With permanent file commands, you can create, access, and purge permanent files. You can also control other users' access to your files.

The following are the permanent file commands and their functions.

Command	Function
APPEND	Appends data to an indirect access permanent file.
ATTACH	Assigns a direct access permanent file to a job.
CATLIST	Lists permanent file information.
CHANGE	Changes permanent file characteristics.
COMMON	Accesses library type files.
DEFINE	Creates a direct access permanent file.
DROPDS	Releases the disk space associated with a permanent file for which a valid alternate storage copy exists. The local file copy (if any) is also returned.
GET	Retrieves a copy of an indirect access permanent file as a local file.
MFLINK	Transfers a file from one mainframe to another or alters the attributes of a file on another mainframe.
OLD	Retrieves a copy of an indirect access permanent file as the primary file.
PACKNAM	Specifies an auxiliary device from which permanent files are to be accessed.
PERMIT	Grants permanent file access permission to other users.
PURGALL	Purges all files having the specified characteristics.
PURGE	Purges the named files.
RECLAIM	Creates and manages tape and disk backup copies of permanent files.
REPLACE	Copies a local file over an indirect access permanent file.
SAVE	Creates an indirect access permanent file.
SETPFAC	Changes the security access category set of a permanent file.
SETPFAL	Changes the security access level of a permanent file.

If an error occurs in an operation on one file of a multifile request, the operation is not performed on the subsequent files. For example, if an error occurs in the processing of file B on the following command:

GET,A,B,C,D.

files C and D are not processed.

On a secured system, your job may not access a permanent file unless the job is validated for the access level and access category set assigned to the file. For an alternate user access, such an access attempt is treated as a file-not-found error; for an access to one of your own files, it is treated as a security conflict.

In addition, your job may not change or access certain types of permanent file information. The following limitations apply:

- CHANGE, PERMIT, and SETPFAC requests are not allowed on files with an access level lower than that of the job.

- CATLIST requests for permit information are not allowed on files with an access level higher than that of the job. Normal CATLIST requests are allowed, but information on the password expiration date and access category set is not included in the CATLIST output. If a password exists, it is returned as seven asterisks (*******).

For more information on permanent files, refer to Permanent Files, Mass Storage File Residence, and Alternate Storage in section 2.

To determine the meaning of a permanent file error message, refer to appendix B.

COMMON PARAMETERS

Some permanent file commands can process several files. Each file is identified by a one- to seven-character file name. The permanent file operation is performed on each file in the sequence specified on the command. If the NA parameter is not specified on the command and an error occurs while one of the files is being processed, the job step terminates.

When this happens, the files preceding the file in error are processed, but the files succeeding it are not. If the NA parameter is specified on the command, the job step does not terminate as a result of the error, and all files are processed except the file in error.

When a slash is used, it separates the file names from other parameters. The parameters specified after the slash are optional and order independent. Parameters specified after the slash affect all files named before the slash.

Permanent file access is controlled by the permit category (CT), user name (UN), file access password (PW), security access level (AL), and access mode (M) parameters. Permanent file residence is determined by the preferred residence (PR), auxiliary device (PN), and device type (R) parameters. Processing options include the no abort (NA), wait-if-busy (WB), subsystem selection (SS), and backup copy (BR) parameters.

In the following list, parameters common to more than one permanent file command are described in alphabetic order. For the format of each command, refer to the command descriptions following the parameter descriptions.

Parameter	Description

AL=level — Specifies the security access level you want assigned to the file. Unless changed by your site, level can be one of the following names:

LVL0, LVL1, LVL2, LVL3, LVL4, LVL5, LVL6, or LVL7

When used with the DEFINE command, the default for this parameter is the current job access level. When used with the SAVE command, the default is the access level of the local file being saved.

BR=br — Specifies the backup copy requirement. You can request that two backup copies, one backup copy, or no backup copy be kept of your permanent file. Depending on your site's configuration and procedures, a backup copy can be one of the following:

- A cartridge alternate storage (MSE) copy.

- A tape alternate storage copy.

- A tape alternate storage secondary copy.

- A PFDUMP tape copy.

The following values can be specified for br:

br	Backup Requirement
Y	Two backup copies of the file must be kept.
MD	One backup copy of the file must be kept.
N	No backup copy of the file need be kept.

If BR=br is omitted, BR=Y is used by default. For more information, refer to Alternate Storage in section 2.

CT=ct — Specifies the file permit category. If CT=ct is omitted when the file is created, the file is private. The file category can be changed later.

ct	Category
P, PR, or PRIVATE	Private files; available for access only by their creator and by those granted explicit access permission by the file creator (refer to the PERMIT command). The system records the user name of each user who accessed the file, the number of accesses made, and the date and time of the last access by each user. The file creator can list this information with the CATLIST(LO=FP) command.

