



NEC

Reality v7.0

Migration Utilities User Guide

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Document control

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Section 1: About this manual

1.1 Purpose of this manual

This manual is intended to provide the System Manager or Operator with the information necessary to run any of the REALITY Migration Utilities.

The Migration Utilities main menu comprises three options as follows:

```
REALITY Systems Migration Facility - Version 2 March  
1990  
  
1. For migration to Release 7.0  
  
2. For migration from Release 7.0  
  
3. To locate User Exits.  
  
99. Return to TCL  
  
Enter selection:
```

You should run the relevant utilities on your system before transferring to another operating system release. They are intended as aids to make migration more efficient. Option 1 should be run on Release 2.3, 3.0, 5.3 or 6.0 before upgrading the system to 7.0.

The utilities provided by option 2 are designed to run on Release 7.0. These allow you to migrate an individual account to earlier releases, 2.3, 3.0, 5.3 or 6.0.

Option 3 runs on any of the above releases except 7.0, allowing you to locate User Exits that have been moved or made obsolete on Release 7.0.

1.2 How to use this manual

To load the migration utilities onto your system, consult Chapter 2, which provides a detailed description of this procedure.

To upgrade your system to Release 7.0 (option 1), refer to Chapter 3. This chapter does the following:

- Discusses the main considerations when migrating to 7.0.
- Lists the migration utilities available, summarizing what each one does and why.
- Gives a step-by-step procedure for the upgrade.
- Describes the operation of each utility.

To transfer an account from Release 7.0 to an earlier operating system release (option 2), refer to Chapter 4. This chapter explains the following:

- Discusses the main considerations when transferring data from 7.0 to an earlier release.

- Lists the migration utilities available, summarizing what each one does and why.
- Gives a step-by-step procedure for the migration.
- Describes the operation of each utility.

When upgrading to Release 7.0, the utilities described in chapter 5 will locate all User Exits on your system which have been moved or made obsolete for 7.0 (option 3). When migrating from 7.0, these utilities will locate all User Exits which were moved for 7.0.

Appendix A is a Decimal, Hexadecimal and ASCII Table.

Appendix B describes three extra utilities:

- File reallocation on 7.0
- Removal of reallocation parameters (on any release)
- Reinstatement of passwords on 7.0

The first is run on Release 7.0 to carry out resizing of all files on the system, placing the reallocation parameters in attribute 13 of the File Definition Item. The second can be run on any release to remove these values from attribute 13. The third is used to encrypt and reinstate passwords once a system has been upgraded to Release 7.0

1.3 Using this manual for RealityX

RealityX Release 2.0 is largely a direct portation of REALITY Release 7.0 onto UNIX, providing an environment which is highly compatible with 7.0. Consequently, the migration utilities described in this manual can also be used to migrate between REALITY Releases 2.3, 3.0, 5.3 or 6.0 and RealityX Release 2.0. To follow these procedures for RealityX, simply substitute 'RealityX Release 2.0', wherever REALITY Release 7.0 is referred to.


Note, however, that when you run the File Sizing Report and Disc Space Report utilities, described in Chapter 3, to upgrade to RealityX, the file size data displayed in Reports #1 and #2 are only an approximation to the actual file sizes and disc space required for the newly created RealityX database. Overheads for RealityX programs, associated UNIX programs and so on, are not included.

As REALITY Release 7.0 and RealityX Release 2.0 are so compatible, you do not need to run any migration utilities to migrate between them. Just save and restore on the new system.

1.4 Conventions

The following conventions are used in this manual:

Conventions	Definition
Text	Bold text shown in this typeface is used to indicate input which must be typed at the terminal.
Text	Text shown in this typeface is used to show text that is output to the screen.
Bold text	Bold text in syntax descriptions represents characters typed exactly as shown. For example,

Conventions	Definition
	WHO
Text	<p>Characters or words in italics indicate parameters which must be supplied by the user. For example, in</p> <p>LIST <i>file-name</i></p> <p>the parameter <i>file-name</i> is italicized to indicate that you must supply the name of the actual file defined on your system. Italic text is also used for titles of documents referred to by this document.</p>
SMALL CAPITALS	Small capitals are used for the names of keys such as RETURN.
Enter	<p>To enter means to type text then press RETURN. For instance, 'Enter the WHO command' means type WHO, then press RETURN.</p> <p>In general, the RETURN key (shown as ENTER or  on some keyboards) must be used to complete all terminal input unless otherwise specified.</p>
Press	Press single key or key combination, but do not press RETURN afterwards.

Section 2: Loading the migration utilities

This chapter tells you how to load the MIGRATION.UTILITY account onto your system.

2.1 Procedure

- 1 Mount the REALITY Migration Utility tape on a tape drive on the system on which you want to run the Migration Utilities.
- 2 Log on to SYSPROG
- 3 Assign the tape unit using
ASSIGN =TAPE {unit-number}
- 4 Load the MIGRATION.UTILITY account by entering,
ACCOUNT-RESTORE MIGRATION.UTILITY
- 5 From SYSPROG enter,
UPDATE-ACCOUNT

You are prompted

Enter ACCOUNT name?

Enter

MIGRATION.UTILITY

When the restore is complete the TCL prompt is returned.

- 6 Before running any of the migration utilities you are advised to have everyone log off the system (check by entering **LISTU**) and ensure that no TIPH processes are running (check by entering **PH-STATUS**). Then, stop users logging on by entering, from SYSPROG,

INHIBIT-LOGONS *

Unless you are working from port 0 (which is unaffected by INHIBIT-LOGONS *) reenable logons for your port using:

ENABLE-LOGONS {port-number}

- 7 Log to the MIGRATION.UTILITY account.

2.2 Menu

The Migration Utilities menu will display when you log to the Migration Utilities account:

REALITY Systems Migration Facility - Version 2 March
1990

1. For migration to Release 7.0
 2. For migration from Release 7.0
 3. To locate User Exits
-
99. Return to TCL

Enter selection:

Select option 1 if you are migrating from a previous release to Release 7.0. See Chapter 3 for the procedure from then on.

Select option 2 if you are migrating from Release 7.0 to a previous release. See Chapter 4 for the procedure from then on.

Select option 3 if you wish to check for moved or obsolete User Exits in your code. See Chapter 5 for the procedure from then on.

Section 3: Migrating to release 7.0

3.1 Main considerations when migrating to 7.0

3.1.1 Frame size

Release 7.0 uses 1024-byte frames. The same frame size is used by Release 6.0. However, releases 2.3, 3.0, and 5.3 use 512-byte frames. When migrating from these releases, data file allocation and additional workspace allocation must be adjusted accordingly.

3.1.2 Items stored out of group

On Release 7.0, items larger than 500 bytes are stored out of group. A group of a file contains a header and data for each item less than 500-bytes, together with a pointer to each item larger than 500 bytes, held out of group. When upgrading to 7.0, files need to have new allocation parameters calculated (modulo and separation) to cater for the different structure.

3.1.3 Multiple data sections

On Release 7.0, one file can have several data sections. The default data section has the same name as the dictionary. D-pointers to other data sections have item-ids that are the names of the corresponding data sections.

Data sections are now referenced in the form:

file-name,data-section-name

This means that file names (both dictionary and data) may no longer contain commas.

On earlier operating system releases, the D-pointer to a file's one data section is the DL/ID. There may be another item in the dictionary with the same name as the dictionary: before migrating to 7.0 this item must be renamed, because on Release 7.0 the item with the same name as the dictionary is the D-pointer to the default data section. You must also check applications for references to these dictionary items.

3.1.4 Duplicate D-pointers

Duplicate D-pointers are not supported on 7.0; before migrating, you must ensure that there are no files that have the same base FID as another file.

3.1.5 Encrypted passwords

Passwords are encrypted on Release 7.0, but not on earlier releases. Before upgrading your system, you must remove all passwords.

3.1.6 SYSMAN and SYSFILES accounts

Release 7.0 includes as standard new accounts called SYSMAN and SYSFILES. If you already have accounts called SYSMAN or SYSFILES, these must be renamed (along with all Q-pointers to the accounts) before upgrading to 7.0.

