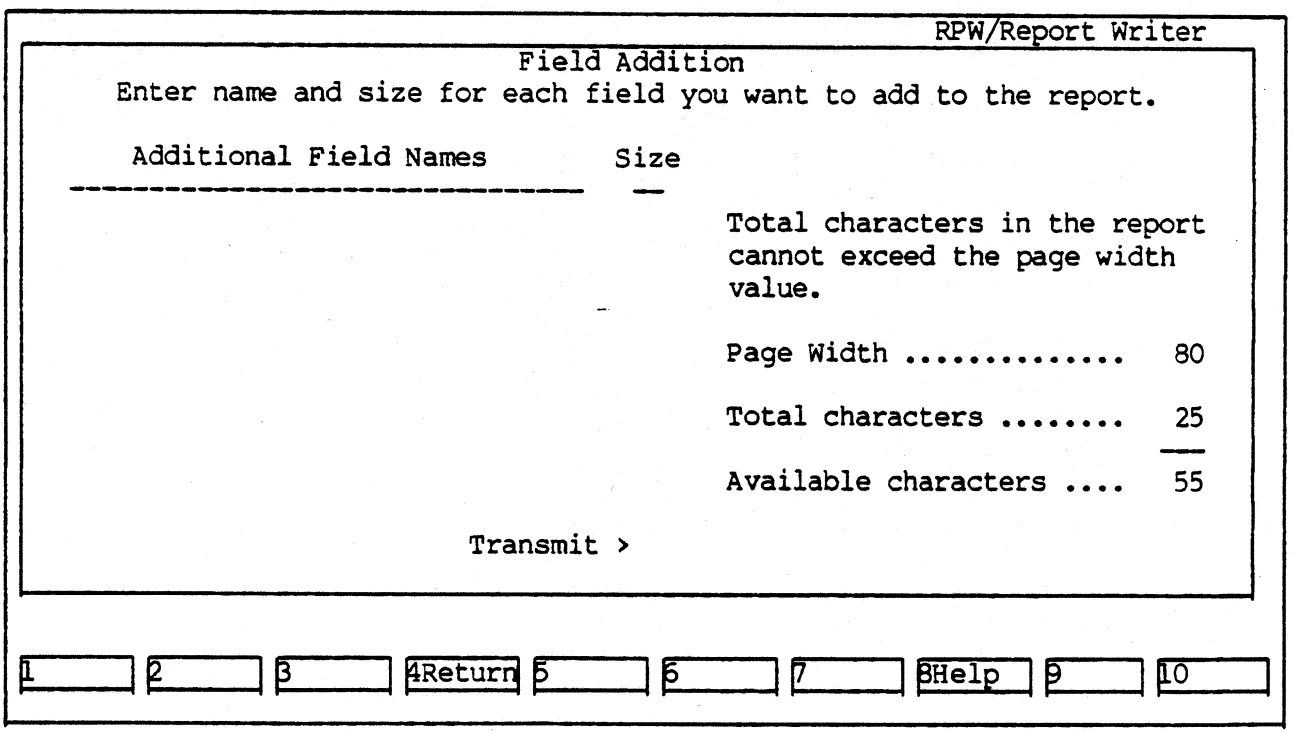
Report Formatting options



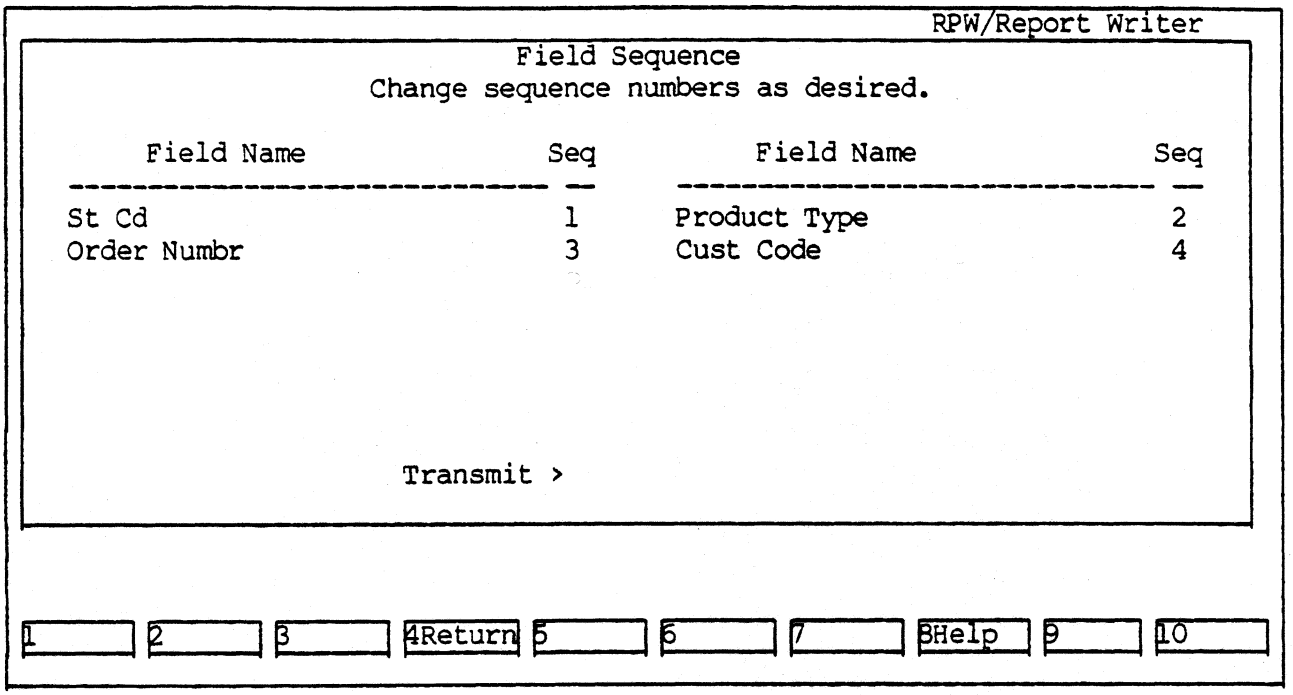
Identify the fields to be printed

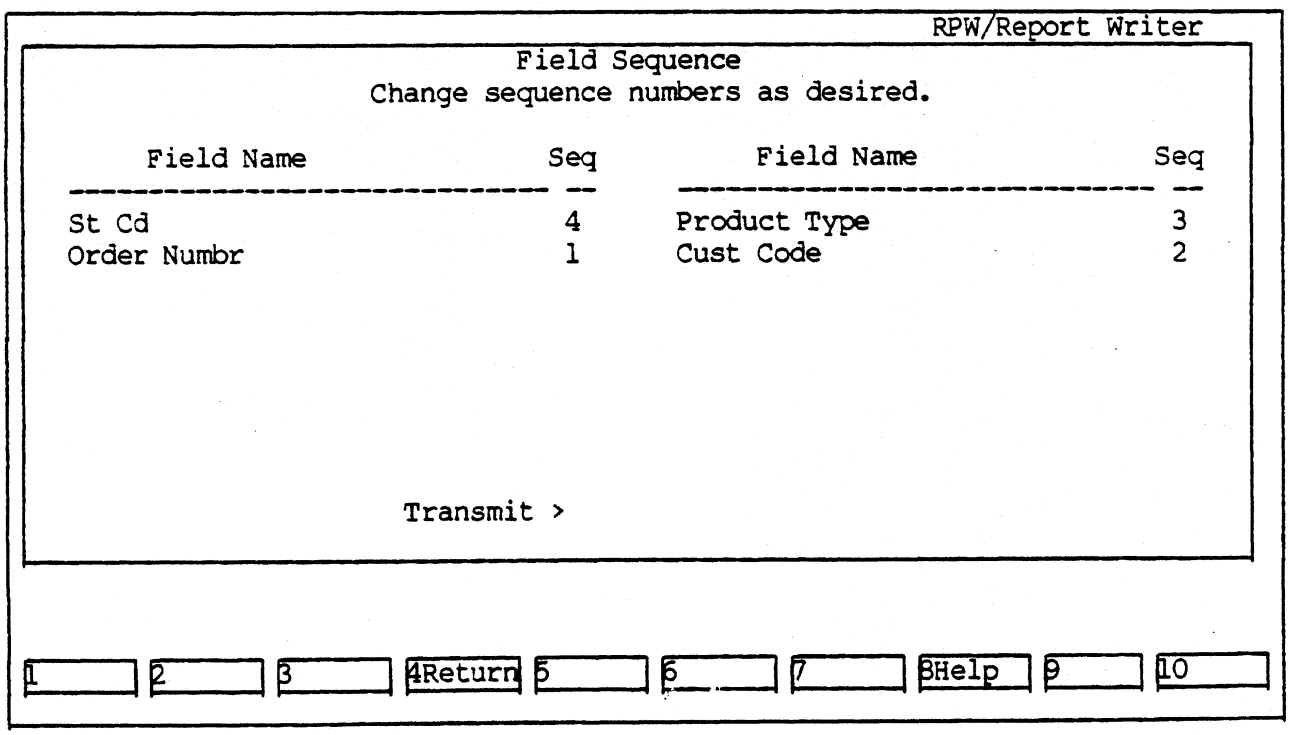


You may create additional fields in the result to contain crossfooted totals

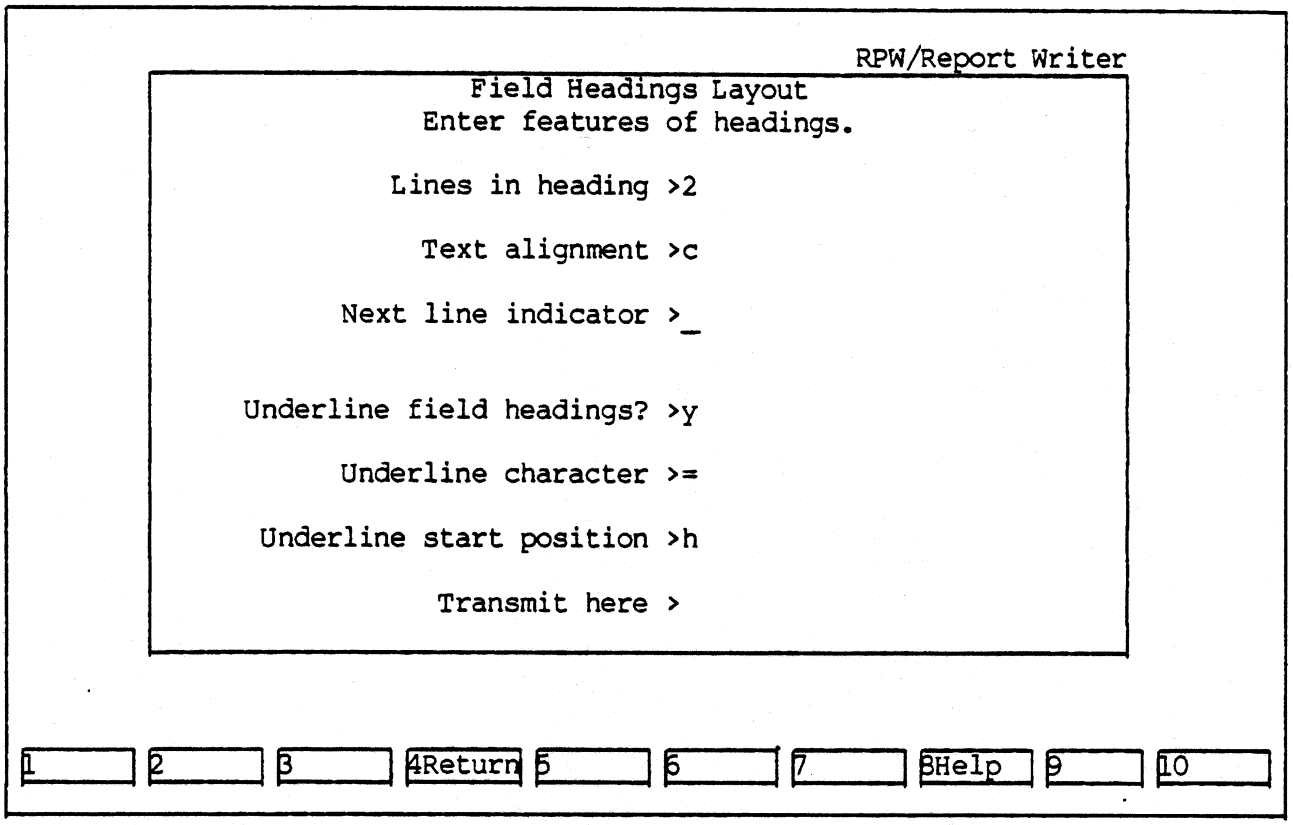


You can request the field order in the finished report

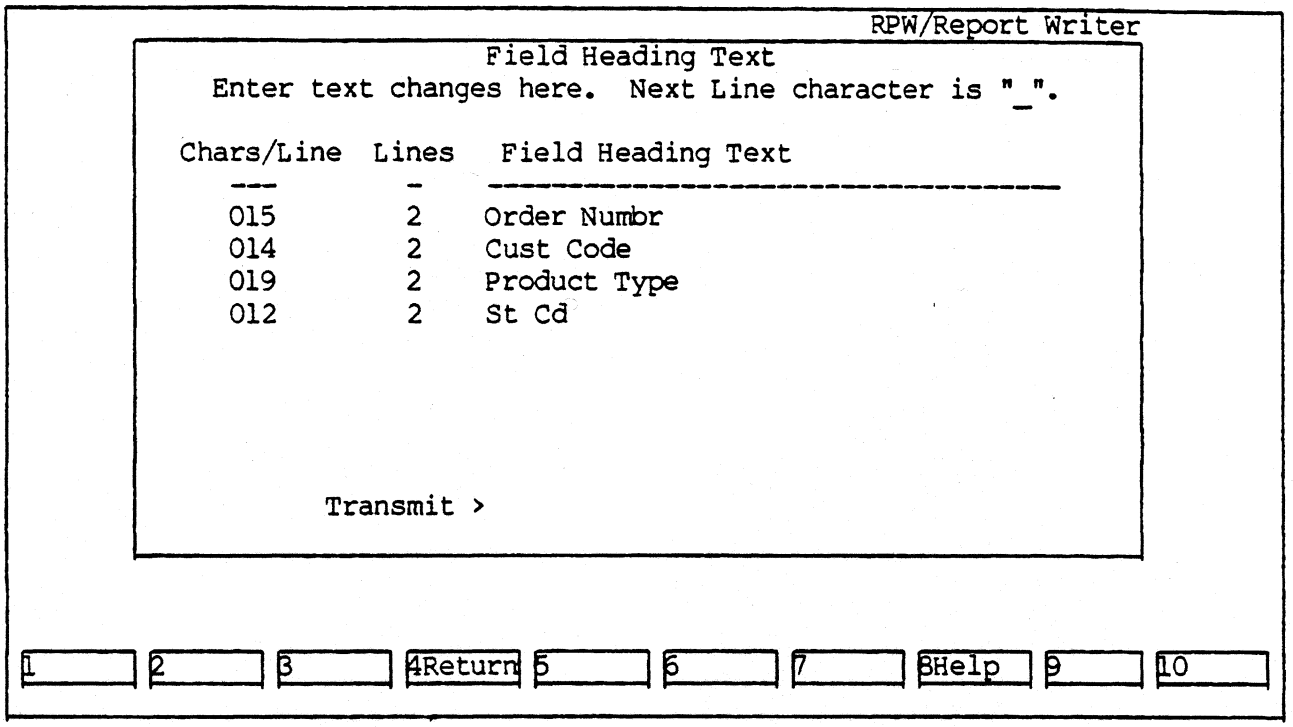


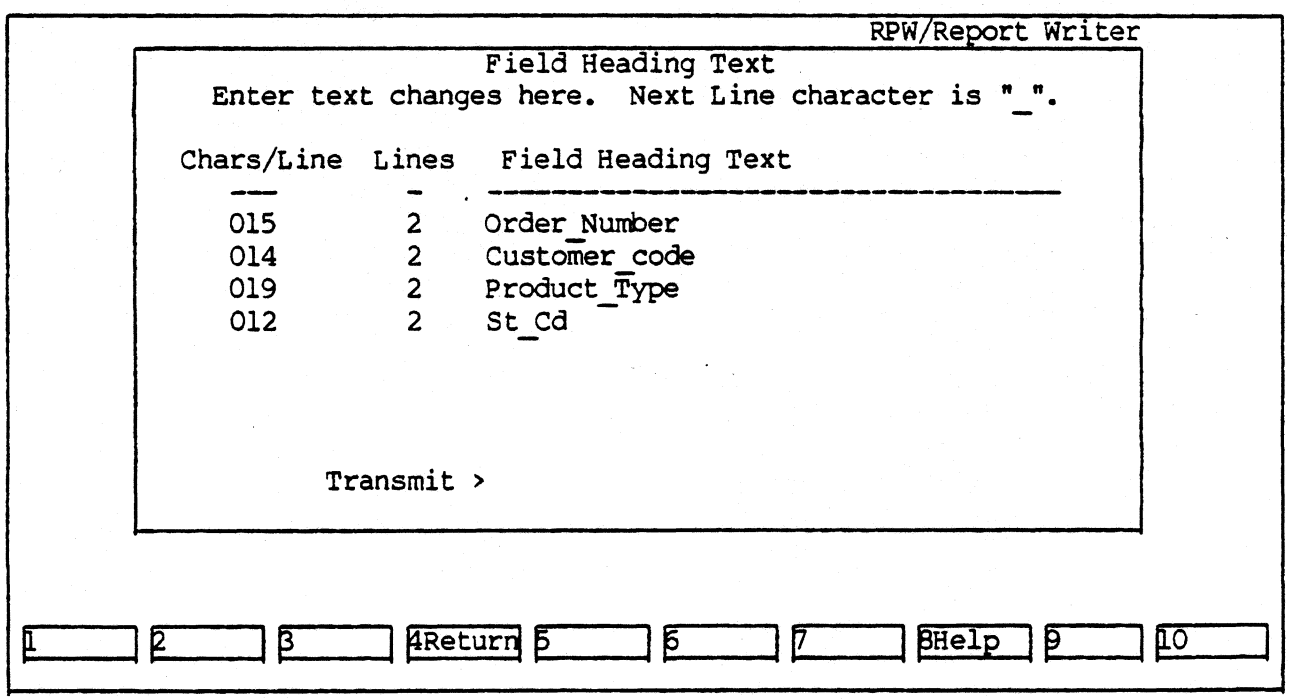


Enter field heading specifications

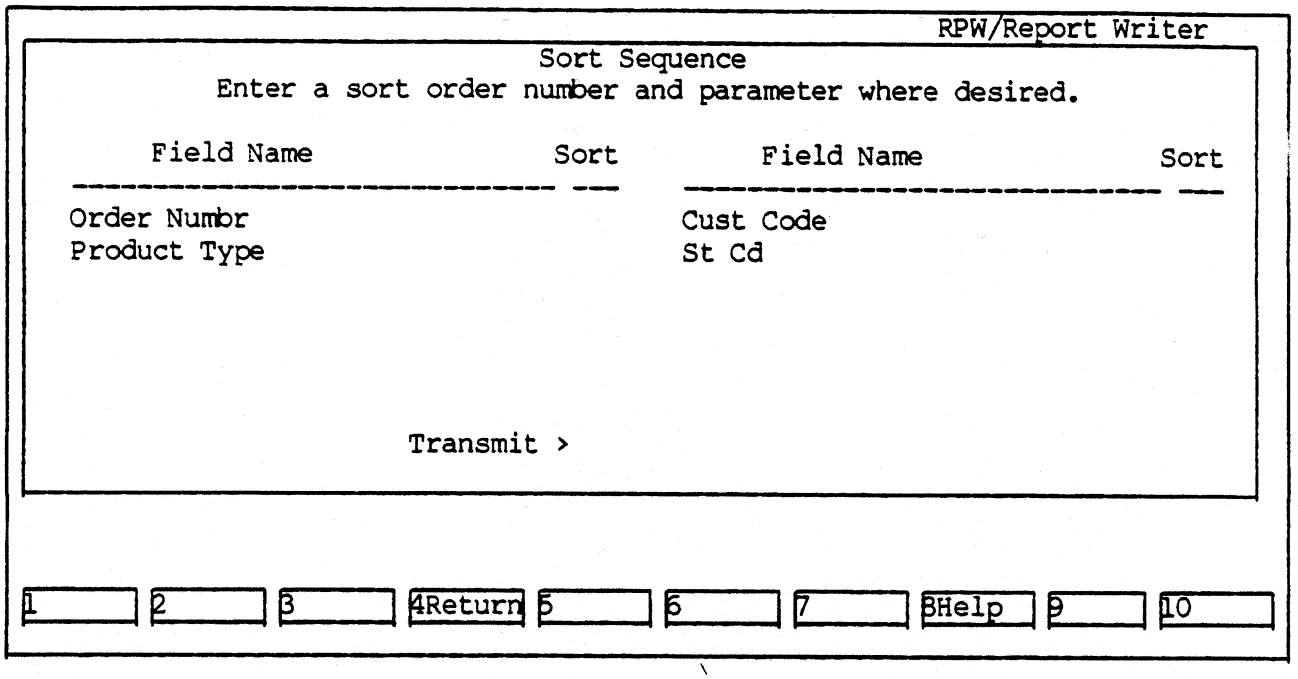


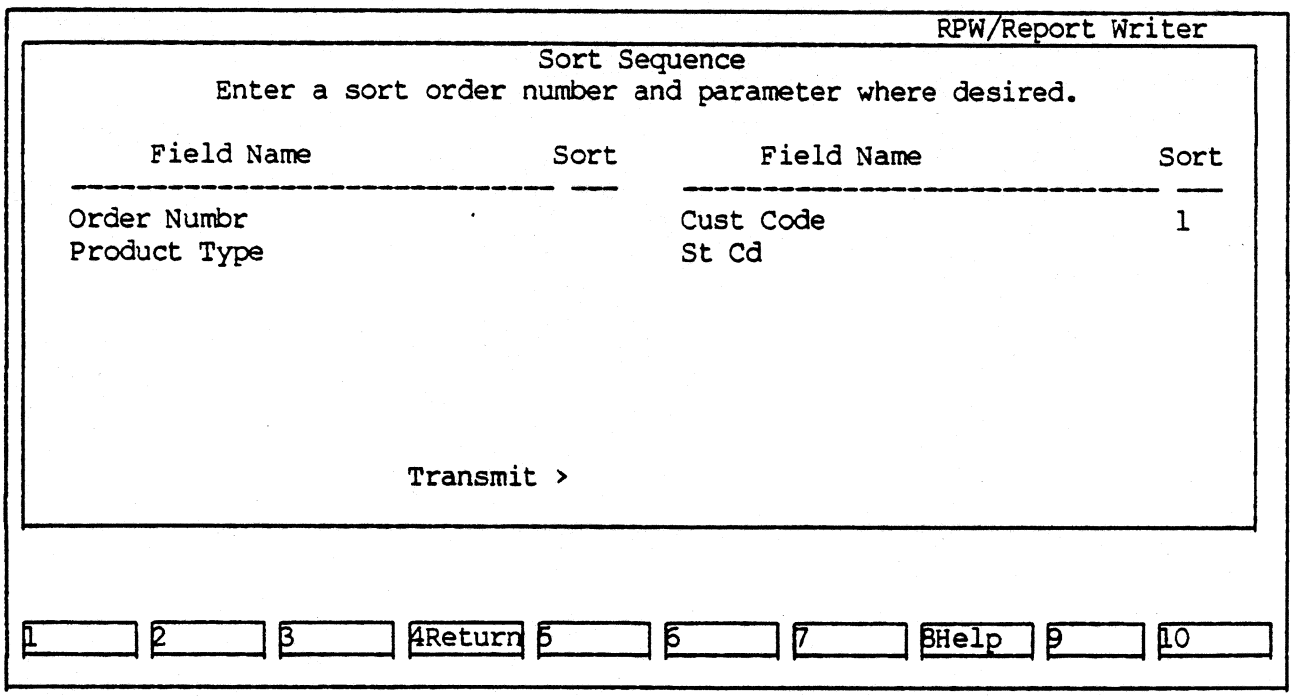
You can change the field headings



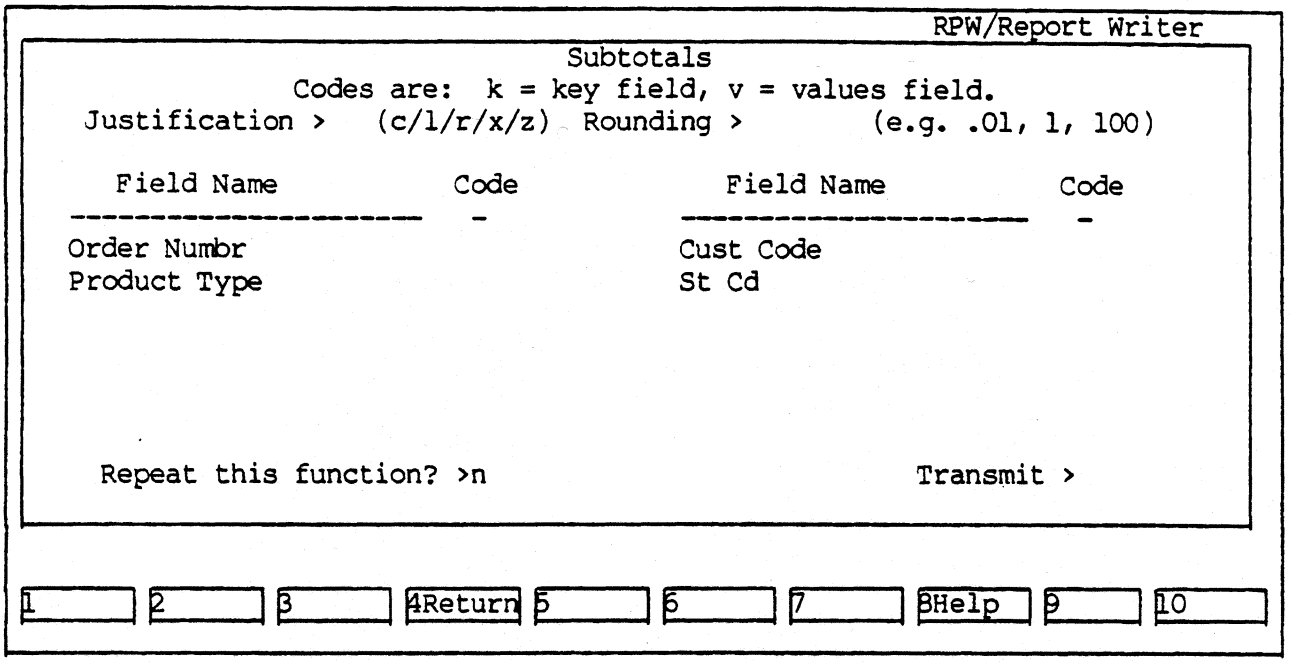


You can sort the report lines by up to 5 fields

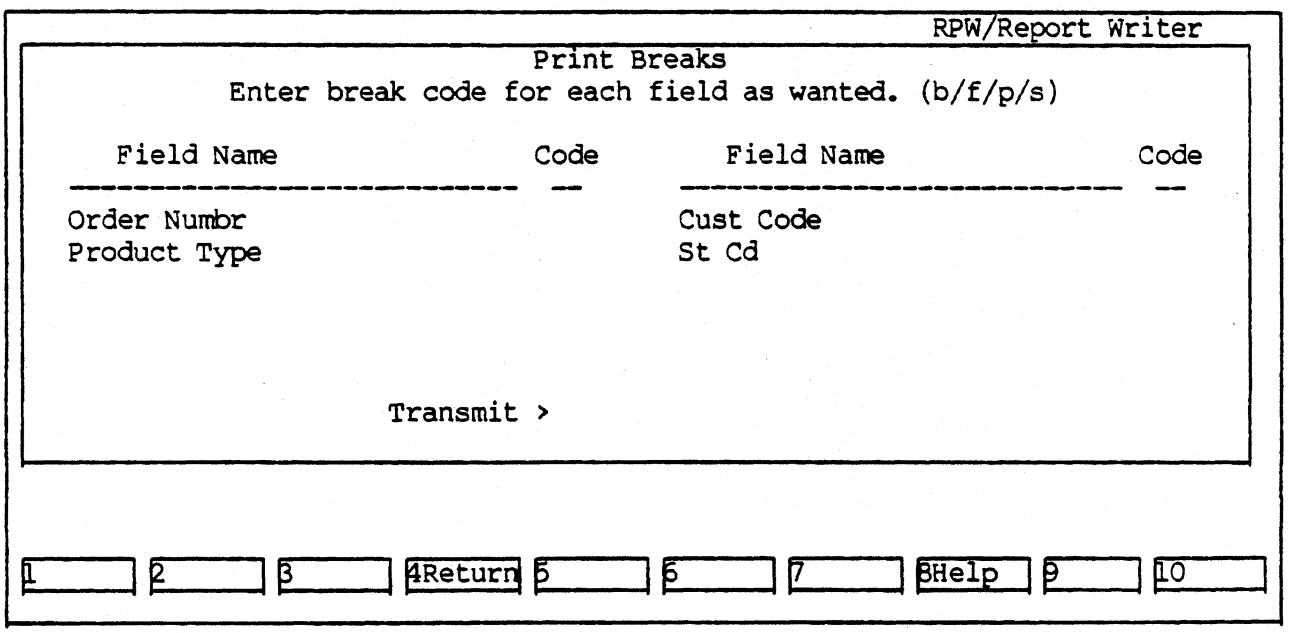




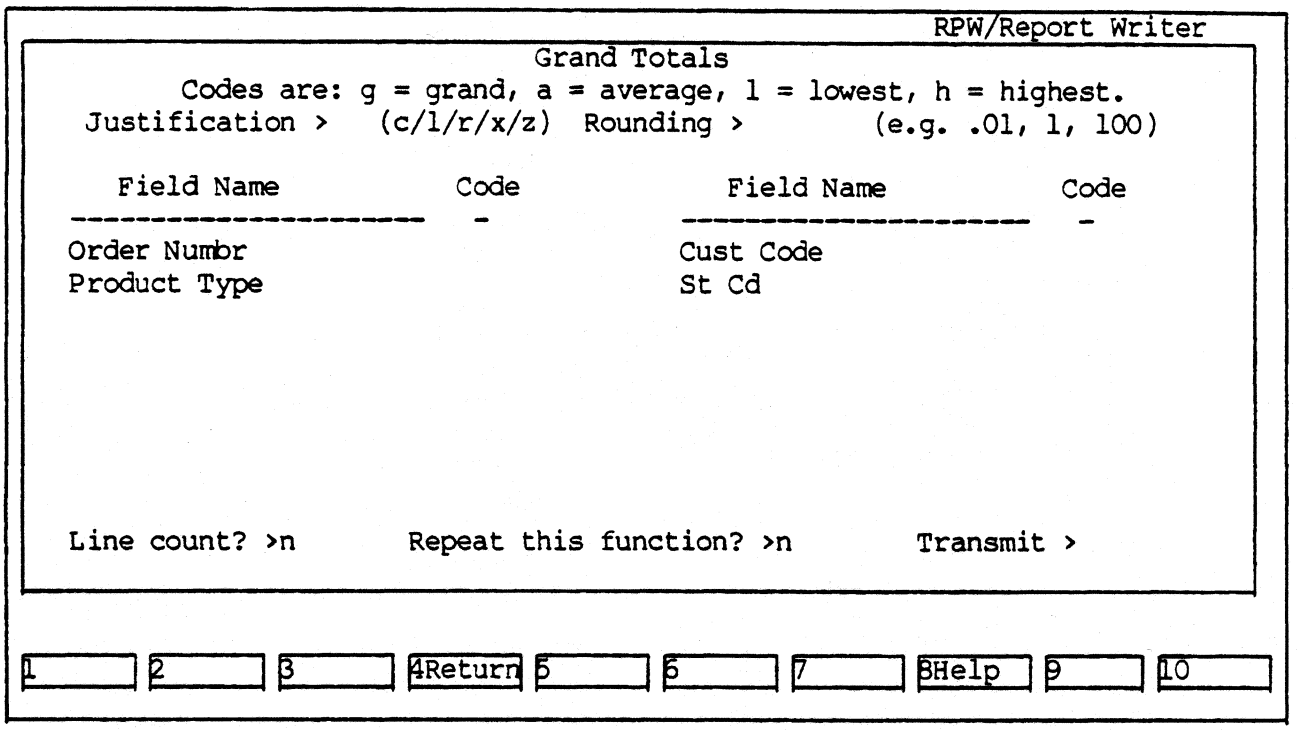
You can request subtotaling of any field(s)



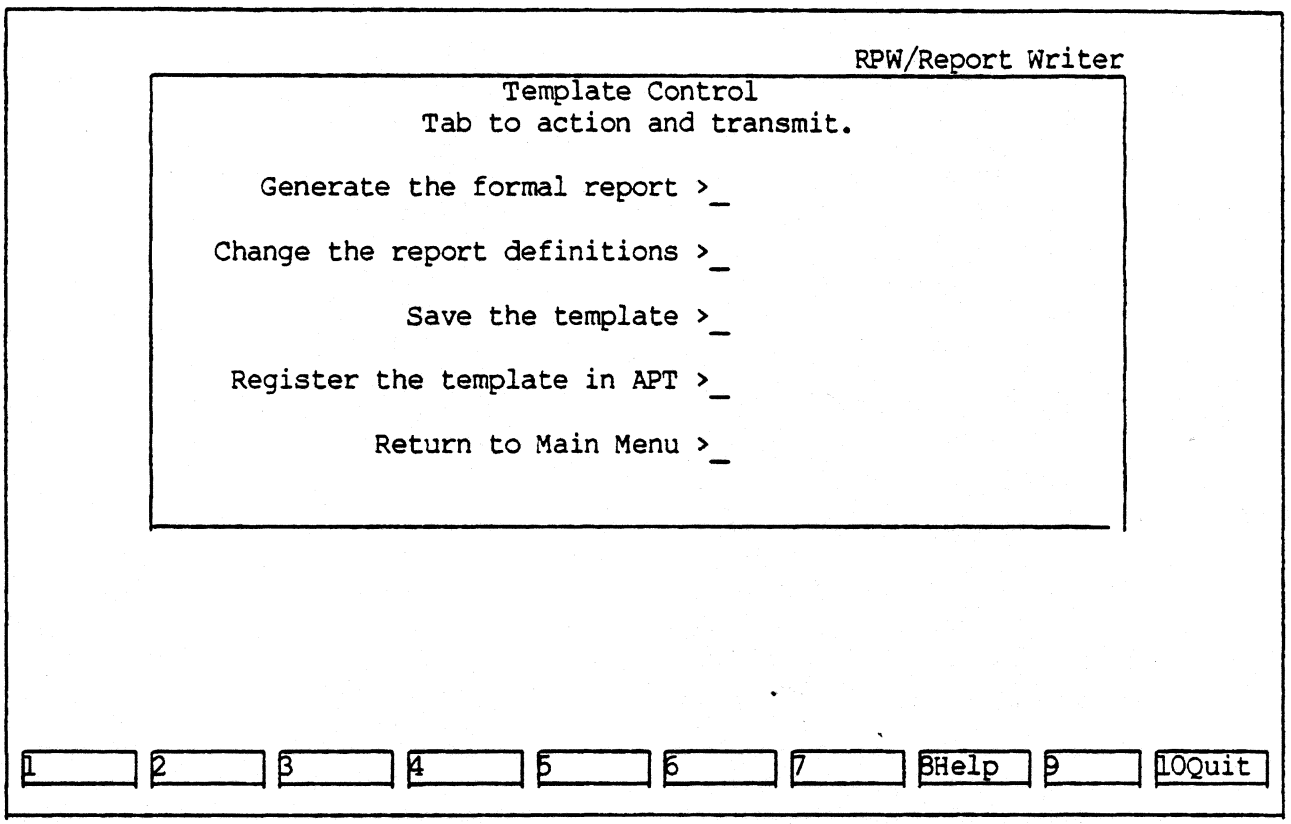
You can request a new page if the contents of a field changes



You can create grand totals or averages of any field(s)



You can generate the completed report as a result, or save your parameters (template) for future use. The template could also be registered in the APT data dictionary.



This is the result when you select "Generate the finished report".

```
  This is the formal report.  Use a function key to print it.
.EJECT
JULY 23, 1990                                                    Page 1
                                  my report
                                  ---------

        Order             Customer           Product             St
        Number            code               Type                Cd
     ==============    =============    ==================    ==========

          84389             AMCO            BLACKBOX1             IP
          84390             AMCO            BLACKBOX1             IP
          54682             AMCO            GREENBOX7             SH
          64231             AMCO            BLACKBOX9             SH
          84351             AMCO            BLACKBOX7             IP
          84040             AMCO            BLACKBOX5             IP
          99943             AMCO            GREENBOX8             SC
          99951             AMCO            GREENBOX9             OR
          98755             AMCO            BLACKBOX9             OR
          52833             ARCO            BLACKBOX6             SH
          94754             ARCO            BLACKBOX4             OR
          96652             ARCO            GREENBOX4             OR
          99753             DICO            GREENBOX5             OR
[1Resume][2Paint ][3      ][4Return][5      ][6PrtSys][7PrtAux][8Help  ][9      ][10Quit ]
```

MODULE 3

Run Design

Module 3 Run functions

Upon completion of this module, you will be able to:

- Use the :Define and :Include statements
- Access new reserved words in MAPPER runs
- Use the Call and Return statements
- Use run variables as arrays

New Reserved Words

Name	Size	Description
AREA$	A12	Named area
ASPECT$	A12	Aspect ratio (used with graphics)
AXDRW$	H1	Alphabetic drawer of the erring run
CERR$	I6	System message number of the previous error, same as XERR$