Parameter		Description	
	ct		Category
	S or SPRIV		Semiprivate files; available for access by a user who knows the file name, user name, and password and who has not been explicitly denied permission to the file (M=NULL parameter on a PERMIT command).
			Information provided by CATLIST(LO=FP) for semi-private files is the same as that provided for private files.
	PU or PUBLIC		Public files; available for access by all users who know the file name, user name, and password. The system records the number of times the file was accessed and the date and time of the last access, but does not record user names. This information can be obtained using CATLIST(LO=F).

NA — Specifies the no abort option. Normally, an error in command processing terminates the job. However, if NA is specified, the job does not terminate as a result of the error. The error is handled in one of two ways.

- If the error condition is temporary, job processing is suspended until the error condition ends (for example, when a requested direct access file is busy or a requested auxiliary device is not available). In a multimainframe environment, job processing may be suspended until some period after the error condition ends.

- If the error condition is not temporary, the job continues with the next operation. The job processes the next file listed on the command or, if no more files are listed, processes the next command.

You may not specify both the NA and WB parameters.

PN=packname — Specifies the one- to seven-character pack name used in conjunction with the R parameter to identify the auxiliary device to be accessed in the permanent file request. This parameter is specified only when the file to be accessed resides on an auxiliary device.

An auxiliary device is a mass storage device that supplements the normal family of permanent file devices. A RESOURC command must be included in any job that concurrently uses two or more auxiliary disk packs or an auxiliary pack and a magnetic tape.

If you specify PN=0 on a permanent file command, it overrides any previously issued PACKNAM commands. You can then access files on the permanent file family device. PN=0 does not affect subsequent commands, only the current command.

Parameter	Description
PR=pr	Specifies the preferred residence. If PR=pr is omitted, no preference is assumed. For more information, refer to Alternate Storage in section 2.

pr	Preference
D	You prefer that the file remain on disk between accesses. However, the system might move the file to alternate storage despite the specified preferred reference.
L	The file is locked to disk and will not be moved to alternate storage. Special validation is required to specify this value.
M	You prefer that the file be moved to alternate storage between accesses. However, the system might not move the file to alternate storage despite the specified preference.
N	You have no preference.
T	You prefer that the file be moved to tape alternate storage between accesses. However, the system might not move the file to tape alternate storage despite the specified preference.

Parameter	Description
PW=password	Specifies the 1- to 7-character file password. If a password is assigned to the file, users other than the file creator must specify the password when accessing the file.

If only the keyword PW is specified, you must include the password as a single-line record in the input file. In a interactive job, the password is requested by a ? prompt at the terminal. |

Parameter	Description

R=r   Specifies the device type on which the file resides or is to reside.

r	Device
DBi	885-42 Disk Storage Subsystem ($1 \leq i \leq 3$; full-track).
DCi	895-1/2 Disk Storage Subsystem ($1 \leq i \leq 2$; full-track).
DDi	834 Disk Storage Subsystem ($1 \leq i \leq 8$; full-track).
DE	Extended memory.
DFi	887 Disk Storage Subsystem ($1 \leq i \leq 3$; full-track; 4k sector).
DGi	836 Disk Storage Subsystem ($1 \leq i \leq 3$; full-track).
DHi	887 Disk Storage Subsystem ($1 \leq i \leq 2$; full-track; 16k sector).
DIi	844-21 Disk Storage Subsystem ($1 \leq i \leq 8$; half-track).
DJi	844-41 or 844-44 Disk Storage Subsystem ($1 \leq i \leq 8$; half-track).
DKi	844-21 Disk Storage Subsystem ($1 \leq i \leq 8$; full-track).
DLi	844-41 or 844-44 Disk Storage Subsystem ($1 \leq i \leq 8$; full-track).
DMi	885-11/12 Disk Storage Subsystem ($1 \leq i \leq 3$; half-track).
DQi	885-11/12 Disk Storage Subsystem ($1 \leq i \leq 3$; full-track).
DP†	Distributive data path to extended memory.
DV	819 Disk Storage Subsystem (single-density).
DW	819 Disk Storage Subsystem (double-density).

The value i denotes the number of units (spindles) required for a particular auxiliary disk file that you will access in your job.

The R parameter can be specified on any permanent file command to identify (along with the PN parameter or with a previous PACKNAM command) the auxiliary device on which the permanent file resides. R is specified only if the installation defines the auxiliary device as removable, and if the desired device type differs from the installation-defined default device type. R is not required if a previous PACKNAM command specified the R parameter. If the R parameter is specified without the PN parameter in a command, R is ignored on all commands except the DEFINE command (refer to the DEFINE command in this section).

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† The job must be of system origin or you must have system origin privileges.