3.2 Overview of the migration utilities

When you select option 1, For Migration to Release 7.0, from the Migration Utilities menu, the following sub-menu is displayed:

```
=====
REALITY 7.X MIGRATION AID - VERSION 2 MARCH 1990
=====

  1.  Check for existence of SYSMAN or SYSFILES
  2.  Report and rename Q-pointers to
      SYSMAN/SYSFILES
  3.  Remove account passwords from SYSTEM file
  4.  List all DXed and DYed files
  5.  Find dict items to rename
  6.  Load and run file measurement utility
  7.  List all duplicate D-pointers
  8.  Calculate reallocation for 7.X
  9.  Run report #1, the file size report
 10.  Run report #2, the disc space report
 11.  Report frames used by POINTER-FILE
 12.  Update files for reallocation
 13.  Convert logon workspace for system
      accounts

 99.  Return to TCL

      ENTER SELECTION:
```

1. Check for existence of SYSMAN or SYSFILES. Checks whether there are already accounts called SYSMAN and/or SYSFILES on your system. You should rename such accounts.
2. Report and rename Q-pointers to SYSMAN/SYSFILES Finds all Q-pointers, in all accounts, to SYSMAN or SYSFILES. You can ask that these simply be reported, or you can opt to immediately rename them in line with the new account name(s).
3. Remove account passwords from SYSTEM file. Removes all passwords and places them in a file so that they can be reinstated following migration.
4. List all DXed and DYed files. Lists all files with DX or DY in attribute 1 of the File Definition Item. You can then remove the X or Y if you want to include these files in the upgrade. It will also indicate any file with no DL/ID pointer.
5. Find dictionary items to rename Locates dictionary items with the same name as the dictionary. On 7.0, an item with the same name as the dictionary is the D-pointer to the file's default data section. Items located by this utility should therefore be renamed before the upgrade.

This utility also locates and reports on any file names that contain commas.

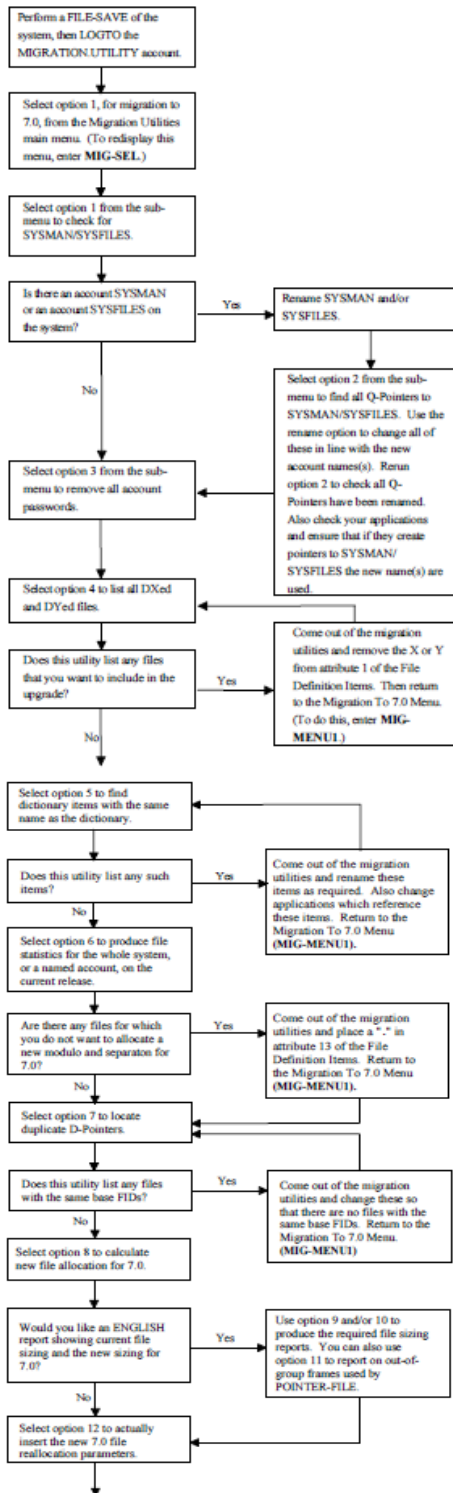
6. Load and run file measurement utility. Asks you for the release from which you are upgrading, then generates a statistics file, either for all files on the system or for only those in a named account, containing information on the sizing of these files.
7. List all duplicate D-Pointers. Lists all files that have the same base FID as another file. You must change these before the upgrade because duplicate

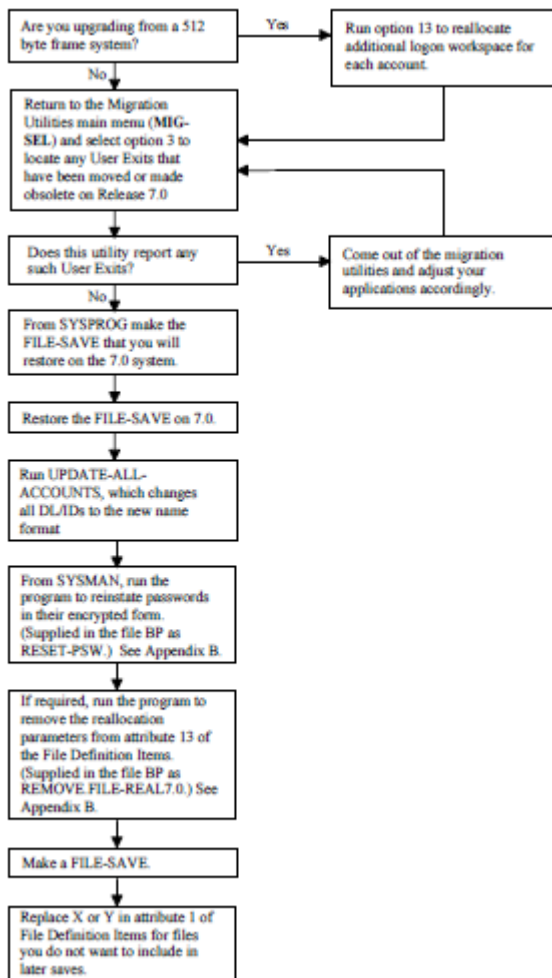
D-pointers are not supported on 7.0.
8. Calculate reallocation for 7.0. Calculates new modulo and separation for all files on the system, since large items are stored out of group on 7.0.
9. Run report #1, the file sizing report. Produces a report showing the breakdown between in-group and out-of-group items. If option 8 has been run, this report shows the new modulo and separation for each file.
10. Run report #2, the disc space report. Produces a report comparing file sizes and disk space occupied on the current release and on 7.0.
11. Report frames used by POINTER-FILE. Produces a report estimating the number of out-of-group frames that will be used by POINTER-FILE on the 7.0 system.
12. Update files for reallocation. Stores the new modulo and separation in attribute 13 of the File Definition Item for each file.
13. Convert logon workspace for system accounts. If you are upgrading from a 512-byte system, this utility halves the additional logon workspace value for each account.

Caution

This should be done only once for each account that is migrated.

3.3 Procedure for migration





3.4 Running the migration utilities

3.4.1 Selecting the utilities

From the Migration Utilities main menu, select option 1 for Migration to 7.0, by typing 1 followed by the RETURN key. From the submenu that is displayed, you can select any of the utilities by typing the appropriate number followed by RETURN. Alternatively, type 99 followed by RETURN to exit to TCL.

Once you have come out of the migration utilities account, you can enter the utilities again by logging to the Migration Utility account, enter

```
LOGTO MIGRATION.UTILITY
```

If you are in the Migration Utility account but at TCL, you can display the main menu by entering:

```
MIG-SEL
```

or you can go directly to the Migration to 7.0 menu by entering:

```
MIG-MENU1
```

Option 3 on the Migration Utilities main menu is also used when migrating to 7.0. This utility locates those User Exits on your system which have been moved or made obsolete on 7.0.

3.4.2 Check for the existence of SYSMAN/ SYSFILES

This utility finds the account SYSMAN, or the account SYSFILES, if either of these exists already on your system.

```
Searching for SYSMAN or SYSFILES in SYSTEM
file . . .

Account SYSFILES already exists - please
rename

Search completed

Hit <CR> to return to menu
```

If SYSMAN or SYSFILES exists, you must change the account name using option C of ACCOUNT-RESTORE before upgrading to 7.0.

3.4.3 Report and rename Q-Pointers to SYSMAN/ SYSFILES

```
Utility to List/Modify Pointers to SYSMAN/SYSFILES

Do you wish Pointers to be modified? (Y/N):
Y
What is the new name for SYSMAN account?:
What is the new name for SYSFILES account?:
S.FILES
Are you sure? (Y/N): Y
Do you wish to report output to the Printer?
(Y/N): N
```

This utility searches all accounts for Q-Pointers to SYSMAN and SYSFILES. You are given the option of directing the report to the printer or the screen.

You can ask the utility to simply list all Q-Pointers found, or to automatically change them in line with the new account name(s). If you opt to modify the Q-Pointers, you are then prompted to enter the new account name(s) that you have given to SYSMAN and/or SYSFILES. (Pressing only the RETURN key at these prompts means that the Q-Pointers will be listed but not modified.)

Any Q-Pointers to SYSMAN or SYSFILES are reported for each account:

```
Utility to List / Modify Pointers to SYSMAN / SYSFILES

Looking through account REPORTS
Looking through account RICHARD
Looking through account SALES
Looking through account SYSPROG
    Q Pointer SYSFILES.Q had accessed SYSFILE,
    now changed to S.FILES
.
.
.
.
.
.
.

All accounts and SYSTEM now processed

Hit <CR> to return to menu
```

If you ask to list rather than modify the Q-Pointers, no changes are reported. Finally, the utility searches SYSTEM and reports or modifies the Account Pointer(s) to SYSMAN/SYSFILES.