COLOR$	I1	Color terminal flag, nonzero - has color display
FCAB$	I4	Cabinet number of the Screen Control form on display
FDRW$	I6	Drawer number of the Screen Control form on display
FIELD$	I4	Relative input field number in which the cursor is located
FRPT$	I4	Report number of the Screen Control form on display
GRAPH$	I1	Graphics terminal flag, if not 0 - can not display graphics
HLINES$	I2	Number of held lines
LNKDRW$	I6	Drawer of the run that issued the LNK statement
LNKRPT$	I4	Report number of the run that issued the LNK statement
LCAB$	I4	Cabinet number of user's currently selected language
MAXCAB$	I4	Maximum cabinet number on your MAPPER system
MAXRPT$	I4	Maximum report number on your MAPPER system
SYSNAM$	h5	Port identification name (for example, MAPPER 1100 = M1100, U Series 6050 = U6050)

- String variable size & access

  The maximum size of a string variable has been increased to 256 characters

  String variables can be used in an @IF statement without sub-referencing.

- WRL - start in any column

  The @WRL statement can now start in any column.

- DFU - 10 reports

  You can now lock up to 10 reports for deferred updating.

New Run Statements

CALL	Subroutine call
RETURN	Return from a called subroutine
DSX	Display report and exit
HSH	Number generator
ITV	Input variable
LDA	Load array variable
OUV	Output variable to terminal
:DEFINE	Define constant
:INCLUDE	Include constant

@CALL

The @CALL function executes an internal or external subroutine, starting at the specified label. The only parameters (variables or literals) passed to the subroutine are those listed on the function statement. The current result is automatically passed, but renamed results are not passed. Renamed results will be intact on return.

```
*=============================================================
@LDV V1I2=1,V10I3=100 .
@CALL,48,E,11 01 (V1) .
@SRH,0,B,2 D 2-2  ,SH .
```

In the subroutine, the passed parameters are loaded into the variables identified on the label statement. If the parameter is a variable, the corresponding variable will be initialized to agree with the passed variable.

```
*  SUBROUTINE FOR AL2816
*=============================================================
@01(V5) .
@INC,10 V5 .
@LDV V10H3=ABC .
@RETURN .
```

@RETURN

The @RETURN statement passes control back to the calling run. In the example above, V1 was passed to the subroutine and picked up as V5. After executing the @RETURN, V1 was reinitialized to the contents of V5. Any renamed results or variables created in the subroutine will not be passed back. The current result is always passed.

- Display report and exit (DSX)

The @DSX function displays a report and automatically exits the run.

- Load Variable Array (LDA)

The @LDA function defines a variable as an array and loads data into the array. The RCR must be full character set (~~FSC~~ FCS or FCSU). An array cannot be redefined.

```
@LDA[,o] nametypesize[n]=vld[,vld,...,vld] .
```

LDA Options

C	Centers data within each variable.
L	Left-justifies the data within each variable.
P	Packs data into each variable
R	Right-justifies the data within each variable.