Parameter	Description

SS=subsystem Specifies the interactive subsystem to be associated with the file. The subsystem can be specified on a SAVE or CHANGE command with one of the following entries or its abbreviation (the abbreviation is the first three characters of the entry).

subsystem	Interactive Subsystem
BASIC	BASIC
BATCH	Batch
EXECUTE	Execute
FORTRAN	FORTRAN 5
FTNTS	FORTRAN Extended 4
NULL	Null

If the SS keyword is specified without a subsystem, the currently active subsystem is associated with the file. If the SS keyword is omitted, no subsystem (null) is associated with the file, unless the file is the primary file. In that case, the currently active subsystem is associated with the file.

UN=username Specifies the user name. This parameter must be specified if the requested permanent file is in another user's catalog. To access the file, you must have one of the following permissions.

- Explicit permission. The owner of the file granted access permission to the user with a PERMIT command.

- Implicit permission. The file is semiprivate or public and so can be accessed by users who know the file name, user name, and password and who have not been explicitly denied permission.

- Automatic permission. You have automatic permission to access files in the catalog of another user if your user name contains asterisks, and if all nonasterisk characters match characters in the other user's user name.

The UN keyword establishes alternate access validation, unless the specified user name is the one under which the job is currently being run. In this case, the specified user name is ignored.

Parameter	Description
WB	Specifies the wait-if-busy option. WB causes the job to wait for busy files and the mounting of disk packs but to abort on other error conditions. You may not specify both the NA and WB parameters.
XD=expiredate	Specifies the expiration date for a file password or file permit. The value expiredate must be a six-digit string of the form yymmdd; where yy, mm, dd are two-digit year, month, and day designators, respectively. The latest date you can specify and the default expiration date are site-determined.
	You must have special authorization to specify an expiration date for a file password or permit (refer to the LIMITS command).
XT=expireterm	Specifies the life of a file password or permit in days. If you specify 0, the file password or permit expires immediately. If you specify 4095 or *, the file password or permit does not expire. The default expiration term and the maximum expiration term are site-determined (no site can choose a value greater than 4095, however).
	You must have special authorization to specify an expiration term for a file password or permit (refer to the LIMITS command).

APPEND COMMAND

The APPEND command adds information to the end of an existing indirect access file without retrieving the file. The APPEND command cannot append data to direct access files.

Format:

APPEND,pfn,lfn$_1$,lfn$_2$,...,lfn$_n$/UN=username, PW=password,PN=packname,R=r,NA,WB.

Parameter	Description
pfn	Specifies the name of the indirect access permanent file to which data is appended. You do not retrieve the indirect access file before the append operation, but you must have permission to access the file in append, modify, or write mode.
	If a local copy of the indirect access file is assigned to the job, the append operation does not change the local copy.
lfn$_i$	Specifies the name of a local mass storage file to be appended to pfn. The file must be assigned to the job.

The full descriptions of the following optional parameters are given at the beginning of this section.

Parameter	Description
UN=username	Specifies the user name. Specified if pfn is in another user's catalog.
PW=password	Specifies the file password. Specified if UN=username is specified and pfn has a password.
PN=packname	Specifies the auxiliary device name. Specified if pfn resides on an auxiliary device.
R=r	Specifies the device type. Specified if a removable auxiliary device on a device type other than the installation-defined default is to be used.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs.

The logical structure of the files is retained; that is, EORs and EOFs are appended as well as data. The append operation removes the EOI mark at the end of file pfn, but keeps all EOR and EOF marks.

ATTACH COMMAND

The ATTACH command assigns a direct access permanent file to a job.

Format:

ATTACH,lfn_1=pfn_1,lfn_2=pfn_2,...,lfn_n=pfn_n/M=m,UN=username,PW=password,
   PN=packname,R=r,NA,RT,WB.

Parameter	Description
lfn_i=pfn_i	Specifies that the one- to seven-character file name lfn_i references direct access file pfn_i while the file is assigned to the job. If lfn_i= is omitted, the direct access file is referenced by its permanent file name, pfn_i. User access is directly to the permanent file; no working copy is generated.
	If a local file name lfn_i exists when this command is processed, it is discarded (even if command processing does not complete due to an error).

The full descriptions of the following optional parameters (except M=m and RT) are given at the beginning of this section.

Parameter	Description
M=m	File access mode requested. If M=m is omitted, M=READ is assumed.

If m is:	You can:	Concurrently, other users can:
E or EXECUTE (execute mode)	Execute the file.	Read or execute the file.
R or READ (read mode)	Read or execute the file.	Read or execute the file.
RU or READUP† (read update mode)	Read or execute the file	Read or execute the file; one user can rewrite the file.
RA or READAP† (read append mode)	Read or execute the file.	Read or execute the file; one user can lengthen the file.
RM or READMD† (read modify mode)	Read or execute the file.	Read or execute the file; one user can lengthen or rewrite the file.