3.4.4 Remove account passwords from SYSTEM file

```
Utility to remove and save any account passwords

Account REPORTS processed
Account RICHARD processed
Account SALES processed
.
.
.
All accounts have been processed
Hit <CR> to return to the menu
```

This utility removes and saves any account passwords from the SYSTEM file in preparation for encryption on 7.0. (See Appendix B for a description of how to reinstate passwords following upgrade).

3.4.5 List all DXed and DYed Files

```
LISTDXDY
```

```
Generating a report of all DX and DY type
files
Also any currently missing a DL/ID pointer
```

```
Entry #7
```

```
Hit <CR> to return to menu
```

This utility produces a spooled report (identified by ENTRY #n) of all files that have a File Definition Item with DX or DY in attribute 1.

For example,

```
LISTDXDY          Files that are DX'd, DY'd or missing DL/ID          Page 3
```

<u>Account name</u>	<u>File name</u>	<u>DICT/DATA</u>	<u>DX/DY</u>
TEST	ERRORS	DICT	DX
TEST	ERRORS	DATA	DX
TEST	SCRATCH1	DICT	DX
TEST	SCRATCH1	DATA	DX
TIM	TEST1	NO	DL/ID!
TIM	TEST2	NO	DL/ID!
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

A file save is made as part of the upgrade process. DX files are not saved. The data in DY files is not saved. You might want the data in such files saved during the upgrade. This report identifies those files for you so you can take appropriate action, such as, changing the DX or DY in attribute 1 to D until the upgrade process is complete.

This utility also reports dictionaries that do not contain DL/ID items. Such files are most probably intended to be dictionary-only files. But in identifying such files, you can make sure that is the case and that the DL/ID item hasn't been deleted unintentionally, in which case the data level items would be lost.

3.4.6 Find dictionary items to rename


```

SCAN-DICTS

This routine will scan the dictionaries of
all files
in all accounts to identify:

A) files with dict items named the same as
   the files
B) files named the same as their owning
   accounts
C) file names containing a comma

Do you wish to continue (Y/N): Y

Generating report

Entry #11

Hit <CR> to return to menu

```

This utility produces a spooled report (identified by ENTRY #n) of all files with a DICT item of the same name as the file. For example:

```

SCAN.DICTS:FILES WITH DICTIONARY ITEMS NAMED THE SAME AS THE FILES

PAGE1                                13:04:15                12 NOV 1989

ACCOUNT                               FILE
ALL-MAINT                             CONTROL
COMML                                 CAT-CODE
COMML                                 SALES-DAILY
COMML                                 VOIDED-CREDITS
FDC                                   SAVE.MODEL
FINANCE                               PR
SYSPROG                              MIS-PL-PROCS

```

File BOBS, FILE in account TEXTPRO contains a comma

NORMAL TERMINATION

```

7 EXCEPTIONAL CASES ENCOUNTERED
1 file names found that contain a comma

```

Prior to 7.0, REALITY dictionary files contained an item (D-pointer) called DL/ID that pointed to the data level of the file. In the 7.0 system, multiple data sections are possible within a file. D-Pointers pointing to data sections have item-ids which are the names of the data sections they point to. The default data section has the same name as the dictionary. The 7.0 system does not use DL/ID items.

The upgrade process renames each DL/ID to the name of the data section pointed to (the same name as the dictionary). If the dictionary already contains an item with the same name as the dictionary, it is renamed by placing % before and after the name. A file

cannot have the same name as its owning account: any such files will be similarly renamed during upgrade.

On release 7.0, file names (both dictionary and data) may no longer contain commas. This is because data sections are now referenced in the form:

file-name,data-section-name

This utility searches all file dictionaries and reports any items to be renamed in the upgrade process. This allows you to rename them beforehand. More importantly, it provides you with advance warning so that you can find references in applications to dictionary items to be renamed. You can then correct the applications so they will continue to run on 7.0.

3.4.7 Load and run file measurement utility

Two assembly modes (currently frames 515 and 516) are used in measuring files. When you select this option, the following submenu is displayed:

```
=====
LOAD MIGRATION AID MODES
=====

1.  M6000 with release 2.X or 3.X O.S.
2.  M9000 with release 5.2 or 5.3 O.S.
3.  Series 18| or 19 with release 6.0
    O.S.

99. Return to previous menu

CHOOSE YOUR SYSTEM:
```

Enter the number corresponding to the system and operating system release you are currently using.

The appropriate versions of the two modes will be loaded. In addition, an item called FRAMESIZE in the MIG-STATS dictionary level file is updated with the appropriate constant.

Once the modes are loaded, the utility goes on to measure the files and generate the MIG-STATS file.

MEASURE-FILES

This routine will build a stat file for the purpose of comparing file sizing between the current file system and the 7.X file system.

Would you like to process all files on the system (S), which will take roughly as long to run as ALL-FILE-STATS, or just those files in a named account (A) ?
S

Do you wish to continue (Y/N): Y

Clearing stat file
Now processing files

Hit <CR> to return to menu.

The MIG-STATS file is used to compare the file space used by all files under the old and 7.0 systems. Every item in every file is measured under both file systems.

Files whose File Definition Item contains a DX in attribute 1 are skipped. Files whose File Definition Item contains a DY are treated as if they hold no data. Their primary allocation is recorded, since that much space is used if the file is restored.

The statistics produced for the POINTER-FILE reflect only the actual items in the file. The out-of-group data is not measured. Option 11 - Report frames used by POINTER-FILE - will estimate the space the out-of-group data will occupy in the 7.0 system.

If the system wide option (S) is chosen then this utility requires as much time to run as ALL-FILE-STATS. It reads every item in the system and therefore has a decided impact upon the resources of the system.

3.4.8 List all duplicate D-Pointers

```

LIST-DUPES

Selecting stat file

342 ITEMS SELECTED

Generating report

Entry #5

Hit <CR> to return to menu

```

This utility produces a report from the MIG-STATS file of any files that have the same base FID as another file. For example:

LIST-DUPES: DUPLICATE D-POINTERS IN DATABASE 17 NOV 1989 PAGE 1

<u>BASE</u>	<u>ACCOUNT</u>	<u>FILE</u>	<u>DL/ID</u>
311852	SYSPROG	DUP.D1	
311852	SYSPROG	DUP.D	
328044	SYSPROG	DUP.D1	DL/ID
328044	SYSPROG	DUP.D	DL/ID

NORMAL TERMINATION

Having duplicate files with the same base FID can lead to loss of data during the upgrade because the file-save only saves the first file encountered with a given base FID.

3.4.9 Calculate reallocation for 7.0

```

CALC-NEW-ALLOC

This routine calculates recommended modulo
and separation
parameters for all files based on the 7.X
file system.

Do you wish to continue (Y/N): Y

Selecting the stat file

342 ITEMS SELECTED

200 RECORDS PROCESSES

NORMAL TERMINATION

Hit <CR> to return to menu

```

After each file is measured by the previous utility, this utility calculates a recommended modulo and separation for reallocation. The recommended reallocation for each file is stored in the MIG-STATS file.

If you are concerned with the time involved in reallocating files during the 7.0 upgrade, we suggest that you examine the results of this utility very closely. The reports in utilities 9 and 10 can help. You might want to suppress reallocation by storing a period (.) in attribute 13 of all files that are not to be reallocated.

3.4.10 Run report #1 the file sizing report

```

REPORT 1

Report on current file sizing and estimates for 7.0

Entry #1

Hit <CR> to return to menu
    
```

This utility produces an ENGLISH report from the MIG-STATS file. The report shows the breakdown between items stored in-group and those stored out-of-group.