U	Converts all lowercase alphabetic characters to uppercase
W	Loads variables with the values of reserved words.
Z	Zero fills each variable after the data is loaded.

```
* RUNID-AL2816
*=======================================
@LDV V1OH3=ABC .
@LDA V1H3[3]=V1O,DEF,GHI .
@GTO END .
```

The following run sets up a 2 member variable.
The user executes the run be entering AL2816,ABC,SH

```
* RUNID=AL2816
*=======================================
@lda v1h3[2] .
@chg input$ v1[1],v1[2] .
@IF V1[1] = ABC CALL,48,E,11 01 (V1[2]) .
@DSX,-0 .
```

```
*  48,e,11
============================
@01(V5) .
@SRH,0,B,2 '' 2-2  ,V5 .
@RETURN .
```

- Hash (HSH)

The @HSH function is similar to @LDV,N. The function was included in Level 35 to conform with the C MAPPER on other systems.

```
@HSH v=vld,min-max .
```

- Output Variable (OUV)

The @OUV statement displays literal data or the contents of a variable, constant, or reserved word at a specific location on the screen.

```
@OUV[,scl,col] vld .
```

- Input Variable (ITV)

The @ITV statement captures input from an OUV or interim OUT display. The data to be loaded must be delimited by tab characters in the OUV display. The length of each data input is determined by the tab delimiter, the length of the variable, or the width of the run user's terminal.

```
@ITV[,lab] v[,v,...,v] .
```

This example captures input from an OUT statement:

```
*=================================
@BRK .
     PRODUCT:|
     DESCRIPTION:|
@BRK OUT,-0,2,3,1,1,Y,Y .
@ITV,010 <PRODUCT>S10,<DESC>S10 .
.
. (OTHER PROCESSING)
.
@010: . RESPOND TO FUNCTION KEY
@IF FKEY$ = 1,(020),2,(030) .
```

This example captures input from an OUV display:

```
*=================================
@OUV,1,15 'WHAT IS THE PASSWORD?'|
@ITV <PASSWORD>S6 .
```

- DEFINE

The Define Constant (:DEFINE) statement is used to define values for any of the fields and subfields in a run statement, including items such as the following:

- Labels (for example, @010:)
- Run function calls (for example, SRH)
- Location of the database (c,d,r)
- Fields to process (cc)
- Function parameters (p)
- Output area data
- Variable names

:DEFINE constant value

```
48,E,3
*=============================
:DEFINE STATCODE V1H2
@CHG INPUT$ STATCODE
@SRH,0,B,2 D 2-2 [,STATCODE .
@DSX,-0 .
```

Rules for using :DEFINE .

- One constant per :DEFINE statement
- All :DEFINE statements must be at the beginning of the RCR
- Use the BLT function before putting the run into production. BLT converts the defined constants for more efficient processing

- INCLUDE

The Include Report (:INCLUDE) statement adds all defined constants from another report to your current run.

:INCLUDE,c,d[,r] .

```
*=========================
:INCLUDE,48,E,3 .
@SOR,0,B,2 '' [,STATCODE .
@DSX,-0 .
```

MODULE 4

Screen Control

Module 4 Screen control

Upon completion of this module, you will be able to:

- Use the level 35 forms coding
- Code function key bars for run displays
- Write context help text
- Use the AREA & DFLD commands in SC

Forms

A form is a set of SC commands stored in a separate report. With a form, you can use the DFLD, AREA, DSPFORM and FKEY commands in Screen Control.