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† Special care should be taken when using modes RM, RA, or RU. Some programs do not anticipate that one user may be updating a file while other users are reading the same file. Specifically, CRM/AAM (refer to the CYBER Record Manager Advanced Access Methods Reference Manual) is not designed to handle concurrent reading and updating. If a program using CRM/AAM attempts to access a file attached in RM, RA, or RU mode while a second program using CRM/AAM is accessing the file in M, A, or U mode, one or both programs may be aborted with an error message stating that the file was ruined. In fact, the file may still be intact, but CRM cannot guarantee this and does not allow the access.

Parameter	Description

	If m is:	You can:	Concurrently, other users can:
	U or UPDATE (update mode)	Read, execute, or rewrite the file.	Read or execute the file.
	A or APPEND (append mode)	Read, execute, or lengthen the file.	Read or execute the file.
	M or MODIFY (modify mode)	Read, execute, lengthen, or re-write the file.†	Read or execute the file.
	W or WRITE (write mode)	Read, execute, lengthen, rewrite, or shorten the file.	No access allowed.

You cannot change the file unless you attach it in update, append, modify, or write mode. Refer to table 10-1 for the access mode granted when the file is already attached by another user.

If the file is attached in update, append, modify, or write mode, the current date is recorded as the last modification date even if the file is not altered.

UN=username	Specifies the user name. Specified if the permanent file(s) is in another user's catalog.
PW=password	Specifies the file password. Specified if UN=username is specified, and if the permanent file has a password.
PN=packname	Specifies the auxiliary device name. Specified if the permanent file(s) resides on an auxiliary device.
R=r	Specifies the device type. Specified if a removable auxiliary device on a device type other than the installation-defined default is used.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job; the job also waits for the mounting of disk packs and busy files.
RT	Specifies the real-time processing option. If RT is specified, the job continues processing after requesting staging of a file from alternate storage to disk. If staging is not required (the file is already resident on disk), the file is assigned to the job. If the file must be staged, you must issue a second ATTACH command to assign the file to the job.
	If RT is omitted and the file resides only on alternate storage, job processing is suspended while the file is staged to disk and assigned to the job. For more information on alternate storage, refer to Alternate Storage in section 2.

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†You cannot rewrite the file using the copying commands described in section 9. To rewrite the file while in modify or update mode, you must write your own program using the REWRITE macro (refer to Volume 4, Program Interface).

Parameter	Description
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs and busy files.

If an auxiliary device has been previously specified by a PACKNAM command, the system attempts to find pfn$_i$ on the auxiliary device rather than on a family device.

In the first column of table 10-1 is the access mode in which the first user attached a direct access file. The remaining columns are the access modes that may be requested by another user. At the intersection of the row and column is the access mode granted to the other user (assuming the user has the appropriate access permission). Busy means that the other user is sent a message that the file is busy and the job step is aborted unless NA or WB is specified.

Assuming that no user has the file attached in append, update, modify, or write mode, 16380 users can attach the file concurrently (4095 in read mode, 4095 in read append mode, 4095 in read update mode, and 4095 in read modify mode). If a user has the file attached in append mode, 8190 other users can attach the file (4095 in read append mode and 4095 in read modify mode). If a user attaches the file in update mode, 8190 other users can attach the file (4095 in read update mode and 4095 in read modify mode). If a user has the file attached in modify mode, 4095 other users can attach it in read modify mode. If a user has the file attached in write mode, no other user can attach the file.

Table 10-1. Access Mode Granted When Attaching a Currently Attached Direct Access File

Mode in Which First User Attached File	Access Mode Requested by Another User								
	Write	Modify	Append	Update	Read	Read Modify	Read Append	Read Update	Execute
Write	Busy	Busy	Busy	Busy	Busy	Busy	Busy	Busy	Busy
Modify	Busy	Busy	Busy	Busy	Busy	Read Modify	Busy	Busy	Busy
Append	Busy	Busy	Busy	Busy	Busy	Read Modify	Read Append	Busy	Busy
Update	Busy	Busy	Busy	Busy	Busy	Read Modify	Busy	Read Update	Busy
Read	Busy	Busy	Busy	Busy	Read	Read Modify	Read Append	Read Update	Execute
Read Modify	Busy	Modify	Append	Update	Read	Read Modify	Read Append	Read Update	Execute
Read Append	Busy	Busy	Append	Busy	Read	Read Modify	Read Append	Read Update	Execute
Read Update	Busy	Busy	Busy	Update	Read	Read Modify	Read Append	Read Update	Execute
Execute	Busy	Busy	Busy	Busy	Read	Read Modify	Read Append	Read Update	Execute

CATLIST COMMAND

The CATLIST command lists information about your permanent files or the permanent files you can access in the catalogs of other users. For interactive terminals operating in screen mode, the system automatically reformats CATLIST output according to the page length set for your terminal.

Format:

CATLIST,LO=p,FN=pfn,UN=username,PN=packname,R=r,DN=dn,NA,L=lfn,WB.