If **Calculate Reallocation for 7.0** (option 8) has been previously run, the report also shows recommended modulo and separation for each file. For example:

REPORT1: COMPARATIVE FILE STATISTICS FOR CURRENT AND 7.X FILE SYSTEMS

02 JUN 1990 ACCOUNT NAME - SYSFROG PAGE 1

ORDER	FILENAME.....	CURR. MOD	CURR. SEP	CURRENT. SIZE	CURR. FRAMES	TOTAL. ITEMS	IN-GROUP ITEMS	EXTERN. ITEMS	EXTERN. FRAMES	IN-GROUP. SIZE	NEW. MOD	NEW. SEP
1	SYSFROG	29	1	34375	87	662	659	3	17	25224	29	1
48	ADT	1	1	66	1	2	2	0	0	80	1	1
49	ADT*DL/ID	1	1	39	1	3	3	0	0	72	1	1
28	ALL-OBJECT	1	1	41	1	1	1	0	0	48	1	1
29	ALL-OBJECT*DL/ID	7	1	151634	307	115	2	113	216	3360	7	1
44	BASE.LJANG	1	1	41	1	1	1	0	0	48	1	1
45	BASE.LJANG*DL/ID	7	1	9765	21	17	11	6	10	3152	7	1
63	BASIC-COMPILERS	1	1	41	1	1	1	0	0	48	1	1
64	BASIC-COMPILERS*DL/ID	1	1	127631	1	8	0	8	132	344	1	1
52	BP	1	1	41	1	1	1	0	0	48	1	1
53	BP*DL/ID	3	1	225170	99	40	12	28	239	2600	3	1
83	CSYM	1	1	41	1	1	1	0	0	48	1	1
84	CSYM*DL/ID	1	1	0	1	0	0	0	0	0	1	1
61	CURSOR-DEFS	7	1	39063	81	39	37	2	35	5624	7	1
62	CURSOR-DEFS*DL/ID	7	1	2466	9	12	12	0	0	2552	7	1
71	DEREK	1	1	41	1	1	1	0	0	48	1	1
72	DEREK*DL/ID	1	1	4514	10	2	0	2	6	32	1	1
56	DL/ID											
42	DUP.D	1	1	36	1	1	1	0	0	48	1	1
43	DUP.D*DL/ID	12	1	0	12	0	0	0	0	0	1	1
.	.											
.	.											
.	.											
.	.											
.	.											
16	TSYM	1	1	0	1	0	0	0	0	0	1	1
4	WWW	1	1	36	1	1	1	0	0	48	1	1
5	WWW*DL/ID	39	1	32318	81	615	612	3	17	22768	29	1
6	XSYM	1	1	221	1	7	7	0	0	288	1	1
7	XSYM*DL/ID	1	1	0	1	0	0	0	0	0	1	1
				4837274	9164	6815	3689	3126	6459	246928		
				4837274	9164	6815	3689	3126	6459	246928		

3.4.11 Run report #2 the disc space report

```

REPORT 2

Report on current disc space usage and
estimates for 7.0

Entry #2

Hit <CR> to return to menu.
    
```

This utility produces an ENGLISH report from the MIG-STATS file. The report displays the current size of and the actual amount of disk occupied by each file.

The report then produces the same figures for the 7.0 file system based on the reallocation parameters calculated by **Calculate Reallocation for 7.0** (option 8). The difference (delta) between the two file systems is calculated. For example:

REPORT2: COMPARATIVE DISC SPACE USAGE FOR CURRENT AND 7.X SYSTEMS

02 JUN 1990 ACCOUNT NAME - SYSPROG PAGE 1

ORDER	FILENAME	CURR.	CURR	NEW..	NEW.	CURRENT	CURR	NEW	CURRENT	NEW	DELTA	PCT.
		MOD	SEP	MOD	SEP	SIZE	FRAMES	TOTAL	TOTAL	TOTAL	SIZE	DELTA
							FRAMES	FRAMES	SIZE	SIZE		
1	SYSPROG	29	1	29	1	34375	87	46	44544	47104	2560	5
48	ADT	1	1	1	1	66	1	1	512	1024	512	100
49	ADT*DL/ID	1	1	1	1	39	1	1	512	1024	512	100
28	ALL-OBJECT	1	1	1	1	41	1	1	512	1024	512	100
29	ALL-OBJECT*DL/ID	7	1	7	1	151634	307	223	157184	228352	71168	45
44	BASE.LANG	1	1	1	1	41	1	1	512	1024	512	100
45	BASE.LANG*DL/ID	7	1	7	1	9765	21	17	10752	17408	6656	61
63	BASIC-COMPLIERS	1	1	1	1	41	1	1	512	1024	512	100
64	BASIC-COMPLIERS*DL/ID	1	1	1	1	127631	1	133	512	136192	135680	26500
52	BP	1	1	1	1	41	1	1	512	1024	512	100
53	BP*DL/ID	3	1	3	1	225170	99	242	50688	247808	197120	388
83	CSYM	1	1	1	1	41	1	1	512	1024	512	100
84	CSYM*DL/ID	1	1	1	1	0	1	1	512	1024	512	100
61	CURSOR-DEFS	7	1	7	1	39063	81	42	41472	43008	1536	3
62	CURSOR-DEFS*DL/ID	7	1	7	1	2466	9	7	4608	7168	2560	55
71	DEREK	1	1	1	1	41	1	1	512	1024	512	100
72	DEREK*DL/ID	1	1	1	1	4514	10	7	5120	7168	2048	40
56	DL/ID								0	0	0	0
42	DUP.D	1	1	1	1	36	1	1	512	1024	512	100
43	DUP.D*DL/ID	12	1	1	1	0	12	1	6144	1024	-5120	-83
.												
.												
.												
.												
.												
.												
.												
4	WWW	1	1	1	1	36	1	1	512	1024	512	100
5	WWW*DL/ID	39	1	29	1	32318	81	46	41472	47104	5632	13
6	XSYM	1	1	1	1	221	1	1	512	1024	512	100
7	XSYM*DL/ID	1	1	1	1	0	1	1	512	1024	512	100
						4837274	9764	6823	4691968	6986752	2294784	
						4837274	9764	6823	4691968	6986752	2294784	

The figures produced by this utility include only file space. The operating system uses additional frames for ABS, system tables, and other overhead requirements. Also, the figures for POINTER-FILE only include the in-group items in the file. The out-of-group frames they point to are not included. **Report Frames Used by POINTER-FILE** (option 11) can be used to examine frames used by POINTER-FILE.

3.4.12 Report frames used by POINTER-FILE

```

          Calculate the size of POINTER-FILE

Selecting POINTER-FILE

1186 CATALOGED PROGRAM ITEMS USE          3869 FRAMES
  20 SAVED LIST ITEMS USE                   44 FRAMES
                                          3913 TOTAL

          ESTIMATED FRAMES UNDER 7X:      4507

Hit <CR> to return to the menu

```

This utility looks at each item in POINTER-FILE and totals the out-of-group frames used by catalogued programs and saved lists.

It produces an estimate of the number of frames the items will occupy in the 7.0 file system. Differences in frame size are considered, as well as the different format of catalogued items in the 7.0 system.

3.4.13 Update files for reallocation

```

SET-NEW-ALLOC

This routine will update attribute 13 of all
files with the
reallocation parameters previously
calculated.  A period (.)
in attribute 13 of a D-Pointer will inhibit
the update of
that file.

Do you wish to continue (Y/N): Y

Do you wish to override the '.' in all files (Y/N): N

Selecting the stat file

PROCESSING ACCOUNT ACC
PROCESSING ACCOUNT ATP
PROCESSING ACCOUNT BOB
PROCESSING ACCOUNT COMMS
.
.
.
.
.

Hit <CR> to return to the menu.

```

This utility uses the information stored in the MIG-STATS file by the previous utility. It takes the recommended modulo and separation and stores them in attribute 13 of the File Definition Item (D-Pointer) for each file.

The files will be reallocated during the restore part of the upgrade according to the modulo and separation stored in attribute 13 of the D-pointer.

A period (.) in attribute 13 of the D-pointer causes the reallocation parameters not to be stored in the D-pointer. However, this utility provides the option of overriding the '.' restriction.

3.4.14 Convert logon workspace for system accounts

```
=====
WORKSPACE CONVERSION
=====

1. M6000 with release 2.X or 3.X OS
2. M9000 with release 5.2 or 5.3 OS
3. Series 18 or 19 with release 6.0 OS

99. Return to previous menu

CHOOSE YOUR SYSTEM:
```

If you are upgrading from a system with a primary process workspace allocation of 32 frames and from a 512-byte frame format machine, your process workspace would be four times larger on a 7.0 system with 64 frame primary process workspace and 1024 bytes per frame.

This utility halves the additional workspace parameter set by attribute 8 of each Account Definition Item on the system.

If you are upgrading from a release that already uses 64 frames of primary process workspace and is a 1024-byte frame format system, you do not need to run this utility.

Caution

This should be done only once for each account that is migrated.

Section 4: Migrating from release 7.0

4.1 Main considerations when migrating from 7.0

4.1.1 Single account migration

The utilities allow transfer of a single account to an earlier operating system release.

4.1.2 Frame size

Release 7.0 uses 1024-byte frames. The same frame size is used by Release 6.0. However, releases 2.3, 3.0 and 5.3 use 512-byte frames. When transferring an account to one of these releases, data file allocation and additional workspace allocation must be adjusted accordingly.

4.1.3 Items stored out of group

On Release 7.0, items larger than 500 bytes are stored out of group. A group of a file contains a header and data for each item less than 500 bytes; together with a header for each item larger than 500 bytes. In the case of the latter, the header points to the main body of the item, which is held out of group. When migrating to an earlier release, these items will be replaced in the group and file allocation must be adjusted to cater for this.