Define field (DFLD) command

The DFLD command defines field characteristics for later use by the AREA command, except screen location and field size. A maximum of 40 named and 40 unnamed fields can be defined. Field definitions may be referenced multiple times in an area. After processing the AREA command, all definitions are discarded.

DFLD[,name,opt,attr,text]

AREA command

The AREA command describes an entire region (AREA) of a screen, including both text and fields. Like the DATA command, the contents of the area is defined immediately following the AREA command.

AREA[name,row,col,rsiz,csiz,opt,attr]

This example shows report 11E, which contains SC commands to display a screen that asks for a customer code. The RCR report uses Input$ to get V1 and use it as a search parameter.

```
Report 48,E,11
*=============================================
PREP,(PR)
DFLD,,,(TS,AI)
AREA,,10,20,4,30,,(PR)

         CUSTOMER CODE ____
         TRANSMIT      _

END
```

```
RCR
*=============================================
@SC,48,E,11,,,1 '' .
@CHG INPUT$ V1H4 .
@SRH,0,B,2 D 45-4 ',V1 DSX,-0 .
```

The FKEY command in @SC lets you define a function key bar at the bottom of a screen.

```
FKEY,n,title,action .
```

This example defines F9 as the EXIT key:

```
FKEY,9,EXIT,^ .
```

Here we have the same run from the previous page with function key definitions included.

```
*=============================
PREP,(PR)
FKEY,2,RESUME,RSM
FKEY,10,QUIT,^
DFLD,,,(TS,AI)
AREA,,10,20,4,30,,(PR)

         CUSTOMER CODE ____
         TRANSMIT      _

END
```

```
*=============================
@SC,48,E,11,,,1 '' .
@CHG INPUT$ V1H4 .
@SRH,0,B,2 D 45-4  ,V1 DSX,-0 .
```

SC has 2 new commands that allow you to code HELP displays for individual input fields on a screen. It is utilized on all the function request screens in level 35.

HELP

DSPFORM

HELP

To code HELP for an individual field, after the END command, use the HELP command to identify the referenced field and the screen row where the text that follows the HELP is to be displayed. The | character on the first HELP command determines the width of the HELP window.

```
*=============================================================
PREP;
FKEY,3,EXIT,^
FKEY,1,RESUME,RSM
FKEY,6,QUIT,X
FKEY,8,HELP,DSPHELP
DFLD,,,(TS,AI)
AREA,,10,20,4,30,,(PR)

        CUSTOMER CODE ____
        TRANSMIT      _

END
HELP,1 15                                  |
   Enter the customer code
   that you''re looking for

HELP,2 15
   Depress the TRANSMIT key
```

The @DSF function can be used in a run to display a form.

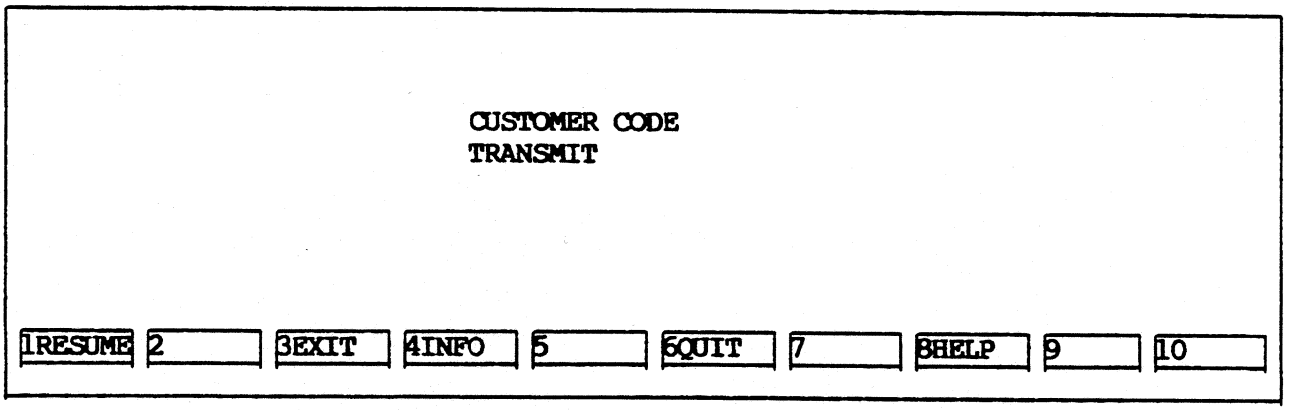
@DSF,c,d,r,pn,tabp,opt .

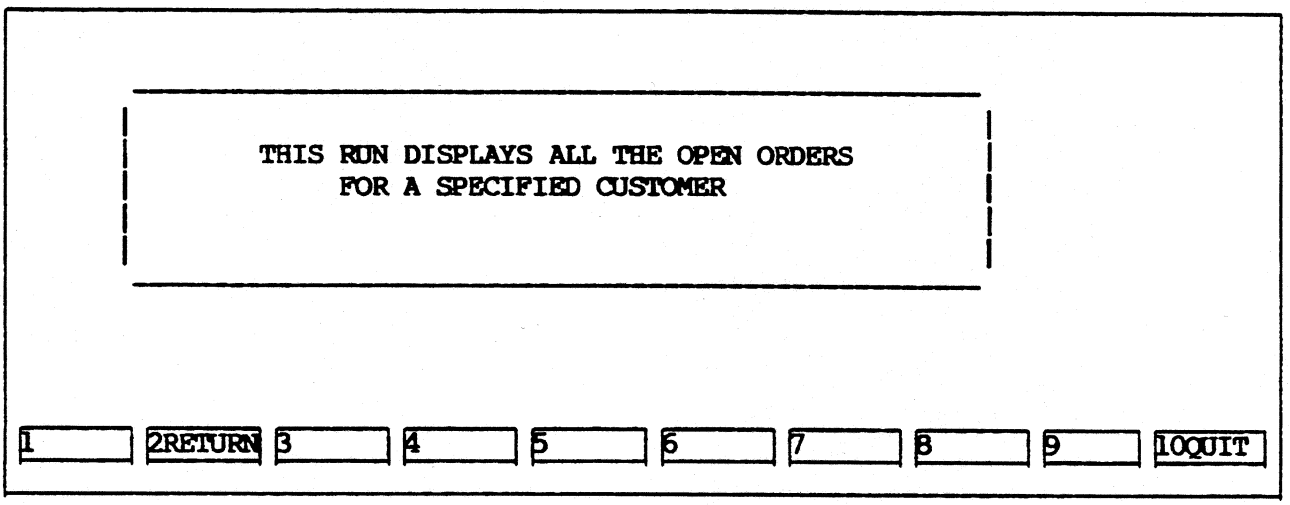
Use the DSPFORM commmand to display a different SC form when a function key is depressed.

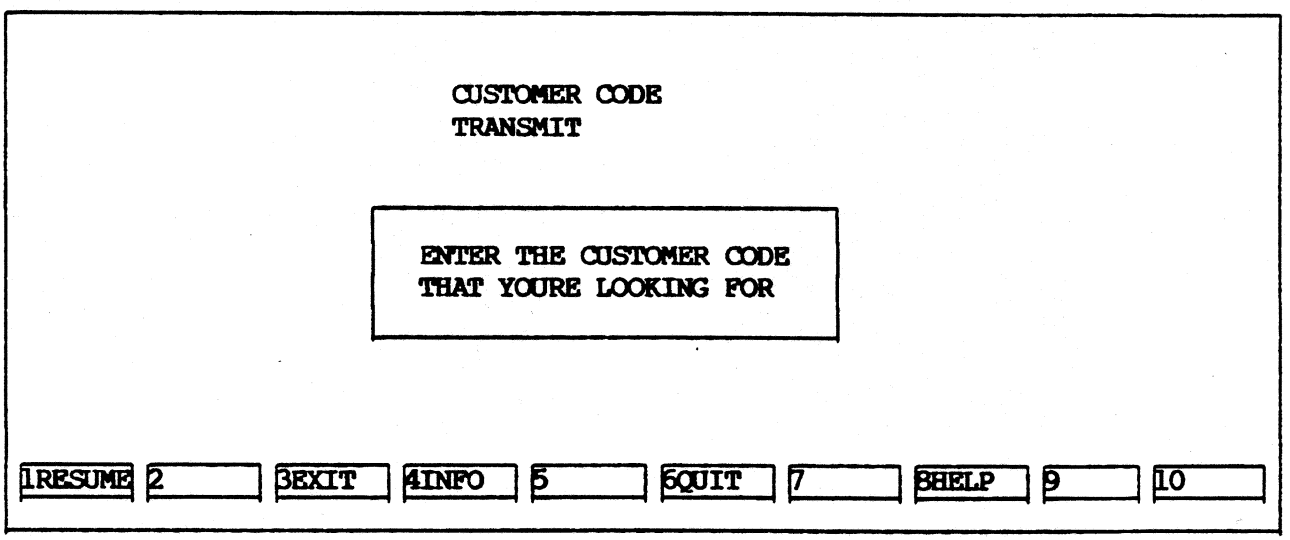
DSPFORM,r[DC,pn,tabp,opt

```
*                          4E
*=============================================================
PREP
FKEY,2,RETURN,DSPFORM,11
FKEY,10,QUIT,^
AREA,,3,3,9,80,,(PR)

     ------------------------------------------------
    |                                                |
    |        THIS RUN DISPLAYS ALL THE OPEN ORDERS   |
    |             FOR A SPECIFIED CUSTOMER           |
    |                                                |
    |                                                |
     ------------------------------------------------

END
```

```
*  SUBROUTINE FOR AL2816     11E
*=============================================================
PREP;
FKEY,3,EXIT,^
FKEY,4,INFO,DSPFORM,4
FKEY,1,RESUME,RSM
FKEY,6,QUIT,X
FKEY,8,HELP,DSPHELP
DFLD,,,(TS,AI)
AREA,,10,20,4,30,,(PR)

         CUSTOMER CODE ____
         TRANSMIT      _

END
HELP,1 15                          |
    ENTER THE CUSTOMER CODE
    THAT YOU''RE LOOKING FOR
```


CUSTOMER CODE
TRANSMIT
1RESUME
2
3EXIT
4INFO
5
6QUIT
7
8HELP
9
10


THIS RUN DISPLAYS ALL THE OPEN ORDERS
FOR A SPECIFIED CUSTOMER
1
2RETURN
3
4
5
6
7
8
9
10QUIT


CUSTOMER CODE
TRANSMIT
ENTER THE CUSTOMER CODE
THAT YOURE LOOKING FOR
1RESUME
2
3EXIT
4INFO
5
6QUIT
7
8HELP
9
10

Forms Return Stack

When you use the DSPFORM command, a stack of forms is built in the order in which they are displayed. A stack can hold up to 20 forms.

The opt subfield on DSPFORM allows you to mark the form for any future FORMRET action.

OPT

0 - Puts the form on top of the stack

1 - Clears the stack, and puts this form on the bottom

2 - Marks the stack, and puts this form on top

4 - Do not put this form on the stack

5 - Overwrites the current entry on the stack

To retrieve a form from the stack, use the FORMRET command

FORMRET,command

commands

0 - Returns to the previous display

1 - Returns to the start of the stack and clears the stack

2 - Returns to a mark previously set by a DSPFORM using option 2.

4 - Returns to the top entry on the stack

5 - If there is a report on display, repaints the report before displaying retrieved form

MODULE 5

Coordination

Module 5 Coordination features

Upon completion of this module, you will be able to:

- Register a user for level 35 features
- Register a mapper run using new look features
- Implement new cabinet security features
- Use new coordination functions and runs

FILE CABINET - MODE 0/1 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	PRODUCTION STATUS	000002	F	DEMO RUN FUNCTIONS FCS	000012
C	FACTOR BASE	000004	G	DEMO FREE FORM DATA	000014
D	ORDER STATUS	000006	H	WORD PROCESSING REPORTS	000016
E	DEMO RUN FUNCTIONS LCS	000010	I	EXPERIMENTAL REPORTS	000020

FILE CABINET - MODE 202/203 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	OPEN	003122	F	OPEN	003132
C	NETWORK CONFIGURATION	003124	G	DRAWER PERMISSIONS	003134
D	OPEN	003126	H	OPEN	003136
E	OPEN	003130	I	OPEN	003140

FILE CABINET - MODE 204/205 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	OPEN	003142	F	GRAPHICS DLL CODE	003152
C	OPEN	003144	G	GRAPHICS EXAMPLES	003154
D	OPEN	003146	H	GRAPHICS HELP	003156
E	OPEN	003150	I	GRAPHICS RUNS	003160

FILE CABINET - MODE 206/207 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	OPEN	003162	F	CHARACTER/TRANSLATIONS	003172
C	OPEN	003164	G	OPEN	003174
D	ERROR MESSAGE HELP	003166	H	FUNCTION REQUEST MESSAGE	003176
E	ONLINE DOC FOR 35R1	003170	I	OPEN	003200

FILE CABINET - MODE 208/209 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	BPORT/BACKGROUND LOG	003202	F	RUNLOG RUNS/RUNSTREAMS	003212
C	RETRID/CPYRID DATA	003204	G	MODE SWITCH REGISTRATION	003214
D	RUNLOG DATA	003206	H	RUNLOGSUM DATA	003216
E	PRIMER/KILLER DATA	003210	I	MAPSTAT INFORMATION	003220

---------- FILE CABINET - MODE 212/213 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	SEND-USER REPORT QUEUE	003242	F	OPEN	003252
C	OPEN	003244	G	OPEN	003254
D	OPEN	003246	H	OPEN	003256
E	OPEN	003250	I	OPEN	003260

---------- FILE CABINET - MODE 214/215 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	APT DATA DICTIONARY	003262	F	OPEN	003272
C	APT APPLICATION DIRECTOR	003264	G	RPW MAPPER REPORT WRITER	003274
D	APT RUNS	003266	H	RDI ADMINISTRATION REPOR	003276
E	APT DOCUMENTATION	003270	I	RDI RUN CONTROL REPORTS	003300

---------- FILE CABINET - MODE 216/217 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	COMMUNICATION ERROR LIST	003302	F	RUN REGISTRATION	003312
C	CONFIGURATION	003304	G	OPEN	003314
D	CURRENT SYSTEM STATUS	003306	H	OPEN	003316
E	LOG LIST	003310	I	OPEN	003320

---------- FILE CABINET - MODE 218/219 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	SYSTEM CONFIGURATION	003322	F	USER REGISTRATION	003332
C	ALARM MESSAGE QUEUE	003324	G	OPEN	003334
D	STATION MESSAGE QUEUE	003326	H	SYSTEM PURGE INDEX	003336
E	RUN REGISTRATION	003330	I	AUX DEVICE QUEUE	003340