Parameter	Description
LO=p	One of the following list options. If LO is omitted, LO=0 is assumed.

p	Description
F	Lists pertinent information about the file specified by the FN=pfn parameter. If you do not specify an FN=pfn parameter, the system lists information about each file in your catalog. An example of this list option is given following the parameter descriptions.
	If you specify an alternate user name (UN=username), you receive a listing of files you can access in the other user's catalog; however, the only files listed are those that the owner has explicitly permitted to be listed (using the AC parameter on a CHANGE, DEFINE, or SAVE command). The passwords for files in another user's catalog are not listed. Passwords must be obtained from the file owner. In addition, charge and project number information also is not listed in an alternate user CATLIST unless the calling user has system origin privileges.
FP	Lists the access permissions granted for the file specified on the FN=pfn parameter. If a user name is also specified (UN=username), only the file permission granted to that user is listed.
	The user names listed include those that have been granted explicit permission to access the file (private files only) and those that have accessed the file through implicit permission (semiprivate files only). (User names are not recorded for accesses to public files.) An asterisk follows the user name/permission mode if explicit permission has been granted this user.

Parameter	Description

0 (zero)   Lists alphabetically the names of the indirect access files and direct access files in your catalog. If you specify a user name (UN=username), you receive a list of the files you can access in the other user's catalog.

A file name surrounded by parentheses indicates that the file resides on alternate storage rather than on disk.

An asterisk preceding a file name indicates an error status is set in the catalog entry for the file. The cause of the error may be one of the following.

• EOI was altered during mass storage recovery.

• Error exists in file data or permit entries.

To clear an error status flag, refer to CHANGE Command in this section.

P   Lists only the user names of users who have access to the specified private file or who have accessed the specified semiprivate file. This option requires that a file name be specified (FN=pfn).

X   Lists the security access categories associated with the file specified on the FN=pfn parameter as well as the information returned by the LO=F parameter. You must specify the FN=pfn parameter if you specify LO=X.

FN=pfn   Specifies the permanent file name. This parameter is required when listing access permission data (when LO=FP or LO=P is specified).

If FN=pfn and LO=0 are specified, a message indicates whether or not the file is found in your catalog. If FN=pfn, LO=P, and UN=username are specified, a message indicates whether or not permission to access that file has been granted to that user name (username FOUND.).

If pfn contains one or more asterisks, the CATLIST command lists catalog information for the subset of files whose names match except where the asterisks appear. For example, FN=***OPL lists all six-character file names ending in OPL. The asterisk is invalid when listing permit information with the LO=FP and LO=P list options.

UN=username   Specifies the user name. This parameter has two purposes.

• For list options LO=F and LO=0, it specifies the alternate catalog for which you desire catalog information.

• For list options LO=FP and LO=P, it requests the permission information recorded for the specified alternate user.

When the short list options, LO=0 and LO=P, are specified, a message informs you whether or not the file or user name has been found.

Parameter	Description
PN=packname	Specifies the auxiliary device name. This parameter specifies that CATLIST should use the catalog information on the named auxiliary device.
R=r	Specifies the device type on which the permanent file catalog resides. R=r is used with the PN and NA parameters (refer to the R parameter description at the beginning of this section).
DN=dn	Specifies the device number assigned to a device at system initialization. If specified, the CATLIST command lists catalog information from that device.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job. Do not specify both NA and WB.
L=lfn	Specifies the output file name. lfn is the name of the file assigned to the job on which CATLIST information is written. If L=lfn is omitted, the system assumes L=OUTPUT.
	lfn is not rewound before or after the CATLIST operation.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs. Do not specify both NA and WB.

Example 1:

Listing of current files in the catalog of STUDENT. The command is entered by user STUDENT in the form: CATLIST (it is not necessary to specify the LO=0 option since it is the default value).

```
CATLOG OF STUDENT            FM/NOSHOP yy/mm/dd.  hh.mm.ss.

INDIRECT ACCESS FILES

  ADD       (EXAM)   GRADES    ID      MODIFY2    (RESEQ)     XX
  CAPITAL   FIND     *HEROFTN  LIST    PRIME      T

DIRECT ACCESS FILES

(DIRFILE)    DRFILE   TV
        11 INDIRECT ACCESS FILES ON DISK.    TOTAL PRUS =    14.
         2 DIRECT ACCESS FILES ON DISK.      TOTAL PRUS =     2.
         2 INDIRECTS ON ALTERNATE STORAGE.   TOTAL PRUS =     2.
         1 DIRECT ON ALTERNATE STORAGE.      TOTAL PRUS =     2.
```

An asterisk preceding a file name indicates error flag set. A file name surrounded by parentheses indicates that the file resides on alternate storage rather than on disk.

Example 2:

Listing of current files that begin with the letters PROC in the catalog of FREE007. The
command is entered by user FREE007 in the form: CATLIST,FN=PROC***.