4.1.4 Item size restrictions

There is no restriction on item size for Release 7.0. The maximum item size for release 6.0 is 31,767 bytes. The maximum item size for releases 2.3, 3.0 and 5.3 is 32,267 bytes. Before migrating to an earlier release, items exceeding these limitations must be adjusted.

4.1.5 Multiple data sections

On Release 7.0, one file can have several data sections. The default data section has the same name as the dictionary, and a D-pointer to a data section has an item-id which is the name of that data section.

Earlier operating system releases do not support multiple data sections. A file comprises a dictionary and a unique data section. The D-pointer to the data section has the item-id DL/ID (Data Level Identifier). Before migrating to an earlier release, you must ensure that each file has only its default data section.

4.1.6 Encrypted passwords

Passwords are encrypted on Release 7.0, but not on earlier releases. Before transferring an account, you must remove its password.

4.1.7 SYSMAN and SYSFILES account

Release 7.0 includes as standard a system manager account called SYSMAN. There is also an account called SYSFILES, containing all initial system files. These two accounts include many commands and files which, on earlier releases, are held in SYSPROG. You cannot use the migration utilities to transfer either of these accounts to an earlier release. The data you want to transfer should be T-DUMPed, then T-LOADed into the SYSPROG account on the earlier release. You cannot use the migration utilities to transfer the 7.0 SYSPROG account to an earlier release, again you must use T-DUMP and T-LOAD.

4.2 Overview of the migration utilities

When you select option 2, For Migration from Release 7.0, from the Migration Utilities menu, the following sub-menu is displayed:

```
=====
REALITY 7.X MIGRATION - AID VERSION 2 MARCH 1990
=====
                Account ????

1. Select account to migrate
2. List all DXed and DYed files
3. Report on any multiple data sections
4. Generate file stats for account
5. Locate files with large items
6. Generate reallocation parameters
7. Generate DL/ID file data descriptors
8. Convert account additional logon
   workspace
9. Perform the SAVE to migrate with

99. Return to TCL

ENTER SELECTION:
```

1. Select Account to Migrate. Asks for the name of the account you want to prepare for migration. The account name is then displayed at the top of the screen whenever you RETURN to the menu.
2. List all DXed and DYed Files. Lists all files with DX or DY in attribute 1 of the File Definition Item. You can then remove the DX or DY if you want to include these files in the migration.
3. Report on any Multiple Data Sections. This utility lists all those files with more than one data section. Each file in the account must have only one data section before the account can be transferred.
4. Generate File Stats for the Account. Generates a statistics file containing information on the sizing of each file in the account - both in-group and out-of-group items. This information is then used by the next utility to calculate new file allocation for 7.0.
5. Locate Files with Large Items. Finds all items larger than 31,764 bytes. You must adjust large items so that they do not exceed the item size limitations of the release to which you are migrating.
6. Generate Reallocation Parameters. Calculates new modulo and separation for each file, looking at large items that must be moved back in group and adjusting for frame size if migrating to a 512-byte frame format.
7. Generate DL/ID File Data Descriptors. Once you have ensured that each file has only one data section, this utility renames the D-pointer to that data section DL/ID.

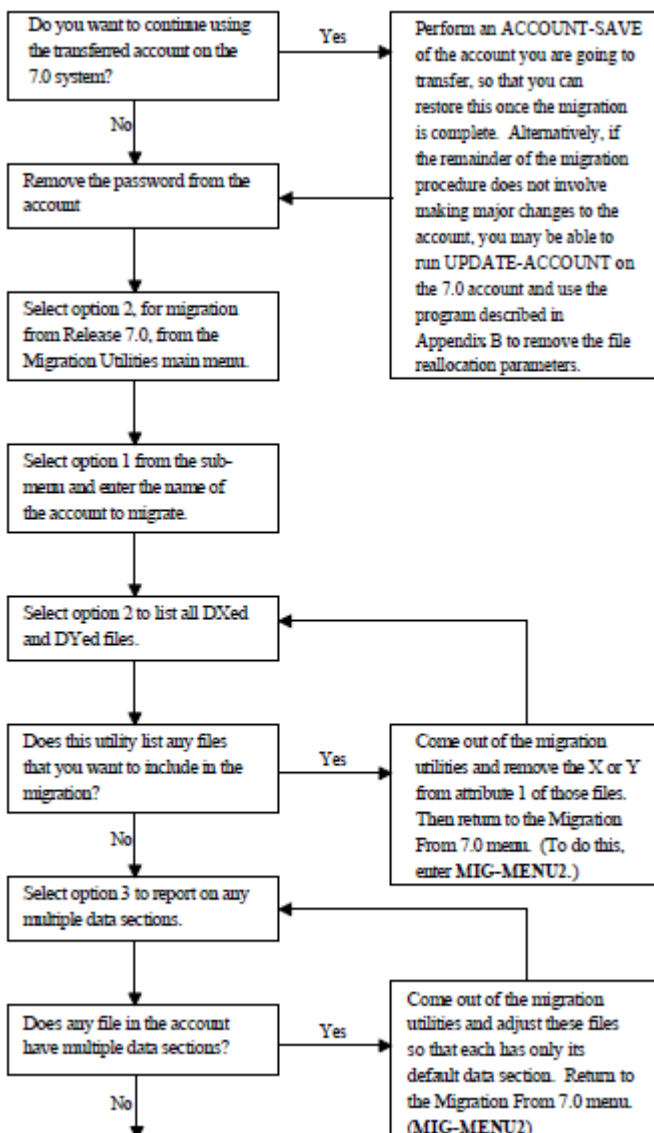
8. Convert Account Additional Logon Workspace. If you are migrating to a 512-byte frame system, this utility doubles the additional logon workspace parameter for each account.

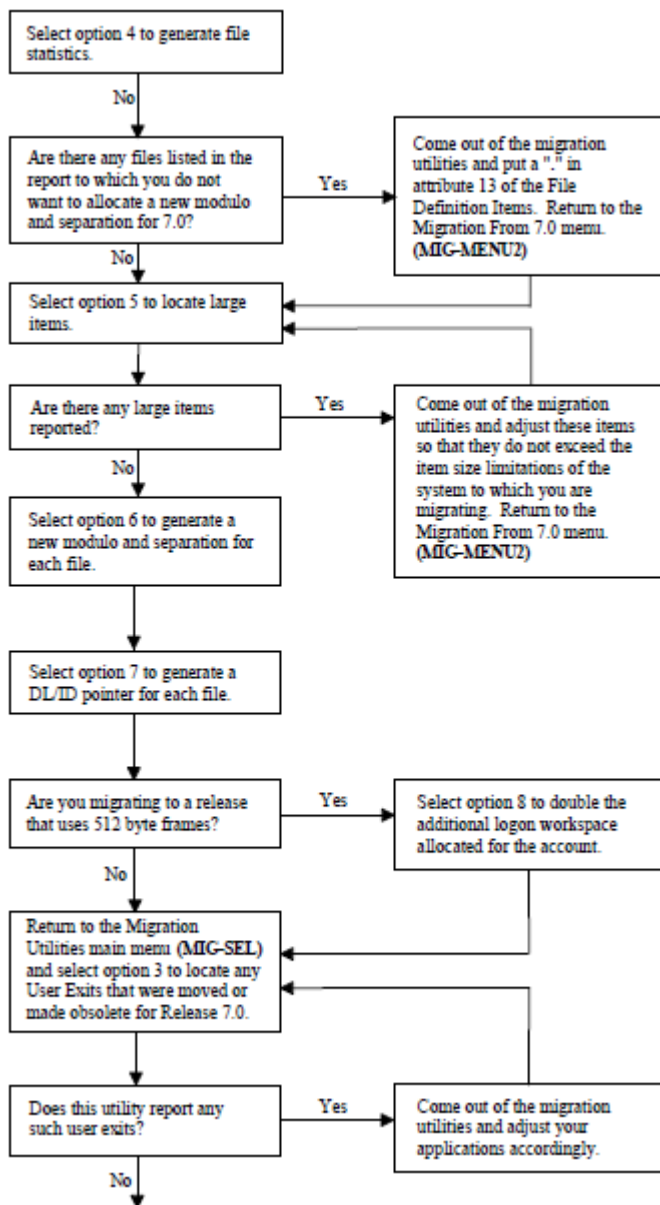
Caution

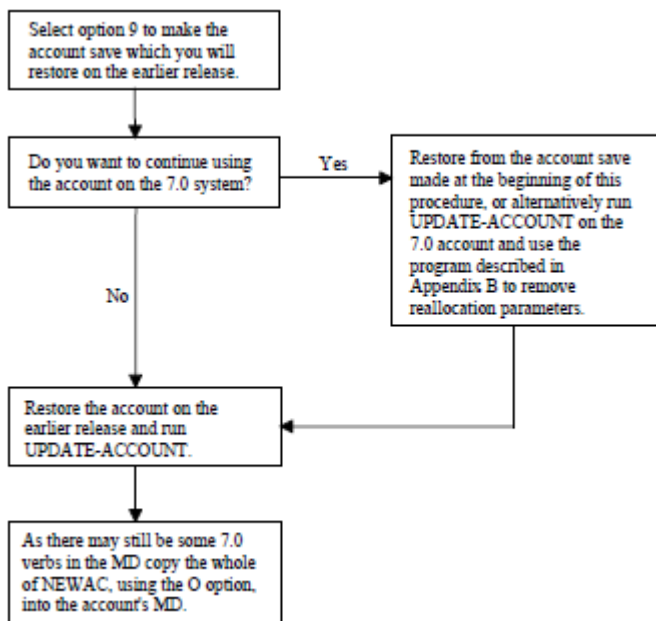
This should be done only once for each account that is migrated.