---------- FILE CABINET - MODE 220/221 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	COMM CURRENT STATUS	003342	F	OPEN	003352
C	OPEN	003344	G	LOG SUMMARY	003354
D	COMM ERROR LIST	003346	H	LOG LIST	003356
E	PRE-DEFINED PRINT FORMS	003350	I	COMM ERROR SUMMARY	003360

FILE CABINET - MODE 222/223 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	OPEN	003362	F	OPEN	003372
C	OPEN	003364	G	OPEN	003374
D	AUDIT TRAIL CONFIG	003366	H	OPEN	003376
E	DTM INTERFACE CONFIG	003370	I	OPEN	003400

FILE CABINET - MODE 224/225 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	OPEN	003402	F	OPEN	003412
C	OPEN	003404	G	OPEN	003414
D	OPEN	003406	H	OPEN	003416
E	MAPPER RELEASE INDEX	003410	I	OPEN	003420

FILE CABINET - MODE 226/227 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	USER UTILITIES	003422	F	DTM UTILITIES	003432
C	COORDINATION UTILITIES	003424	G	OPEN	003434
D	EXAMPLE UTILITIES	003426	H	OPEN	003436
E	SYSTEM UTILITIES	003430	I	OPEN	003440

FILE CABINET - MODE 228/229 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	OPEN	003442	F	RUN FUNCTION DATA	003452
C	OPEN	003444	G	QUESTIONS & ANSWERS	003454
D	OPEN	003446	H	EXAM RUN LOG	003456
E	OPEN	003450	I	EXAM ASSIGNMENTS	003460

FILE CABINET - MODE 230/231 DRAWER - TYPE

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	OPEN	003462	F	OPEN	003472
C	TYPE ANALYSIS	003464	G	OPEN	003474
D	OPEN	003466	H	OPEN	003476
E	OPEN	003470	I	OPEN	003500

---------- FILE CABINET - MODE 232/233 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	ONLINE HELP AND RUNWARE	003502	F	OPEN	003512
C	OPEN	003504	G	OPEN	003514
D	OPEN	003506	H	OPEN	003516
E	OPEN	003510	I	OPEN	003520

---------- FILE CABINET - MODE 234/235 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	OPEN	003522	F	OPEN	003532
C	RPG STATISTICS LOG	003524	G	OPEN	003534
D	OPEN	003526	H	OPEN	003536
E	OPEN	003530	I	OPEN	003540

---------- FILE CABINET - MODE 240/241 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	SYSTEM MESSAGES - 34R1	003602	F	OPEN	003612
C	OPEN	003604	G	OPEN	003614
D	OPEN	003606	H	OPEN	003616
E	OPEN	003610	I	OPEN	003620

---------- FILE CABINET - MODE 244/245 DRAWER - TYPE ----------

.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE	.F. .D.	FORM TYPE DESCRIPTION	FORM TYPE
B	SYSTEM MESSAGES - 35R1	003642	F	OPEN	003652
C	OPEN	003644	G	OPEN	003654
D	OPEN	003646	H	OPEN	003656
E	OPEN	003650	I	OPEN	003660

- User registration

New columns utilized in the user registration report

```
----------------------USER RESTRICTIONS-------------------------------.**
.MSSDUDPPCDADRITSADFCGPPSSSEAXSOMMVRRRCACCLLBEDAALCSSORRSCC DTR UDC W LEA.
.ORUEPSRCAPDLENORQSNOERUTYTABXXPCUEEFPLUMNGGFNADDOHETKUNQEE WCS SLP P ZLL.
.DHDLDPTHLRRRPDITMGDRNGRASRBTXXRHDRTMWLXPTSLNCTOTCGNSMNEQSL NSI OLY R RTE.
.=================================================================.
                              X II Keyins from MAPPER
                                    X   Compare function
                                     X    Count function
```

- Run registration

There are additional columns added to the end of the run registration line for level 35 New Look.

```
      MODES          . ACT . RESPONSIBLE.M.ST. RES .1MDNF.
.====================.=====.============.=.==.=====.=====.
                     reserved for future use XXXXX XX
    Should control lines be displayed like 34R1?      X    Y=Yes (Default)
                                                           N=NO
                                                           M=MAYBE
       Should run be accessible from RUNS menu?       X    Y=YES
                                                           N=NO (Default)
     Does this report contain only @SC Commands?       X   Y=Yes
                                                           N=NO (Default)
```

FKEY usage in Screen Control is the key for old/new look registration.

continued

Field	Description
D	Y, N, or M (mode). Default = Y. Enter N if the run control report contains the Screen Control run commands of level 35R1 and above (FKEY, PD, named areas, AREA$, or FIELD$). Enter Y or M only if the run control report does not contain the Screen Control run commands of level 35R1 and above. Enter M to make the run adapt itself to the current mode of the user. For users using the user interface of 35R1 and above, entering M displays the system default function key bar with every display function.
N	Y or N. Default = N. Enter Y if you want the run accessible from the **Runs** function key. Entering a Y implies that the run does not need input on a run call or a report on display when executed.
F	Y or N. Default = N. Enter a Y if this is a report containing only Screen Control commands and you want to register it like a run.
Minimum Field Requirements	The minimum fields requiring input for registering a run are the Runid, the Type, and the Rid fields.

The MS (Mode Switch) run is now also available as CS (Cabinet Switch). Report 2G in cabinet 208 is still the controlling report for both runs. In 2G, you may now list a range of cabinets (eg. 2-4 instead of 2,3,4)

With the signon screen displayed, a user can depress F1(REPORTS) to list those Drawers that can be accessed. In order for a Drawer to appear in that list, it must be registered in report 11G of Cabinet 202.

When access rights have been granted to a department with registration in 11G, a user can access a report without switching to the report's cabinet.

```
Line 1          Roll -                                   11G202
.DATE 19 JUL 90  09:30:57  RID     11G   20 APR 90  MAPCOORD
.Drawer Permissions registration (RELEASE)  Cabinet/Drawer Permissions  G003134
*                             . DRAWER  .  RESERVED       .0000000000000000000000000
*                             .  AND    .    FOR          .0000000001111111111222222
*Full DRAWER NAME             . CABINET . FUTURE USE      .1234567890123456789012345
*=============================.=========.=================.=========================
 Free Form                         A0                           W         W
 Production Status                 B0                           R         W
 Factor Base                       C0                           R         W
 Order Status                      D0                           R         W
 Demo Run Functions    LCS         E0                           R         W
 Demo Run Functions    FCS         F0                           R         W
 Demo Free Form Data               G0                           R         W
 Word Processing Reports           H0                           R         W
 Experimental Reports              I0                           R         W
                    ..... END REPORT .....
```

User departments are listed, starting in column 57:

- o Blank - No list or non-switch access
- o W - List and non-switch write capability
- o R - List, but only read on non-switch access

SYSTEM function

The SYSTEM function displays active stations and users.

```
Line 1          Roll -                                          ^RESULT^
.DATE
.CURRENT SYSTEM STATISTICS                                              .
*               .   USER    .DEPT.   MAPPER   . STA . START   .RUN       .
*     TYPE      .    ID     . NO .  FUNCTION  . NUM . TIME    .NAME      .
*==============.===========.====.===========.=====.========.==========.=======.
 ACTIVE USER    OPERATOR       0 II-OPERATOR 99999 00:00:00
 INACTIVE USER                 7 NEW-LOOK    13770 07:12:55
 ACTIVE USER    WEPRWR       100 NEW-LOOK    13274 09:06:46
 INACTIVE USER                 7 NEW-LOOK    11400 09:28:25
 INACTIVE USER                 7 NEW-LOOK    11637 09:26:25
 ACTIVE USER  * MAPCOORD     104 SYS-STATUS  13746 10:01:23
 ACTIVE USER    WEPRWR       100 DISPLAY     13772 10:01:15
                    ..... END REPORT .....
```

KILL run

The KILL run is the level 35 equivalent of STOP. Use the SYSTEM function to locate the run name and station number of the run you want to terminate.

```
        Kill Run or Function

      Run name _____________
       Station _____
       User-id ____________
        Dept # ____
```

Report 7B in cabinet 208 records all runs scheduled by DISPATCHER. If a run is scheduled for multiple executions by minutes, then only 1 entry is written and updated with every execution.

```
Line 1          Roll -                                          7B208
.DATE            10:15:01  RID      7B   24 JUL 90  MAPPER
.SCHEDULED RUN LOGGING: 'DISPATCHER'                                B003202
*           .           .    . SCH .    . START.STRT. END  .END .ACTIVE . ERROR.
* RUN NAME  .   USER    .DEPN. STA .INTV. DATE .TIME. DATE .TIME.MINUTES. CODE .
*==========.==========.====.=====.====.======.====.======.====.=======.======.
 ALARMCHECK  MAPPER       104     1    5 900724 1015
 RPG         DARV           1 10400    D 900713 0020 900713 0021       1      0
 RPG         DARV           1 10400    D 900712 1348 900712 1349       1      0
                      ..... END REPORT .....
```

The INITIALIZE run records system Initialization activity. There are two registrations of this run.

- Background. Schedule INITIALIZE to be executed when the MAPPER system is initialized. This will cause the operator to be asked at MAPPER system start-up for a reason for the start-up. The operator's response is logged in report 9B in cabinet 208, along with the date and time.

- Foreground. Displays the initialization log (9B208) at the terminal. Used to look at the log.

```
Line 1            Roll -                                          9B208
.DATE              15:54:37  RID       9B   22 JUN 90   DARV
.MAPPER INITIALIZATION LOGGING: 'INITIALIZE'                          B003202
*       .        .            .                                              .
* DATE .  TIME  .    LEVEL    .               REASON FROM OPERATOR           .
*======.========.=============.==============================================.
 900720 07:54:26 35.1.0        PURGE



                         ..... END REPORT .....
```

QUEKILL Run

The QUEKILL run will analyze your Message and AUX Queue for Reports that are at least 20 days old. These RIDs will be scheduled for deletion when they are 21 days old.

QUEKILL should be registered as a scheduled background run to execute shortly after midnight everyday. You should also make sure that the START Parameter "TYPPRG" does not have an entry for either the MESSAGE type (003326) or AUX type (003340).

QUEKILL result

```
Line 1          Roll -                                          ^RESULT^
^DATE 24 JUL 90  10:33:45      REPORT GENERATION      MAPCOORD

.-------------------------------------------------------------------.
.          Summary of MESSAGE RIDs Scheduled for Deletion           .
.-------------------------------------------------------------------.
*   .    .       . SEND    .   FROM     . FROM.  TO .DAYS. DELETION  .
*QUE. RID. LINES.  DATE     .   USER     . STAT. STAT. OLD.   DATE    .
*===.====.======.=========.==========.=====.=====.====.==========.
 MSG    1      70 28 JUN 90 CCM          11409   605   26  20 JUL 90
 MSG    6     159 11 JUL 90 SUE          10774   605   13  02 AUG 90
 MSG    9      13 12 JUL 90 MAPPER       99996   605   12  03 AUG 90
 MSG   12      20 12 JUL 90 DARV         99997   605   12  03 AUG 90
 MSG   14      53 24 JUL 90 MAPCOORD     13746   605    0  15 AUG 90

 .-------------------------------------------------------------------.
 .          Summary of   AUX   RIDs Scheduled for Deletion           .
 .-------------------------------------------------------------------.
 *   .    .       . SEND    .   FROM     . FROM.  TO .DAYS. DELETION  .
 *QUE. RID. LINES.  DATE     .   USER     . STAT. STAT. OLD.   DATE    .
 *===.====.======.=========.==========.=====.=====.====.==========.
  AUX    1     143 01 JUL 90 MARK          505   505   22  23 JUL 90


                      ..... END REPORT .....
```

MODULE 6

Configuration and Installation

Module 6 Installation and Configuration

Module Objectives

Upon completion of this module,you will be able to:

- Configure L35 start parameters
- Configure and new recovery environment.
- Run database conversion utilities

TRMFIL - Mass storage file used to save station tables.

- Station table save (includes AUX device)
- Forms stack
- Mode registration
- Type access permissions
- Screen attribute table
- Configured with TPOS parameter

AUDHST - Audit History file.

- Mass storage file used to control the recovery function.
- Configured with MAPFIL parameter
- Should be duplexed

MAPPER will keep a history of audit trail files in a history log. This mass storage file should be assigned with the MAPFIL AUDHST parameter, and be unique for each MAPPER if there are multiple MAPPERs on your system. This file is used when the MAPPER system has to be recovered from the Audit Trail file(s). With this file, the operator is told which tape to mount next. If Disk files are interleaved with tape, the history log file controls the proper sequence for reloading. If a history log file is not assigned, MAPPER will use INDFIL or MAPERO, but these files are susceptible to destruction at PURGE time. It is suggested that this file be placed on removeables, preferably not cached and duplexed for security.

DPOOL - Inactive D-Bank storage

- Optional
- Stores suspended function D-banks instead of writing them to mass storage.
- Dynamically acquires banks with fixed block sizes
- Configured as DPOOL
  - 0 disables caching
  - 1 automatic sizing (1500 words per active station)
  - 50K to 4M words
  - Start with 100K, adjust for 2-5% queing
- Monitor with CSS function

RIDTABLES - RID tables

- Moved from Common memory pool (FPOOL)
- Configured as RPOOL (13.5K to 200K words)
- Start with 20K, then monitor
- Monitor with CSS or RP functions

CSS,C

```
Line 1          Roll -                                          ^RESULT^
.DATE            14:09:21  RID              25 JUL 90  MAPCOORD
.CURRENT SYSTEM STATISTICS: 14:09:21                 PERIOD: 14:05:00  TERM: 02:22:48
*              .      .      . . PRD . PRD . PRD  . PRD .TERM .TERM . TERM .TERM .
*    TYPE      . SIZE . CUR .  . AVG . MAX . RATE . QUE . AVG . MAX . RATE . QUE .
*==============.======.======.==.=====.=====.======.=====.=====.=====.======.=====.
 PCT-ACTIVE     18432 29.19     28.62 29.19                28.62 31.97
 CPOOL-ACTIVE   60000  0.00      0.01  3.34                 0.03  8.54
 MPOOL-ACTIVE  136440  0.00      0.10 17.39                 0.11 26.74
 MBANK-ACTIVE       4 25.00     27.83 50.00                28.28 50.00
 CORE-REQUEST                                0.6820  1.12              0.7531  0.96
 RPOOL-ACTIVE   20000 90.16     90.16 90.16 0.0000  0.00 90.81 98.83 0.0097  0.00
 DPOOL-ACTIVE       0  0.00      0.00  0.00 0.0000  0.00  0.00  0.00 0.0000  0.00
                     ..... END REPORT .....
```

TABLES - Pre-run tables

- 50 tables, 31 words per table
- Contains pre-run tables
- Used only if run registration report is sorted
- Can be monitored with PT function

PT

```
Line 1          Roll -                                          ^RESULT^
.DATE            14:21:04  RID          25 JUL 90  MAPCOORD
. PRE-RUN TABLE INFORMATION
*    .   RID    .  RID    . NON-USE .
*DEPN.   DATE   .  TIME   .  COUNT  .
*====.========.========.========.
  104 23 JUL 90 11:14:44         1
  100 20 JUL 90 09:58:31       210
   19 23 JUL 90 12:11:06       276
   21 24 JUL 90 09:11:59        69
    7 21 MAY 90 14:50:16       113
                     ..... END REPORT .....
```

MAPPER level 35 has an interface to the OS1100 Sort/Merge software package which allows the MAPPER Sort function and the Sort/Merge package to exchange data in a virtually seamless operation.