       CATALOG OF FREE007   FM/NOSCLSH yy/mm/dd. hh.mm.ss.
                FILE NAME PROC***

     INDIRECT ACCESS FILES

     PROCART   PROCFIL   PROC1   PROC1A

           4 INDIRECT ACCESS FILES ON DISK.   TOTAL PRUS =   15.

Example 3:

Listing of alternate users that have accessed file PRIME in the catalog of STUDENT. The
command is entered by user STUDENT in the form: CATLIST,LO=P,FN=PRIME.

       CATALOG OF STUDENT   FM/NOSCLSH yy/mm/dd. hh.mm.ss.
                FILE NAME PRIME
         USER NAMES

       CMK2011   JLX2015   KXK4277

           3 USERS

Example 4:

Listing of current files in the catalog of SMITH. The command is entered by user SMITH in
the form: CATLIST,LO=F.

       CATALOG OF SMITH   FM/NOSHOP yy/mm/dd. hh.mm.ss. PAGE   1

         FILE NAME FILE TYPE   LENGTH DN CREATION ACCESS   DATA MOD
           PASSWORD COUNT   PERM. SUBSYS DATE/TIME DATE/TIME DATE/TIME
           EXPIRES   LEVEL   PR BR AC RS
           CHARGE NO. PROJECT NUMBER

         1 CATX   IND. PRIVATE   1   84/04/19. 84/04/20. 84/04/19.
                        1   READ   09.10.23. 08.30.16. 09.10.23.
                     LVL0   N Y N D
              2222   PRJ2201

         2 TESTLIB   DIR. PUBLIC   1 41 84/04/19. 84/04/19. 84/04/19.
                        0   WRITE   09.11.05. 09.11.05. 09.11.05.
                     LVL0   N Y Y D
              2222   PRJ2201

              1 INDIRECT ACCESS FILE ON DISK.   TOTAL PRUS =   1.
              1 DIRECT ACCESS FILE ON DISK.   TOTAL PRUS =   1.

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†An asterisk preceding a file name indicates that the error flag is set.

Column headings are printed when the LO=F or LO=X parameter is specified. For CATLIST listing files not connected to a terminal, you can control the print density and page length using the SET command and the PL and PD symbolic names.

The following are the column headings and their meanings.

Heading	Meaning
FILE NAME	Permanent file name.
FILE TYPE	The permanent file type, direct access (DIR) or indirect access (IND), followed by the file permit category (PRIVATE, SPRIV, or PUBLIC).
LENGTH	Length of the file in decimal PRUs.
DN	Device number of the mass storage device on which the direct access file is stored. If the file resides on the master device, this field contains an asterisk.
PASSWORD	File password. It is not listed if the file belongs to another user. If the system is a secured system and if the file has an access level higher than that of your job, a series of seven asterisks (*******) replaces the file password.
COUNT	The number of times the file has been accessed.
PERM.	Permission mode allowed the user. The entry is WRITE, MODIFY, APPEND, UPDATE, READ, READMD, READAP, READUP, EXECUTE, or NULL.
SUBSYS	Interactive subsystem associated with the file. The possible entries are FORT., FTNTS, BASIC, EXEC., and BATCH. If this field contains no entry, a subsystem is not associated with the file (null).
CREATION DATE/TIME	File creation time and date in the following format. yy/mm/dd. hh.mm.ss.
ACCESS DATE/TIME	Time and date of the last access to the file.
DATA MOD DATE/TIME	Time and date of the last modification of the file data.
EXPIRES	The expiration date of the file password. It is not listed if the file does not have a password, the password does not expire, or if the file belongs to another user.
LEVEL	The security access level of the file. On a secured system, it is always listed if the file belongs to you. On an unsecured system, it is only listed if the level is not null (an assignment has been made) and the file belongs to you.
PR	Preferred residence for this file. The possible values are L, D, M, N, and T. For more information, refer to the description of the PR parameter at the beginning of this section.

Heading	Meaning
BR	Requested backup copy for this file. Y means tape backup, MD means alternate storage or tape backup, and N means no backup required. For more information, refer to the description of the BR parameter at the beginning of this section.
AC	Alternate CATLIST permission. Specifies whether alternate users may obtain information about the file using CATLIST. Y means that information on this file will appear in an alternate user's CATLIST display; N means that an alternate user cannot get information on this file.
RS	Actual residence of the file. The possible values are D, DC, DT, DCT, CT and T. If a D is present, a copy of the file exists on disk. If a C is present, a copy of the file exists on cartridge alternate storage (MSE). If a T is present, a copy of the file exists on tape alternate storage. For more information, refer to Alternate Storage in section 2.
CHARGE NO.	Charge number associated with the file.
PROJECT NUMBER	Project number associated with the file.

CHANGE COMMAND

The CHANGE command changes certain characteristics of a permanent file. The file need not be assigned to the job.

Format:

CHANGE,$nfn_1=ofn_1,nfn_2=ofn_2,\ldots,nfn_n=ofn_n$/PW=password,CT=ct,M=m,BR=br,PR=pr,
SS=subsystem,PN=packname,R=r,NA,CE,WB,XD=expiredate,XT=expireterm,AC=ac,CP.