9. Perform the SAVE to Migrate with. This utility performs the account save which you can then restore on the earlier release.

4.3 Procedure for migration







4.4 Running the migration utilities

4.4.1 Selecting the utilities

From the Migration Utilities main menu, select option 2 for Migration from 7.0, by typing 2 followed by the `RETURN` key. From the submenu that is displayed, you can select any of the utilities by typing the appropriate number followed by `RETURN`. Or Type 99 followed by `RETURN` to exit to `TCL`.

Once you have come out of the migration utilities account, you can reenter the utilities by logging to the Migration Utility account.

If you are in the Migration Utility account but at `TCL`, you can display the main menu by entering:

MIG-SEL

or you can go directly to the Migration From 7.0 menu by entering:

MIG-MENU2

4.4.2 Selecting account to migrate

```

Option 1 from main menu:
      to name the account to be migrated

Please enter the account name: account-name

Press <RTN> to continue
  
```

Once you have entered the name of the account to migrate, pressing the `RETURN` key a second time takes you back to the menu.

4.4.3 List all DXed and DYed Files

```
Option 2 from main menu:  
    to list any DX or DY type files  
  
Hardcopy to printer? (Y/N): Y
```

If the Account Definition Item itself holds a DX or DY, a message is displayed telling you that the whole account is DXed or DYed. Otherwise, you are asked if you want to print a copy of the report produced by this utility. Enter **Y** to print the report, **N** or just **RETURN** for display only.

The list of DXed or DYed files is then displayed as follows:

```
Option 2 from main menu:  
    to list any DX or DY type files  
  
File ERRS-LIST    has a D-Pointer of DXL  
File TEST1       has a D-Pointer of DXL  
File WORK-CC     has a D-Pointer of DXL  
  
Press <RTN> to continue
```

The L code is the logging indicator, specifying that when transaction logging is running updates to the file should be logged.

Files with DX in attribute 1 of the File Definition Item will not be included in the account save to migrate; data in DY files will not be saved. If you do wish to include any of the files listed, you should come out of the migration utilities and change the DX or DY to D.

4.4.4 Report on any multiple data sections

```
Option 3 from main menu:  
    to locate any multiple data sections  
  
Hardcopy to printer? (Y/N): Y
```

After you have entered **Y** or **N** to indicate whether you want a printed copy of the report, multiple data sections are listed as follows:

```

Option 3 from main menu:
    to locate any multiple data sections

Locating any multiple data sections in account XXX

There are multiple data sections for DICT MODEL
    Data section MODEL
    Data section UKMODEL
There are multiple data sections for DICT PARTS
    Data section PARTS
    Data section UKPARTS

Press <RTN> to continue

```

You cannot transfer files with multiple data sections to an earlier operating system release. Each dictionary must have only one associated data section and this must be the default data section, with the same name as the dictionary. Where multiple data sections are reported, you should come out of the migration utilities and alter the files accordingly. You should then rerun this utility, to ensure that no multiple data sections remain, before continuing with the migration procedure.

4.4.5 Generate file stats for the account

```

Option 4 on main menu:
    to generate statistics for the account to
migrate

11:35:48                08 AUG 89

Generating a stat file for account TRANS-ACC
TRANS-ACC
ACC-HDR
ACC-HDR
LOGONF
LOGONF
CAR
CAR
MENU-HLP
MENU-HLP
MODEL
MODEL
PARTS
PARTS
MENU-STD
MENU-STD
MENU-HDR
MENU-HDR
DRIVER
DRIVER
FILE-HDR
FILE-HDR

[99] 0 TAPE RECORDS WRITTEN

Stat file now generated, do you want it listed? Y

Press <RTN> to continue

```

The statistics file (MIG-BACK-STATS) contains information on each file in the account, including base, modulo and separation; total number of in-group and out-of-group items; the size of each of these items; total frames used - both in-group and out-of-group. This information will be used by the next migration utility to calculate new file allocation for the earlier release.

Once the stat file has been generated, you are given the option of printing a copy of the file.

4.4.6 Locate files with large items

```
Option 5 from main menu:
      to locate large data items

Hardcopy to printer? (Y/N): Y
```

Once you have entered **y** or **n** to indicate whether you want a printed copy of the report, large items are listed as follows:

```
Option 5 from main menu:
      to locate large data items

PAGE 1                      11:09:27          08 AUG 89

MIG-QF, PARTS SIZE

UMX081          31,979
UMX090          31,864

Press <RTN> to continue
```

The utility lists all items larger than 31,764 bytes. Where items exceed the item size limitations of the release to which you are migrating, you must come out of the migration utilities and delete or alter these accordingly. You should then rerun this utility, to ensure that no large items remain, before continuing with the migration procedure.

If you failed to correct all multiple data sections reported by the previous utility, these will be listed again with the large items.

4.4.7 Generate reallocation parameters

```
Please indicate the release being migrated to

      1. Series 18 or 19 with release 6.0 O.S.
      2. M6000 with release 2.X or 3.X O.S.
      3. M9000 with release 5.2 or 5.3 O.S.

      99. To Exit

      Enter your choice now ?
```


Before this utility can calculate new allocation parameters (new modulo and separation) for each file, you must specify to which release you are migrating. Enter 1 for release 6.0; 2 for releases 2.3 and 3.0; or 3 for release 5.3. Option 1, release 6.0 uses the same frame size as Release 7.0 - 1024 bytes. The releases indicated by options 2 and 3 use 512-byte frames and this difference in frame size is considered when calculating reallocation parameters.

```
Option 6 from main menu:
      to calculate file reallocation parameters

Hardcopy to printer? (Y/N): Y
```

After you have entered **y** or **n** to indicate whether you want a printed copy of the reallocation, the new values are displayed as follows:

```
Option 6 from main menu:
      to calculate file reallocation parameters

TRANS-ACC ACC-HDR MOD 1 --> 1, SEP1 --> 1
TRANS-ACC ACC-HDR ACC-HDR MOD 1 -->, SEP1 -->
TRANS-ACC LOGONF MOD 1 --> 1, SEP1 --> 1
TRANS-ACC LOGONF LOGONF MOD 3 --> 3, SEP1 --> 1
TRANS-ACC CAR MOD 7 --> 7, SEP1 --> 1
TRANS-ACC CAR CAR MOD 29 --> 3, SEP1 --> 1
TRANS-ACC MENU-HLP MOD 1 --> 1, SEP1 --> 1
TRANS-ACC MENU-HLP MENU-HLP MOD 43 --> 32, SEP1 --> 1
TRANS-ACC MODEL MOD 1 --> 1, SEP1 --> 1
TRANS-ACC MODEL MODEL MOD 7 --> 7, SEP1 --> 1
TRANS-ACC PARTS MOD 1 --> 1, SEP1 --> 1
TRANS-ACC PARTS PARTS MOD 3 --> 3, SEP1 --> 1
TRANS-ACC MENU-STD MOD 1 --> 1, SEP1 --> 1
TRANS-ACC MENU-STD MENU-STD MOD 3 --> 1, SEP1 --> 2
TRANS-ACC MENU-HDR MOD 1 --> 1, SEP1 --> 1
TRANS-ACC MENU-HDR MENU-HDR MOD 31 --> 17, SEP1 --> 1
TRANS-ACC DRIVER MOD 1 --> 1, SEP1 --> 1
TRANS-ACC DRIVER DRIVER MOD 3 --> 3, SEP1 --> 1
TRANS-ACC FILE-HDR MODE 1 --> 1, SEP1 --> 1
TRANS-ACC FILE-HDR FILE-HDR MOD 13 --> 7, SEP1 --> 1

10 files reallocated, primary file space now required:
2,000

Press <RTN> to continue
```

This utility uses the information in the stats file just generated to calculate a new modulo and separation for all files except those with a period (.) in attribute 13 of the File Definition Item.