The time required to sort a MAPPER report becomes significent with as few as 1000 lines.

Configuring the interface to Sort/Merge requires two start parameters:

SRTBDI	BDI for sort/merge. Setting this to 0 disables the external sort.
EXTSRT	Default = 750. External sort threshold value. Setting to 0 disables automatic activation of external sort. If this is 0, you must use the X+ option to use the external sort/merge. Guideline is small (1100/70,2200/200) systems use value between 500-750. LArge systems (1100/90,2200/600) set to value between 750-1500.

If using external sort - configure at least 4 MMP banks. Sort/merge and the interface use a minimum of 10K words, and could use an entire MMP bank. MMP banks must be at least 30k, and closer to 50k is preferable. Beware of deadlocks if banks are not large enough.

Level 35 Recovery Environment

There have been significent changes to MAPPER's recovery environment. New features include:

- Recovery file now called "Audit Trail"
- Recovery to Tape or Disk or both
- Recovery environment configurable
- History Log (AUDHST)

Audit Trail

The Audit trail file may be assigned to reel or cartridge tape, or disk. In the configuration, the preferred medium is designated, and the alternative is used only if the preferred is not available.

Each volume has a unique volume identifier (VID). This VID is placed in every block of a new format tape, but only in the 1st block of an old-format tape (CMP34). When you bring Level 35 up for the first time, MAPPER requests an initial VID assignment. The operator should respond with "AA". MAPPER will then take over the sequencing of the VIDs.

The MAPPER recovery environment is configured in two parts:

Start Parameters

Audit trail configuration

COMP34 — Determines format written to audit trail tape.

1 - Can be recovered on level 34.
0 - All features of level 35 enabled, not recoverable on level 34.

ATCADD — Name of symbolic element of a program file outside of the MAPPER system that contains the audit trail configuration

ATCTYP — If ATCADD NONE, drawer containing the audit trail configuration

ATCRID — If ATCADD NONE, report number of audit trail configuration

MAPFIL — Configure AUDTRL disk file

RCSDEV — The sector-formatted mass storage assign mneumonic for the temporary scratch file used in a long recovery.

RCTAP0
RCTAP1
RCTAP2 — eqpt,opt
eqpt - equipment code (eg. U9)
opt - assignment option(s) (eg. J)
These 3 parameters are a combination of TAPCAD and TAPLAB.

RECBUF — Always enabled. Size of recovery tape buffer pool. Default is 10000

RECOVR — Directs MAPPER initialization sequence.

A - Quick recovery, if fails, sends console message.
I - NO-REC sequence
M - Long recovery with manual reel entry.
N - Quick recovery, if fails, does NO-REC
Q - Asks operator if it should do a quick recovery
Sxx - Where xx is the starting DB cycle. Does a long recovery from this point.
Y - Long recovery using most recent audit trail cycle only.

Configuration report

The audit trail configuration may be stored in a MAPPER report or a symbolic element of a program file.

The default configuration comes on the release, tape stored in cabinet 222, report 2D.

```
.MAPPER Audit Trail DEFAULT Configuration
*=============================.=============================
Audit_trail                    AUD1
Audit_file_check               10
Audit_tape_retention           0
Audit_file_retention           1
Data_tape_retention            6
Audit_tape_reject_days         3
Audit_tape_reject_cycles       2
Audit_tape_label               ignore_file_name
Audit_file_mode                v_option
Audit_list_source              BLANK
Data_list_source               BLANK
Secure                         normal
Pack                           pack_to_tape_only
*------------------------------------------------------------
Tape_equipment                 T36
Equipment_compatibility        RCTAP0
*------------------------------------------------------------
Disc_equipment                 D80
Word_addressable_mnemonic      D
Initial_reserve_tracks         10000
Incremental_tracks             0
Maximum_tracks_allowed         10000
*------------------------------------------------------------
Configuration                  CNFG
Tape_reference                 T36
Disc_reference                 D80
Allow_audits_off               Y
Preferred_initialization       PACK
Interim_disc_timeout           120s
Permanent_disc_timeout         60m
*------------------------------------------------------------
Normal_schedule_time           0600
 Normal_schedule_day           MTWHF
 Preferred_mode                TAPE
 Configuration_reference       CNFG
```

Audit_trail **AUD1**

This defines the start of the audit trail configuration. AUD1 is a specific keyword which is always required. A future level may have different requirements for this parameter.

Audit_file_retention **2**

The number of days that MAPPER will protect a mass- storage audit trail volume. At the end of each CYCLE or NO-RECOVERY operation, MAPPER will delete old mass-storage volumes automatically. The choice of volumes will be based on the same criteria which restrict the re-use of tapes — except that audit_file_retention will supersede audit_tape_retention for that purpose. To disable the mass-storage delete altogether, configure a value here which exceeds Audit_file_check, below.

Audit_tape_retention **0**

This is the value that will be used as retention period when assigning audit trail tape files. To avoid unnecessary tape mounts and labelling errors when the system standard value is used, enter it here, explicitly. MAPPER will not attempt to re-use tape volumes within the specified number of days (up Audit_file_check days, see below), regardless of whether the tapes are labelled or not. Default is system standard, but treated as zero.

Data_tape_retention **3**

This value is used in the same manner as Audit_tape_retention, above, but it applies to data tapes only.

Audit_file_check **10**

This value is the number of days of history that MAPPER will check to see if it can use a particular tape reel. This value must not exceed 63. If unspecified or specified as zero, MAPPER will assume 1. Read-only, labelled tapes with a retention period in excess of this value are protected only by system tape labelling.

Audit_tape_reject_days **3**

This is the number of days during which MAPPER will treat a "required" tape volume as read-only. A required volume is one which is a member of the last "complete" audit trail cycle which applies to a particular database cycle, or a data tape for that cycle. This value is meaningless if it is less than the audit_tape_retention value. Default is zero.

Audit_tape_reject_cycles 3

The number of database cycles which MAPPER will preserve a "required" volume.

Audit_tape_label **ignore_file_name**

The value MAPPER will request for the accessibility field of the HDR1 label. MAPPER makes no attempt to alter any other field. There are two legal values for this parameter: ignore_file_name and tapes_are_not_read_only. The first has the effect of assigning the tape with the F-option, the second without the R-option.

Audit_file_mode **v_option**

Keywords are V_OPTION, PRIVATE, G_OPTION, and STORE_THRU. Each refers to an option letter applied to the cataloguing of a mass storage audit trail volume. Mulitple keywords may be specified by separating them with commas

Audit_list_source **CANNED_LIST**
Data_list_source **CATALOGUE**

The source of tape volume lists for MAPPER. All are available for audit trail tapes or data tapes.

BLANK	Request BLANK tapes only.
CANNED_LIST	Use volumes named in the "canned" lists defined in the LISTS section.
CATALOGUE	Use tape volumes associated with the catalogued tape file named as the duplex file on the MAPFIL directive.
RUN	Invoke the run defined as AUDIT_LIST_RUN. It will prepare a list for MAPPER's use.

Audit_list_mode **break_on_cycle**

When (and if) MAPPER is to start a new list.

CONTINUOUS or NO_BREAK	don't acquire a new list at NO-REC, ignore any other break parameters.
BREAK_ON_CYCLE	acquire new list at time of a NO-REC or CYCLE
BREAK_ON_PACK	acquire new list at NO-REC, CYCLE, or PACK
WRAP_AROUND	attempt to restart the current list when it becomes exhausted instead of using BLANKs.

If there is no list break configured and dual tapes are in use, MAPPER will commandeer the "spare" tape for a PACK or CYCLE. If there is a list break, MAPPER will not use the spare tape, even if BLANKs are requested. Lists for data tapes (MAPDAT) are always "new" (broken) at the start of a PURGE or SECURE.

Audit_list_run **list-run-name**

The name of the run which will provide the volume list. See audit_list_source, above. The run may also be used for data tapes.

Audit_list_run_department **104**

The department where the audit_list_run is registered.

Audit_status_interval **0**

The interval, in minutes, between audit trail status messages. Zero disables the feature. Status messages are triggered by updates.

Online_start_timeout **2m**

The time, in minutes, which MAPPER will wait in an attempt to acquire a tape servo for an on-line PACK or CYCLE. When time expires, MAPPER will initate update suspense, etc, proceeding with the function. Interim disc timeouts and such start counting at the time this timeout expires. This timeout has no effect at all on an initial startup of any kind. 0 - 63 min.

Secure **normal**

NORMAL	Execute the SECURE process immediately following the completion of a MERGE.
EXTERNAL	Do not execute SECURE after the MERGE process.
NOT_VERIFIED	PURGE and SECURE assume a positive response to console message #2667, and proceed regardless of the readability of the output tapes.
ALLOW_CYCLE_WITHOUT_SECURE	If EXTERNAL is specified and a subsequent II-SECURE is not contemplated, configure this value to allow a subsequent CYCLE.

Pack **pack_to_tape_only**

The alternate value is ALLOW_PACK_TO_DISC, which will be ignored if the COMP34 start parameter is set.

Audit_sanity_check1 **30m**
Audit_sanity_check2 **180m**

These parameters effect recovery only, for determining the validity of the "last update time", etc. The above values are the defaults.

Auto_cycle_percent_full **0**

When the update file reaches the configured percent of its capacity, MAPPER does a CYCMRG automatically. Configure zero to disable this feature.

Auto_cycle_reject_size **0**

When the smallest rejected request for update file space falls below this size (in tracks) MAPPER will do a CYCMRG automatically. Configure zero to disable this feature. MAPPER will use reject_size or percent_full, whichever it encounters first.

Section 2 -- Tape equipment

Tape_equipment **T36**

This specifies the start of a tape equipment section. It can be any combination of up to six non-space, non-tab characters.

Equipment_compatibility **RCTAP0**

This specifies the compatible equipment type. RCTAP0 thru RCTAP2 are keywords referring to the start parameters of the same name. (RCTAP0 redefines the TAPCD/TAPLAB parameters.)

Equipment_mnemonic **36N**

This overrides the RCTAPn start parameter.

Equipment_features **equipment_requires_unlabelled**

Defines specific, generic features of the tape hardware. Allowable values are EQUIPMENT_REQUIRES_UNLABELLED and BUFFERED.

Specifying BUFFERED enables BUFFERED_TAPE_OPTIONS (q.v.) in the CONFIGURATION section.

Repeat the entire tape equipment section as many times as desired, using a different name each time.

Section 3 - Disc equipment

In the interest of data integrity, disc audit trail files should be protected from any site procedures which delete files automatically, at least until they have had a chance to age somewhat.

Disc_equipment **D80**

As with tape equipment, D80 is a name, not a keyword.

Word_addressable_menmonic D

This is the appropriate assign mnemonic for word-addressable mass storage as known to the operating system, e.g. D70M, D80C, etc. If removable disc is to be used, these must always be correct.

Initial_reserve_tracks 10000
Incremental_tracks 0
Maximum_tracks_allowed 10000

The above parameters affect the size of any disc volumes created by MAPPER.

Removable_packs **PAKID1,PAKID2,...PAKIDn**

Specifies removable disc pack IDs which MAPPER should use for disc audit trail volumes.

Repeat the entire disc equipment section as many times as desired, using a different name each time.

Section 4 - Configuration

Configuration **CNFG**

As with tape and disc equipment, CNFG is a name. A configuration defines several preferences and equipment combinations which might be preferred.

Tape_reference **T36**

This parameter refers to a previously-defined TAPE_EQUIPMENT item.

Disc_reference **D80**

This parameter refers to a previously-defined DISC_EQUIPMENT item.

Allow_audits_off **Y**

Whether or not MAPPER may run with audit trail turned off.

Preferred_initialization **PACK**

How MAPPER will start. Valid keywords are PACK, HOT_START, SLOW_PACK, DEFAULT. DEFAULT will select PACK if the audit trail mode is tape, HOT_START if disc. DEFAULT is the default if the parameter is not specified.

Interim_disc_timeout **120s**

This parameter specifies a 'tape mount timeout' in seconds. After waiting for a tape mount for the specified time, MAPPER will initiate 'interim disc' audit trail logging. When the tape does get mounted, MAPPER will copy the contents of the interim disc to the tape, then discard the disc file. Specify zero to disable the feature. Avoid values of less than 5s (except zero) or greater than 511s — a period in excess of eight minutes. PACK will not write to an interim disc file.

Permanent_disc_timeout **60m**

This parameter specifies a time, in minutes, after which MAPPER will initiate a permanent disc audit trail. If an interim disc is use, it will become permanent — MAPPER will not attempt to copy it to tape. Otherwise, this is completely independent of the interim_disc_timeout. Specify zero to disable the feature. Values less than the interim disc timeout will override that feature. Values in excess of 511m may not produce the expected results (but that's over eight hours!) Do not be too optimistic when specifying this parameter, or there may be an excessive number of permanent disc audit trail volumes.

Buffered_tape_option **FLUSH_BUFFER**

This parameter specifies the method used to safeguard updates written to buffered tape devices. It is operational only if the tape_equipment referenced specifies buffered on the equipment_features statement. Flush_buffer is the default.

none	MAPPER takes no special action
flush_buffer	MAPPER will force the buffered device to flush its buffer each time it perfoms an IO to the device.
backup_disc	MAPPER will maintain a disc file in parallel with the tape. When the disc file reaches its configured wrap around point (or its initial size), MAPPER will force the tape unit to flush its buffer, then restart the disc file. When the tape is successfully closed, without error, MAPPER will delete the disc file. Not applicable when COMP34 is set.

Backup_wrap_tracks **size**

If backup_disc is configured, this parameter defines the wrap-around point of the backup disc file. Note: MAPPER does not treat this limit as absolute,it may exceed it, but only with one IO.

Audit_tape_list **MWF**

The value is a name, 1-6 characters, to be referenced later.

List_compatibility **RCTAP0**

See equipment_compatibility, above.