Parameter	Description
$nfn_i=ofn_i$	Specifies the file name nfn_i replaces old permanent file name ofn_i. If no name change is desired, only ofn_i is specified.

The full descriptions of the following optional parameters (except CE and M=m) are given at the beginning of this section.

Parameter	Description
PW=password	Specifies the new password. If PW=0 is specified, the CHANGE command clears the old password without setting a new password.
CT=ct	Specifies the new permit category for the file. Entries are P, PR, or PRIVATE for private; S or SPRIV for semiprivate; and PU or PUBLIC for public.
M=m	Specifies the new alternate user permission mode for semiprivate and public files. For direct access files, refer to the permission modes described in the DEFINE command description; for indirect access files, refer to the permission modes described in the SAVE command description.

Parameter	Description
BR=br	Specifies the new backup copy selection; entries are Y (tape), MD (alternate storage), and N (no backup).
PR=pr	Specifies the new preferred residence; entries are M (alternate storage) and N (no preference).
SS=subsystem	Specifies the new interactive subsystem to be associated with the file; entries are BASIC, BATCH, EXECUTE, FORTRAN, FTNTS, and NULL.
PN=packname	Specifies the auxiliary device on which the file resides. This parameter cannot specify a new file residence.
R=r	Specifies the device type on which the file resides. This parameter cannot specify a new file residence.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
CE	Clears file error code. It clears the recovery error field in the catalog entry. If the job is system origin, it also clears the alternate storage file errors.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs.
XD=expiredate	Specifies the new expiration date for the file password. The value expiredate must be a six-digit string of the form yymmdd; where yy, mm, and dd are two-digit year, month, and day designators, respectively.
XT=expireterm	Specifies the new life of the file password in days. If you specify 0, the file password expires immediately. If you specify 4095 or *, the file password does not expire.
AC=ac	Specifies whether alternate users may obtain information about the file using CATLIST. Entries are Y (yes) and N (no). The default value is N.
CP	Specifies that the charge and project numbers for the file are to be replaced by the charge and project numbers currently in effect for your job.

COMMON COMMAND

The COMMON command accesses the system file SYSTEM.

Format:

    COMMON,SYSTEM.

You must be authorized to access library files. If a file with the name SYSTEM is already local, no action is taken. Otherwise, the system searches for a library file with that name. If the system finds the file, it assigns the file to your job as a library type file.

DEFINE COMMAND

The DEFINE command creates an empty direct access permanent file. It can also change a file of the local file type into a direct access file. In this case, the file must reside on a device on which you can place direct access files (refer to secondary masks and MSAL CMRDECK entries in the NOS 2 Analysis Handbook or contact site personnel). When you create a file using the DEFINE command, the file is automatically saved under the charge number and project number currently in effect for your job.

Format:

    DEFINE,lfn_1=pfn_1,lfn_2=pfn_2,...,lfn_n=pfn_n/PW=password,CT=ct,M=m,BR=br,PR=pr,
       PN=packname,R=r,S=space,NA,WB,AL=level,XD=expiredate,XT=expireterm,AC=ac.

Parameter	Description
lfn_i=pfn_i	The DEFINE command creates an empty direct access permanent file if pfn_i and lfn_i do not exist. If lfn_i= is omitted, pfn_i is assumed to be the local file name and the permanent file name. Each file name can be from one to seven characters.
	If the DEFINE command defines an existing local file as a direct access file, lfn_i is the name of the local file, and pfn_i is its new permanent file name.

The full descriptions of the following optional parameters (except M=m and S=space) are given at the beginning of this section.

Parameter	Description
PW=password	Specifies the 1- to 7-character password that others must specify to access the file.
CT=ct	Specifies the permit category of the defined file. Entries are P, PR, or PRIVATE for private; S or SPRIV for semiprivate; and PU or PUBLIC for public. If CT=ct is not specified, CT=PRIVATE is assumed.
M=m	Specifies the file access mode permitted to other users if the file is semiprivate or public, and if explicit access permission has not been granted to that user. If M=m is omitted, M=READ is assumed.

If m is:	Other users can attach the file in the following modes (refer to the ATTACH command description):
E or EXECUTE	Execute.
R or READ	Read or execute.