The utility looks at the size of the file on 7.0; both in-group and out-ofgroup items. The in-group portion of the file contains pointers to outof- group items as well as the actual items held in-group: to calculate the size of the file on the earlier release, this utility

subtracts the total size of these pointers then adds on the total size of out-of-group items. The calculation cannot be completely accurate - the size of pointers and of out-of-group items can only be estimated - but the new file allocation provides a good base to start from when the account is transferred. If you are migrating to a 512-byte frame system this is also taken into consideration.

Once the transfer from 7.0 is complete, you can run the programs described in Appendix B at any time to,

- calculate reallocation parameters, or
- remove the reallocation parameters currently stored in attribute 13 of each File Definition Item.

4.4.8 Generate DL/ ID file data descriptors

```
Option 7 on main menu:  
    to generate DL/ID pointers to the DATA section  
  
Data section ACC-HDR being renamed DL/ID  
Data section LOGONF being renamed DL/ID  
Data section CAR being renamed DL/ID  
Data section MENU-HLP being renamed DL/ID  
Data section MODEL being renamed DL/ID  
Data section PARTS being renamed DL/ID  
Data section MENU-STD being renamed DL/ID  
Data section MENU-HDR being renamed DL/ID  
Data section DRIVER being renamed DL/ID  
Data section FILE-HDR being renamed DL/ID  
  
Press <RTN> to continue
```

On earlier operating system releases the D-pointer to the data section of a file is called DL/ID.

Each file on the account to be transferred should now have only its default data section, which has the same name as the dictionary. This utility renames the D-pointer to each data section DL/ID.

4.4.9 Generate account additional logon workspace

```
Option 8 from main menu:  
    to convert the additional logon workspace  
  
Account TRANS-ACC has additional workspace of 754  
  
Press <RTN> to continue
```

If you are migrating to a 512-byte frame system (release 2.3 or 3.0, or release 5.3) you should run this utility to double the additional workspace parameter for the account (set in attribute 8 of the Account Definition Item).

Caution

This should be done only once for each account that is migrated.

4.4.10 Perform the SAVE to MIGRATE with

```
Option 9 on main menu:
    to generate the Account Save with which to
    migrate.

Enter tape units desired, in sequence, separated by
commas
Maximum two half inch (1,2) or one quarter inch (3): 1
[1021] DEVICE(S) TAPE 1 NOW ASSIGNED
    RECORD SIZE = 8192    DENSITY = 1600

Tape label if desired ACCOUNT TRANSFER

. . . START ACCOUNT SAVE . . .
ACC-HDR
.
.
.
DRIVER
FILE-HDR
[99] 85 TAPE RECORDS WRITTEN
. . . END OF ACCOUNT SAVE . . .

. . . PREPARING FILE STATISTICS REPORT . . .
Do you require the stats report to be printed now? Y
```

You are prompted to enter the number of the tape unit(s) to be used and a tape label if required. Once the save is complete, you are given the option of printing the file statistics report.

Section 5: Locating user exits

5.1 Overview of the utilities

When you select option 3, To Locate User Exits, from the Migration Utilities menu, the following sub-menu is displayed:

```
                Location of User Exits

1.  Load modes if first time into this program
2.  Run program to locate the UE concerned
3.  Print report on printer
4.  Output report to screen

99.  Return to TCL

      ENTER SELECTION:
```

1. Load modes if first time into this program. Prompts you to enter the operating system release you are currently running on.
2. Run program to locate the UE concerned. Searches a given file for all User Exits moved or made obsolete on 7.0.
3. Print report on printer. Prints details of all User Exits located by running option 2.
4. Output report to screen. Displays details of all User Exits located by running option 2.

5.2 Running the utilities

5.2.1 Load modes

```
                LOAD MODES

Enter system release level:

1. M6000 with release 2.X or 3.X O.S.
2. M9000 with release 5.2 or 5.3 O.S.
3. Series 18 or 19 with release 6.0
   O.S.

Selection is

Modes now loaded, press RTN to continue
```

Enter the number corresponding to the system and operating system release you are currently using. The appropriate assembly modes are loaded.

5.2.2 Locate the UE concerned

```

Input account name      :  REPORTS
Input file to search   :  TEST

  1 T1 **
  3 T3 **

4 match(es) found

  2 T2 ***
  3 T3 **

5 match(es) found

File TEST searched.

Press RTN to continue

```

This utility searches the specified file for all occurrences of User Exits moved or made obsolete on Release 7.0. You can then print or display the results of this search using option 3 or 4.

5.2.3 Print report on printer

```

STRING ... FILE-NAME.  ITEM-ID..  LINE.  SOURCE TEXT
U0191  - - - - -  - - - - -  - - - - -
***
U0192  - - - - -  - - - - -  - - - - -
***
.
.
.
U01A6  TEST      T2       6      U01A6 IS OBSOLETE
      TEST      T3       8      U01A6 IS OBSOLETE
***
.
.
.
U31A2  TEST      T2       4      U31A2:ALSO OBSOLETE
***
.
.
.
U819F  TEST      T1       3      U819F HAS MOVED FOR
      TEST      T3      10      U819F HAS MOVED
      TEST      T3      11      U819F HAS MOVED
***
.
.
.

```

This utility prints a report showing details of all User Exits found when you last ran option 2.

5.2.4 Output report on screen

The file USER-EXITS contains two items, MOVED and OBSOLETE, listing all the relevant User Exits.

Produces the same report as option 3 but displays the information on the screen.

Section 6: Appendix A - Decimal, Hexadecimal and ASCII Table

Decimal	Hexadecimal	ASCII	Decimal	Hexadecimal	ASCII
000	00	NUL	050	32	2
001	01	SOH	051	33	3
002	02	STX	052	34	4
003	03	ETX	053	35	5
004	04	EOT	054	36	6
005	05	ENQ	055	37	7
006	06	ACK	056	38	8
007	07	BEL	057	39	9
008	08	BS	058	3A	:
009	09	HT	059	3B	;
010	0A	LF	060	3C	<
011	0B	VT	061	3D	=
012	0C	FF	062	3E	>
013	0D	CR	063	3F	?
014	0E	SO	064	40	@
015	0F	SI	065	41	A
016	10	DLE	066	42	B
017	11	DC1	067	43	C
018	12	DC2	068	44	D
019	13	DC3	069	45	E
020	14	DC4	070	46	F
021	15	NAK	071	47	G
022	16	SYN	072	48	H
023	17	ETB	073	49	I
024	18	CAN	074	4A	J
025	19	EM	075	4B	K
026	1A	SUB	076	4C	L
027	1B	ESC	077	4D	M
028	1C	FS	078	4E	N
029	1D	GS	079	4F	O
030	1E	RS	080	50	P
031	1F	US	081	51	Q
032	20	SPACE	082	52	R

Decimal	Hexadecimal	ASCII	Decimal	Hexadecimal	ASCII
033	21	!	083	53	S
034	22	"	084	54	T
035	23	#	085	55	U
036	24	\$	086	56	V
037	25	%	087	57	W
038	26	&	088	58	X
039	27	`	089	59	Y
040	28	(090	5A	Z
041	29)	091	5B	[
042	2A	*	092	5C	\
043	2B	+	093	5D]
044	2C	,	094	5E	^
045	2D	-	095	5F	
046	2E	.	096	60	␣
047	2F	/	097	61	a
048	30	0	098	62	b
049	31	1	099	63	c
100	64	d	152	98	
101	65	e	153	99	
102	66	d	154	9A	
103	67	g	155	9B	
104	68	h	156	9C	
105	69	i	157	9D	
106	6A	j	158	9E	
107	6B	k	159	9F	
108	6C	l	160	A0	
109	6D	m	161	A1	
110	6E	n	162	A2	
111	6F	o	163	A3	
112	70	p	164	A4	
113	71	q	165	A5	
114	72	r	166	A6	
115	73	s	167	A7	
116	74	t	168	A8	
117	75	u	169	A9	
118	76	v	170	AA	

Decimal	Hexadecimal	ASCII	Decimal	Hexadecimal	ASCII
119	77	w	171	AB	
120	78	x	172	AC	
121	79	y	173	AD	
122	7A	z	174	AE	
123	7B	{	175	AF	
124	7C		176	B0	
125	7D	}	177	B1	
126	7E	~	178	B2	
127	7F	DEL	179	B3	
128	80		180	B4	
129	81		181	B5	
130	82		182	B6	
131	83		183	B7	
132	84		184	B8	
133	85		185	B9	
134	86		186	BA	
135	87		187	BB	
136	88		188	BC	
137	89		189	BD	
138	8A		190	BE	
139	8B		191	BF	
140	8C		192	C0	
141	8D		193	C1	
142	8E		194	C2	
143	8F		195	C3	
144	90		196	C4	
145	91		197	C5	
146	92		198	C6	
147	93		199	C7	
148	94		200	C8	
149	95		201	C9	
150	96		202	CA	
151	97		203	CB	
204	CC		230	E6	
205	CD		231	E7	
206	CE		232	E8	