Tape_volumes **MWF1,MWF2,MWF3,...,MWFn**
Tape_volumes **MWF11,MWF12,MWF13,...,MWFln**

As many reel numbers (VSNs, VOLSER numbers, whatever) as will fit, separated by commas. Multiple images are fine.

An entire list, as an example:

Audit_tape_list	THWE
List_compatibility	RCTAP0
Tape_volumes	THWE1,THWE2,THWE3,...,THWEn
Tape_volumes	THWE11,THWE12,THWE13,...,THWEn

Data tape lists are identical to the audit tape lists, but the initial parameter name is DATA_TAPE_LIST

Specify as many lists as desired, insuring that each has a unique name.

Section 6 - Schedules

All schedule items start off by specifying a time and days or date, with two, separate statements.

All schedule items are in effect until superseded by another. Each may span many days, if desired. Results may be unpredictable if two items come into effect at the same, exact time. Special schedule items override normal schedule items.

Normal Schedules

Normal_schedule_time **0600**
Normal_schedule_day **MWF**

Schedule times are in the format shown (HHMM), 24-hour time from 0000 - 2359. 2400 is ambiguous and will cause an error.

Schedule days are days of the week, each represented by a single letter with Monday, Tuesday, Wednesday, tHursday, Friday, sAturday, and sUnday represented by M, T, W, H, F, A, and U, respectively. This example shows Monday, Wednesday, and Friday.

Preferred_mode **DUAL_TAPE**

This specifies the preferred mode during the specified schedule period. Valid keywords are DUAL_TAPE, TAPE, DISC, and NONE.

Configuration_reference **CNFG**

Specifies the name of a previously-defined configuration parameter. That, in turn, will define the equipment available, etc.

Schedule_name **DAYS**

This parameter, if present, names the schedule item in use. Its only function is to identify the schedule item to the operator. If absent, no identification message will be generated.

Lookahead_time **30m**

This parameter specifies the time MAPPER should look ahead for schedule changes. Operator notification only

Auto_start **PACK**

Functions to be started automatically at the start of the scheduled time period. These may be PACK, CYCLE_ONLY, PINDEX, CYCLE, MERGE, SECURE, or combine the last three with CYCMRG.

List_reference **MWF**

Specifies the list to be used, named on a previous AUDIT_TAPE_LIST parameter, only if AUDIT_LIST_SOURCE is a CANNED_LIST. The corresponding parameter for data tapes is DATA_LIST_REFERENCE, which must refer to a list named on a DATA_TAPE_LIST parameter.

Normal schedule examples:

```
Normal_schedule_time          0600
Normal_schedule_days          TH
Schedule_name                 DAYS
Configuration_reference       CNFG
Preferred_mode                DUAL_TAPE
List_reference                THWE
Auto_start                    PACK
```

This schedule is identical to the first one, but it takes effect at 0600 on Tuesdays and Thursdays.

```
Normal_schedule_time          1930
Normal_schedule_days          MWF
Schedule_name                 EVENING
Preferred_mode                TAPE
Configuration_reference       CNFG
List_reference                THWE
```

This will allow MAPPER to release the second tape drive at the first tape swap after 19:30 (7:30 PM), until 06:00 when another item specifies the second servo. This schedule item will be in effect from 1930 Friday until 1800 Sunday.

```
Normal_schedule_time          1800
Normal_schedule_days          U
Normal_schedule_days          SUN-NIGHT
Configuration_reference       CNFG
Preferred_mode                DISC
List_reference                MWF
```

This set of schedules would accomodate a daily CYCLE, Monday thru Friday, sometime between 1930 and 0600 the next morning, and a weekly PURGE on Sunday, sometime after 1800.

Special schedules

Special schedule items are intended for holidays, etc.

```
Special_schedule_time         1500
Special_schedule_date         1990 Jun 30
Preferred_mode                TAPE
Configuration_reference       CNFG
Schedule_name                 JULY4TH!
Special_schedule_time         0300
Special_schedule_date         1990 Jul 05
```

Special schedules accept dates, rather than days of the week. Omit the configuration_reference to indicate the end of a special schedule item.

This example might cover the 4th of July holiday (1990) if Monday and Tuesday are also taken as holidays. All normal schedule activity will be ignored from 3:00PM on Sat, Jun 30, until 3:00AM on Thursday, Jul 05.

If anything happens during this period which requires a new list, MAPPER will ask for BLANKs since there is no list_reference.

MAPPER now uses the terms "Quick recovery" and "Long recovery".

Quick recovery	The standard start-up procedure. Two options are given, HOT-START and PACK. The HOT-START does not write the updates to the audit trail, or start a new audit trail cycle.
Long recovery	Reads the updates in the audit trail volumes and applies them to the update file.

Operator Commands

II MAPPER ATDISC	Switches the audit trail to disk
II MAPPER ATDISK	Same as ATDISC
II MAPPER ATDROP	Drops the audit trail, switches to NO-MODE.
II MAPPER ATSPUP	Temporary dual-tape mode, effective until the next tape swap. At swap, MAPPER goes to the spare and releases the original.
II MAPPER ATSPDN	Reverses the effect of an ATSPUP.
II MAPPER ATSWAP	Swaps to the next audit trail volume, disk or tape.
II MAPPER ATTAPE	Changes audit trail to single-tape mode.
II MAPPER ATTAP1	Same as ATTAPE.
II MAPPER ATTAP2	Switches the audit trail to dual-tape mode.

Hot Standby

MAPPER can be configured to use the Multi-Host File Sharing (MHFS) and Automatic Recovery of Components (ARC) features. When configured for Hot-standby, MAPPER registers with ARC and maintains a periodic heartbeat to show it's continued operation.

Hot-Standby will restart MAPPER under three conditions:

- MAPPER component failure.
    - If MAPPER detects a failure with a program contingency, MAPPER will de-register itself with the ARC, do a controlled termination, then restart.
    - If MAPPER did not detect the termination (heartbeat terminated), then the ARC terminates and restarts MAPPER.

- Operating failure with no standby system.
    - The ARC will restart MAPPER after restarting the OS1100.

- Operating system failure with a standby system.
    - Only if COMP34 is set to 0.
    - Only if MAPPER has been configured to use shared files.
    - The ARC will restart MAPPER on the standby system

HBTBDI	0402105	The BDI for the Application Interface common bank (AIB). This is the interface for Hot-Standby.
HBTTIM	0	Minimum time lapse, in seconds between heartbeats. 0 disables Hot-standby. Values are 0-30.
HBTTRM	1	Should MAPPER terminiate when two consecutive heartbeats are undetected. 0 = no.
HBTCMP	NONE	The runstream to be used to restart MAPPER on the same computer, if a MAPPER component failed.
HBTENT	01000	Entry point for AIB.
HBTLOC	NONE	The runstream to be used to restart MAPPER on the same computer if the operate system fails.
HBTSHR	NONE	The runstream to be started on the standby system if the same computer is unavailable.
MAPDIR	BLANK	The directory name for file sharing. - STD = Standard file names. - SHARED = Shared files.

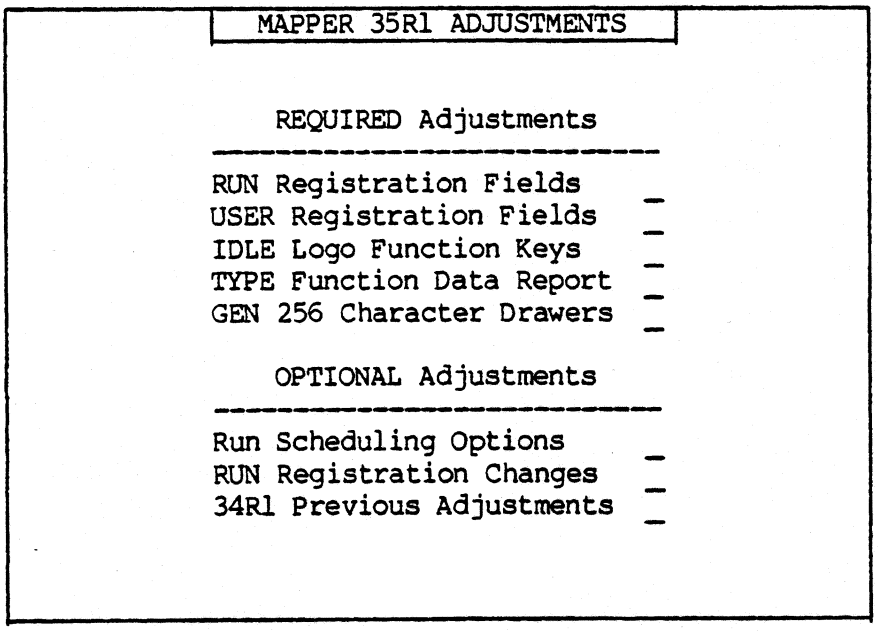
Operator commands

II MAPPER HBTON	Turn on the Hot-Standby interface.
II MAPPER HBTOFF	Turn off the Hot-Standby Interface.
II MAPPER PARAMS	On-line change to these parameters HBTCMP HBTLOC HBTSHR

Other new Configuration Parameters

CDPTYP	003134	Cabinet/drawer permission report type
CDPRID	11	Cabinet/drawer permission report number
LOOKSW	7	Enable/disable global New Look. Bit code 0-7. Bit 0 - 1, LOOKSW command enabled. Bit 1 - 1, Menu interface is default. Bit 2 - 1, Runs using menu are allowed.
MXDEPN	999	Maximum department number allowed. 1-999
SECMSG	0	1, Echo user sign on errors to the console
SSSTYP	000001	Drawer for messages if no RID on display
TIPBAT	0	TIP priority of runs to execute at batch priority. If a run is configured to execute at a tip priority higher than the TIPLVL, the run will execute at batch priority. 0-100.
MAXACT		The maximum number of stations that can concurrently be using MAPPER.

The ADJUST run is used to update portions of your database affected by level 35. You must execute the "GEN 256 Character drawers" to use APT. Once you have allowed 256 character drawers, you must also change the COMP34 parameter to 0.



MODULE 7

Networking

Module 7 Networking

Module Objectives

Upon completion of this module, you will be able to:

- Configure connectivity to other MAPPER systems
- Use the new run networking statements

MAPPER Networking

MAPPER networking gives you on-line connectivity to other MAPPER systems, either on the same host or different hosts. With networking, you can:

- Transfer reports between MAPPERs
- Execute Run statements on another MAPPER
- Pass-thru to another MAPPER

On the 1100 and 2200 systems, MAPPER uses DDP-1100 for networking. Start parameters for networking are:

NETNAME - Cannot be same as MAPNAM)

NETRMR - 1 (turns on interface)

NETTYP - Cabinet/Drawer of network configuration report

NETRID - Report number of network configuration report

HSTID - Host name

Network Configuration Report

Default = Cabinet 206, Drawer C

```
Line 1          Roll -                                          1C202
.DATE 25 JUL 90  17:39:32  RID      1C    12 JUL 90  MAPCOORD
.Network Configuration Report                    System Configurations    C003124
*                  .S.                        .S.COM . HOST
*   NETWORK NAME   .L.NETWORK PATH NAME       .L.TYPE. NAME
*=================.=.=======================.=.====.============================
 SYSTEM1            A MAPPER                    DDP  HST1
 SYSTEM2            B MAPPER                    DDP  HST2
 SYSTEM3            C MAPPER                    DDP  HST3
 SYSTEM4            D MAPPER                    DDP  HST4
                     ..... END REPORT .....
```

When the logo screen is on display, the user depresses F7REMOTE to display possible system connections. For pass-thru, tab to the desired system name and transmit.

```
Current System: 3

        System Select
Locate:
 NAME                SITE
SYSTEM1                A
SYSTEM2                B
SYSTEM3                C
SYSTEM4                D
```

Networking Run Statements

Networking run statements allow a user, within a run to access another MAPPER site. The user must be registered to execute the INTER-RUN run (supplied).

@NET - The NET command signs on to a remote MAPPER.

@NET,net-id,site[,rmu,rmd,rmp,trn,mtr,lab]

net-id - Name of remote MAPPER system
site - Site-letter
rmu - Remote user-id
rmd - Remote department
rmp - Remote password
trn - Translation report number
mtr - Monitor
lab - Label on no-connect

Note: The user,dept,password defaults to the current

@NOF - The NOF command signs the user off the remote MAPPER and closes the communication connection with the remote system.

@NOF

@NRD - The NRD command allows a user, who is signed on to a remote system, to read and return a report to the local MAPPER system.

@NRD,im,it,ir,rm,rt,rr,lab vmsg

Note: the receiving report defaults to -0

@NRM - The NRM command executes runs and manual commands on the remote MAPPER system. The run remains active while the command is executing at the remote site. If the NRM statement starts a run, the run itself can return to the local site with a @NRT command.

@NRM "command" .

@NRT ["command"]

@NRN - The Network Run (NRN) command allows a user to pass run statements to a remote system. To process the result, you must rename the result first. To avoid conflicts with the INTER-RUN run, do not use V1-V15 in the NRN statement.

```
@NRN,lab 'run statements" vmsg
```

@NWR - The Network Write (NWR) statement allows a user to send a report or result to a remote MAPPER system.

```
@NWR,im,it,ir,rm,rt,rr,lab vmsg
```

Example: Sign-on to SYSTEM1, site A as JDOE,16,CUBS. Send report 2B in cabinet 0 into cabinet 14, drawer D. Execute a run called LOOKUP. Transfer report 45D in cabinet 14 back to the local system and sign-off SYSTEM1.

```
*=============================
@NET,SYSTEM1,A,JDOE,16,CUBS,,,10 .
@NWR,0,B,2,D,14,,99 V21S80 .
@NRM LOOKUP .
@NRD,14,D,45,,,,99 V21S80 .
@NOF .
   ...PROCESSING....
@99: ...ERROR PROCESSING...
```

MODULE 8

MAPPER
Relational
Interface

Module 8 Relational Interface

Module Objectives

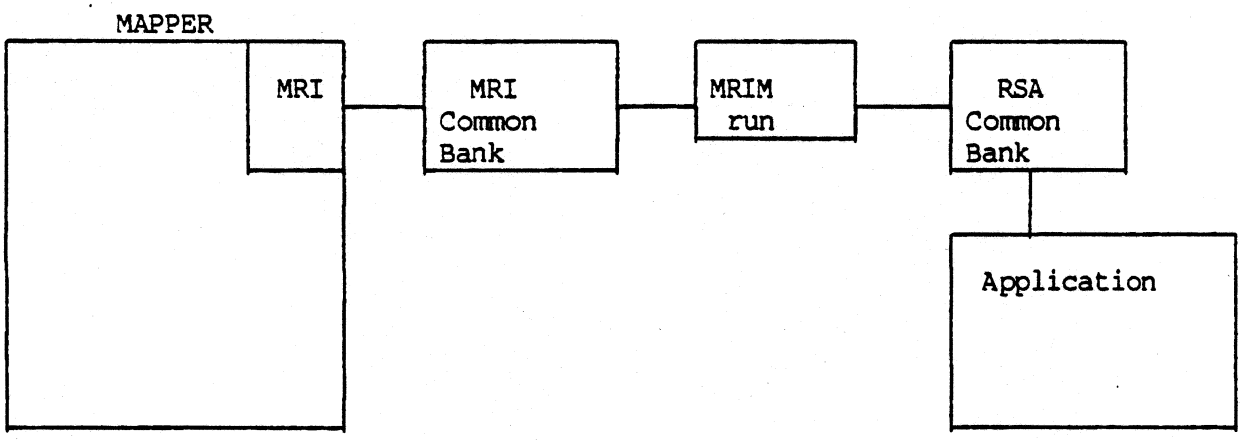
Upon completion of this module, you will be able to:

- Describe how MAPPER level 35R1 interface to relational databases
- Identify the steps necessary to set-up the MRI Interface
- Describe the purpose of the MRIDBA and RDI runs.