Decimal	Hexadecimal	ASCII	Decimal	Hexadecimal	ASCII
207	CF		233	E9	
208	D0		234	EA	
209	D1		235	EB	
210	D2		236	EC	
211	D3		237	ED	
212	D4		238	EE	
213	D5		239	EF	
214	D6		240	F0	
215	D7		241	F1	
216	D8		242	F2	
217	D9		243	F3	
218	DA		244	F4	
219	DB		245	F5	
220	DC		246	F6	
221	DD		247	F7	
222	DE		248	F8	
223	DF		249	F9	
224	E0		250	FA	
225	E1		251	FB	SB
226	E2		252	FC	SVM
227	E3		253	FD	VM
228	E4		254	FE	AM
229	E5		255	FF	SM

Section 7: Appendix B – Additional utilities

7.1 Overview of the utilities

Four programs, used to set and remove file reallocation parameters and to reinstate passwords on 7.0, are available in the file BP:

- FILE-REAL is run on Release 7.0 to calculate new modulo and separation for all files. The reallocation parameters are placed in attribute 13 of the File Definition Items. (The program ignores all files with a period, '.', in attribute 13).
- REMOVE.FILE-REAL is run on any release prior to 7.0 to remove all reallocation parameters currently stored in attribute 13 of File Definition Items.
- REMOVE.FILE-REAL 7.0 also removes all reallocation parameters but is run on Release 7.0.
- RESET-PSW is used to encrypt and reinstate passwords after you have upgraded the system to 7.0.

Note that you must not DX the MIGRATION.UTILITY account if you want to run any of these programs following migration.

7.2 FILE-REAL

This program can be run from any 7.0 account, but you must have access to system level files. FILE-REAL needs a STAT file generated by the current port, so you should carry out a file save then run FILE-REAL from the same terminal.

When you run FILE-REAL, you are asked what percentage of oversizing you want to allow for future file expansion. You also have the option of sending the results of the program to the printer, in which case the report shows the old and new modulo and separation for each file. (See the report produced by the Generate Reallocation Parameters utility, described in Chapter 4.)

7.3 REMOVE.FILE-REAL and REMOVE.FILE-REAL 7.0

These programs can be run only from SYSMAN or SYSPROG, so must first be copied to one of these accounts. The programs work in the same way but REMOVE.FILE-REAL 7.0 runs on Release 7.0 and REMOVE.FILE-REAL runs on earlier releases.

When you run the program, a menu of three options is displayed:

```
1.      Process a single account
2.      Process an account list
3.      Process whole system

99.     Exit

Enter Selection:
```

Option 1 lets you remove reallocation parameters from all files in a specified account. Option 2 lets you remove reallocation parameters from files in all accounts in a specified list. (The list of account names must already exist.) Option 3 removes reallocation parameters from all files on the system.

7.4 RESET-PSW

As part of the Migration to 7.0 procedure, you should have run the utility to Remove Account Passwords from SYSTEM file, described in Chapter 3. This utility places all the passwords in the file OPTION4.FILE in the MIGRATION.UTILITY account.

Following the upgrade, you should copy this file and the program RESET-PSW to SYSMAN. From SYSMAN, you can then run RESET-PSW to encrypt and reinstate all account passwords. If the program completes successfully, a message is displayed to tell you that all accounts have been updated and the security file has been automatically deleted. Alternatively, you are told which accounts have not been updated and are warned that the security file has therefore not been deleted.

7.4.1 Account definition item

Each account on a REALITY system is defined by an Account Definition Item that is contained in the SYSTEM dictionary.

This item is a pointer to the frame address of the account's master dictionary.

The Account Definition Item also defines the account's:

- Name
- Retrieval code(s)
- Update code(s)
- Password
- System privileges
- Additional LOGON workspace
- ACC file update status
- Modulo and separation for the master dictionary

7.4.2 File allocation

File allocation on a REALITY database means to assign a modulo and separation for a file. These parameters define the number of groups and the initial size of each group in the file.

The file allocation parameters do not affect the subsequent linkage of frames to a group from the overflow table.

7.4.3 File definition item (D-Pointer)

Each file on a REALITY system is defined by a File Definition Item contained in the SYSTEM dictionary for SYSTEM level files, in an account's master dictionary for dictionary level files, and in the dictionary file for data files.

This item is a pointer to the frame address of the first frame of the first group in the file.

The File Definition Item also defines the file's:

- Name

- Pointer type
- Modulo
- Separation
- Retrieval code(s)
- Update code(s)
- Conversion code(s)
- Correlative code(s)
- Output justification code
- Output column width code
- Reallocation parameters
- Transaction Logging indicator (before 7.0. On 7.0 this is included in pointer type)

7.4.4 Frame

The fundamental logical unit of the REALITY database is the frame.

On disk, a frame is one sector.

In memory, a frame is one buffer.

Some REALITY databases use 512-byte frame formats and others use 1024-byte frame formats.

7.4.5 Group

A group is a logical data structure used by REALITY to store and retrieve items. Groups are defined by a file's modulo and separation.

The modulo defines the number of groups in the file.

The separation defines the number of primary frames in the group.

The number of frames in a group is not rigidly defined by the separation because unused frames from the overflow table can be linked to any group as they are needed.

7.4.6 Logon workspace

The control blocks and miscellaneous workspace frames assigned to a process at logon. Normally defined in the Account Definition Item. Additional logon workspace can be requested.

7.4.7 Migration

For this manual, migration means moving your REALITY database from a machine that uses one file structure to one that uses a different file structure.

The utility programs described in this manual help you to make the changes to your REALITY database that allow you to migrate from one file structure to another.

7.4.8 Modulo

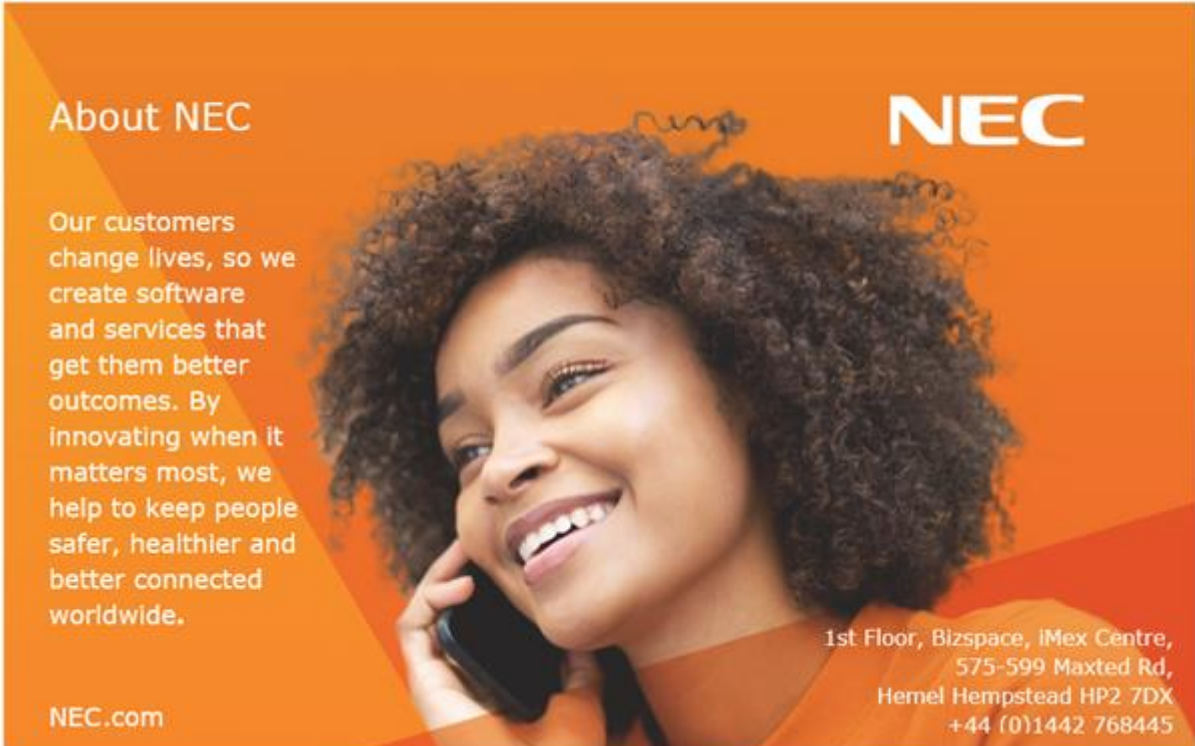
The number of groups allocated to a file.

7.4.9 Separation

The number of primary frames allocated to a group. Because the REALITY operating system can add frames as they are needed to any group, the separation does not define the permanent allocation of frames for a group, only the initial allocation.

7.4.10 Utility

For this manual, a utility is a program that helps you determine what you need to do to your database before you transfer it to another REALITY database with a different file structure from the one it currently runs on.



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