With the MAPPER Relational Database Interface installed on your system, you have the ability to access a relational database on your local host system or another host.

MRI installs a common bank MRI. A batch run, called a MIRIM run has to be started. This batch run executes an absolute called SERVER, which reads a card image configuration element called *MRI/PARAMATERS. These parameters identify a BDI of an RSA common bank and a UDS application name. SERVER then generates a "Begin Thread" for the application (if SERVER has any problems, The MRIM run aborts). SERVER then connects to the MRI common bank.

In MAPPER, the MRI function is responsible for interfacing with the MRI common bank. The RDI run will pass requests to MRI for manual access. There are also new Run statements to access MRI within a user-written MAPPER run. Databases and applications are registered with the MRIDBA run. This run can also register user restrictions on a database level.



The MRIDBA run registers databases and user restrictions.

Databases are registered in cabinet 202, report 1C.

```
.DATE 20 AUG 90  16:00:03  RID      1C   27 JUL 90  CCM
.Network Configuration Report                System Configurations  C003124
*                  .S.                 .S.COM .       .MRI.        .Thr .
*   NETWORK NAME   .L.NETWORK PATH NAME .L.TYPE.       . ID.DBMSType.Cnt .
*=================.=.==================.=.====.======.===.========.====.
 system2                                  dir            1 rdms4       5
 system1                                  dir            2 rdms4       5
 monica                                   dir            3 rdms4       5
                        ..... END REPORT .....
```

1. Run MRIDBA. Choose Register database names. On the first menu enter a name for your database. On the second menu, enter the database type (RDMS4, DB2v1, or DB2v2) of your database, Max threads (as desired), Communication type DIR for RDMS or 6.2 for DB2, leave Network path blank, MRIM ID which corresponds to the MRIMID parameter, and Application group name (if the data manager is RDMS). Press Transmit to register the database name. Then press Return (F4) twice to return to the MRIDBA menu.

*** If you are not using RDMS 1100, skip to step 3 ***

2. On the MRIDBA menu, choose Application Group Set-up to set up the necessary parameters and tables for your application group.

   A. Choose set up parameters. These Parameters will be used for batch runs. Update the parameters with the values applicable for your site.

   B. Choose Create Storage areas. This is a batch job that will create storage areas required by RDI. The batch run stream will be displayed. Press the Start key (F1) to start the job. Your terminal will "beep" when this is done. (Press MSG Wait).

   C. Run MRIDBA, Choose Application Group set-up and then choose Create MRI.TABLES. This is a batch job that will create an RDMS table containing a list of tables in your database. Your terminal will "beep" when this is done.

   D. Run MRIDBA, Choose Application Group set-up, then choose CREATE MRI.TABAUTH. You may be required to use a different userid, because MRI.TABAUTH is a view based

   E. Run MRIDBA, Choose Application Group set-up, then choose Create demo tables. This will link to RDI,RESTORE to create the demo tables, and present you with a menu when the process is finished. When you transmit, the TABLES run will be executed to update MRI.TABLES.

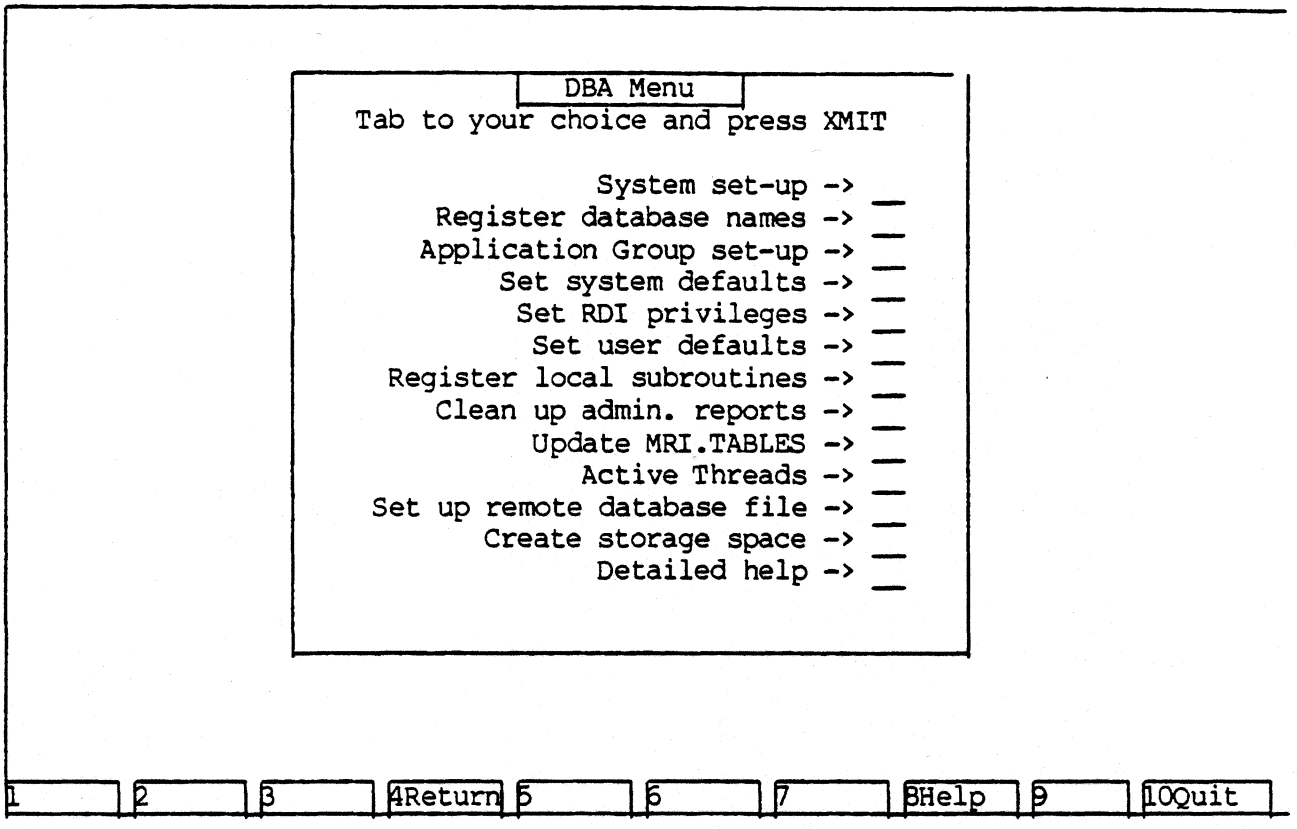
3. Use MRIDBA to set your system default names and RDI Security.

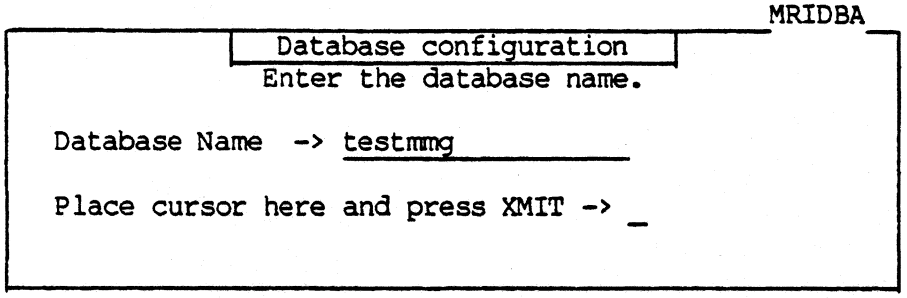
*** If you are not using RDMS 1100, execute the run RDI,RESTORE to create the demo database. This completes your system setup. ***

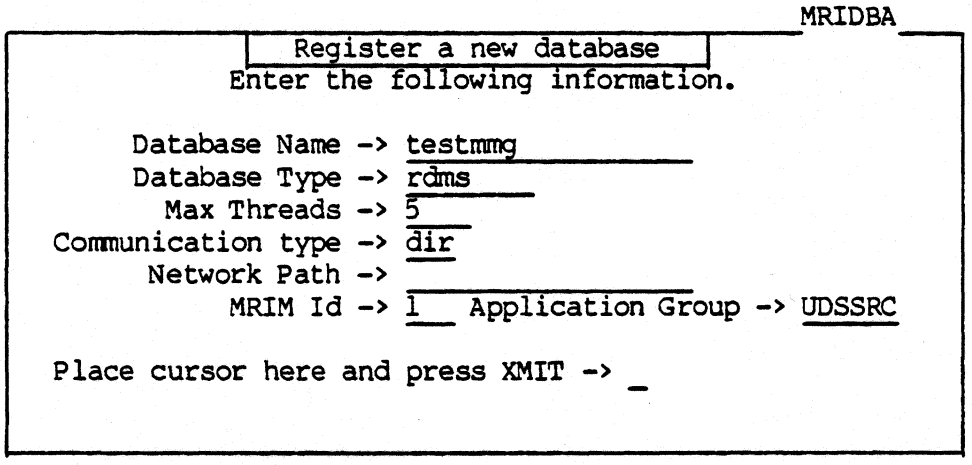
5. If you add a different application group, use MRIDBA and follow the steps under Application Group set-up.

*** Step 6 is only applicable for RDMS 1100 ***

6. Whenever you add or drop tables and views outside of RDI, execute the TABLES run to update MRI.TABLES. You may wish to schedule the TABLES run as a daily run. Parameters on TABLES are:
   TABLES,station,database,application


DBA Menu
Tab to your choice and press XMIT
System set-up ->
Register database names ->
Application Group set-up ->
Set system defaults ->
Set RDI privileges ->
Set user defaults ->
Register local subroutines ->
Clean up admin. reports ->
Update MRI.TABLES ->
Active Threads ->
Set up remote database file ->
Create storage space ->
Detailed help ->
1
2
3
4Return
5
6
7
8Help
9
10Quit


MRIDBA
Database configuration
Enter the database name.
Database Name -> testmmg
Place cursor here and press XMIT ->


MRIDBA
Register a new database
Enter the following information.
Database Name -> testmmg
Database Type -> rdms
Max Threads -> 5
Communication type -> dir
Network Path ->
MRIM Id -> 1 Application Group -> UDSSRC
Place cursor here and press XMIT ->

Users may be assigned certain priviliges for each database.

```
                    Set RDI privileges
     Enter the MAPPER user-id, department number, and database name

            MAPPER user-id -> WEWMSE
          Department number -> 19
              Database name -> MONICA

              Place cursor here and press XMIT -> _
```

```
                    Set RDI privileges
        For user-id, WEWMSE in department 19, database MONICA
                     Answer y to set privileges.
     All privileges? -> y      All privileges with DBA access -> y

        Select -> _          Join -> _          Insert -> _
        Delete -> _        Update -> _          Create -> _
      Restrict -> _       Destroy -> _           Alter -> _
           SQL -> _  Create view -> _       Drop view -> _

     Maximum rows to retrieve -> _____

     Access Special Options menu on Select, Join and SQL? -> y
           Explain -> y        Background run -> y

     Place cursor here and press XMIT -> _
```

User privledges stored in cabinet 214, report 2H

```
.DATE 20 AUG 90  15:45:55  RID      4H   16 JUL 90  CCM
.@       RDI security report                        RDI Administration
.MRI 3R2 Rev. 0.00    891005  1100
*            .    .Database    .A .S .I .D .U .J .C .R .D .A .C .D .D .S .      .
*Userid      .Dept.Name        .LL.EL.NS.EL.PD.OI.RE.ES.ES.LT.VI.VI.BA.QL.rows .
*============.====.============.==.==.==.==.==.==.==.==.==.==.==.==.==.==.=====.
 CCM             1 SYSTEM1      y                                        y
 WEwmse         19 RDMS         y                                        y
 WEBLRW         21 RDMS         y                                        y
 LRC           108 RDMS         y                                        y
 PUBLIC                         y                                        y
```

```
                                                              RDI
                          DBMS menu
Enter the database to access.

Database name -> systeml

Database user-id -> MAPCOORD

Database password ->

Place cursor here and press XMIT -> _
```

```
                                                              RDI
                          RDI menu

          Tab to your choice and press XMIT

                              Select _
                                Join _
                              Insert _
                              Delete _
                              Update _
                              Create _
                                 SQL _
                      Utilities menu _
                       Detailed help _

                           Rev. Level 3R2
```

R4-3. Economics of Relational Database Systems

For the database user, relational database systems provide:

- o data independence
- o conceptual simplicity
- o table-at-a-time processing capability.

As a result, relational database users can expect to realize enhancement in:

- o ease of use
- o application development speed
- o application structure flexibility
- o application maintenance reduction
- o application conversion speed.

For these benefits, database users accustomed to DMS-1100 will be trading off:

- o higher operational cost
- o more redundancy of data
- o more internal complexity in support software

The bottom line in efficiency, however, needs to include the total expenditure over the life of the product not just the milliseconds or seconds spent on a given transaction.

R4-4. Rules for Tables

1. Each column needs a unique name within the table.

2. At intersection of row and column is a single value or character string: there are no repeating groups.

3. All values in a given column are of the same kind; that is, in the same set of possible values defined for that column.

4. Each row has a unique identifier: a column or group of columns whose value occurs only once in the table. This identifier is called the primary key.

5. The order of rows and columns within a table has no significance.

RELATIONAL ALGEBRA

- **SELECT** — CONDITIONALLY CHOOSE ROWS FROM A TABLE
- **PROJECT** — CHOOSE COLUMNS FROM A TABLE
- **JOIN** — COMBINE COLUMNS FROM TWO TABLES TO FORM A THIRD TABLE

THE RESULT OF A RELATIONAL ALGEBRAIC OPERATION IS ALWAYS ANOTHER TABLE.

RELATIONAL ALGEBRA IS THE BASIS OF ALL RELATIONAL DATABASE MANIPULATIONS. HOWEVER, RDMS-1100 PROVIDES THIS FUNCTIONALITY USING ITS OWN SYNTAX.

v4-10