Parameter	Description
RU or READUP†	Read update, read, or execute.
RA or READAP†	Read append, read, or execute.
RM or READMD†	Read modify, read append, read update, read, or execute.
U or UPDATE	Update.
A or APPEND	Append.
M or MODIFY	Modify, append, update, read modify, read append, read update, read, or execute.
W or WRITE	Write, modify, append, update, read modify, read append, read update, read, or execute.
N or NULL	None.
	After a file is defined, it is always assigned to the job in write mode.
BR=br	Specifies the backup copy requirement; Possible values are MD (one backup copy required), N (no backup required), or Y (two backup copies required). If BR=br is omitted, BR=Y is assumed.
PR=pr	Specifies the preferred file residence; possible values are D (disk residence preferred), L (locked to disk), M (alternate storage residence preferred), N (no preference), or T (tape alternate storage residence preferred). If PR=pr is omitted, PR=N is assumed.
PN=packname	Specifies the name of an auxiliary device on which the direct access file is to reside. If PN=packname is omitted, the file residence is determined by the PR, R, and S parameters.
R=r	Specifies the device type on which the permanent file is to reside. Specify this parameter if a removable auxiliary device with a device type other than the installation-defined default is used. The device must be a permanent file mass storage device on which direct access files are allowed. If lfn_i already exists on a device other than that specified or if an invalid device type is specified, a dayfile message so informs you. If an auxiliary device name is not specified by the PN=packname parameter or a previous PACKNAM command, the file is defined on a family device.
S=space	Specifies the decimal number of PRUs requested for the file. It cannot be larger than your validation limit (refer to LIMITS Command in section 7). If no device has the specified amount of space available, a dayfile message so informs you.

---

†Special care should be taken when using modes RM, RA, or RU. Some programs do not anticipate that one user may be updating a file while other users are reading the same file. Specifically, CRM/AAM (refer to the CYBER Record Manager Advanced Access Methods Reference Manual) is not designed to handle concurrent reading and updating. If a program using CRM/AAM attempts to access a file attached in RM, RA, or RU mode while a second program using CRM/AAM is accessing the file in M, A, or U mode, one or both programs may be aborted with an error message stating that the file was ruined. In fact, the file may still be intact, but CRM cannot guarantee this and does not allow the access.

Parameter	Description
	This parameter ensures that the file is assigned to a device that has the requested space available at the time the file is defined. It does not guarantee that the space will be available when the file is written.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs.
AL=level	Specifies the security access level you want asssigned to the file. Unless changed by your site, level can be one of the following names: LVL0, LVL1, LVL2, LVL3, LVL4, LVL5, LVL6, or LVL7 The default for this parameter is the current job access level.
XD=expiredate	Specifies the expiration date for the file password. The value expiredate must be a six-digit string of the form yymmdd; where yy, mm, and dd are two-digit year, month, and day designators, respectively. You can specify this parameter only if you also specify PW=password.
XT=expireterm	Specifies the life of the file password in days. If you specify 0, the file password expires immediately. If you specify 4095 or *, the file password does not expire. You can specify this parameter only if you also specify PW=password.
AC=ac	Specifies whether alternate users may obtain information about the file using CATLIST. Entries are Y (yes) and N (no). The default is N.

If lfn_i does not exist, the device on which pfn_i resides depends on the R=r and S=space parameters.

R=r	S=space	File Residence
Specified	Not specified	The file resides on the device of type r with the most space available.
Specified	Specified	The file resides on the device of type r with the most space available, provided that device has as many PRUs available as specified by the space parameter.
Not specified	Specified	The file resides on the device with the most space available, provided that device has as many PRUs available as specified by the space parameter.
Not specified	Not specified	The file resides on the device with the most space available.

If an auxiliary device has been previously specified by a PACKNAM command, the file resides on that auxiliary device rather than a family device.

After the DEFINE command has been processed, the new direct access file remains attached to the job in write mode. After the file is returned, you must issue an ATTACH command to access the direct access file. If you purge an attached direct access file, the file remains attached to the job, although it has been removed from your permanent file catalog. Until you return the purged file, you cannot define a direct access file having the same local file name as the purged file.

DROPDS COMMAND

The DROPDS command releases the disk space associated with one or more of your permanent files, provided that a valid alternate storage copy (on cartridge (MSE) or tape alternate storage) exists for each file. The local file copies of these files (if they are present) are also returned by this command.

Format:

DROPDS,$lfn_1=pfn_1,lfn_2=pfn_2,...,lfn_n=pfn_n$/PN=packname,R=r,NA,WB.

Parameter	Description
lfni=pfni	Specifies that the permanent file disk space associated with the file named pfni should be released. The local file named lfni will be returned at the same time.
	If lfni is omitted, the name of the local file is assumed to be pfni.

The full descriptions of the following optional parameters are given at the beginning of this section.

Parameter	Description
PN=packname	Specifies the auxiliary device name. Specified if the permanent file to be released resides on an auxiliary device.
R=r	Specifies the device type. Specified if a removable auxiliary device on a device type other than the installation-defined default is to be used.
NA	Specifies the no abort option. If NA is specified, processing errors do not abort the job.
WB	Specifies the wait-if-busy option. The job waits for the mounting of removable auxiliary disk packs.

GET COMMAND

The GET command retrieves copies of indirect access permanent files for use as local files.

Format:

GET,lfn_1=pfn_1,lfn_2=pfn_2,...,lfn_n=pfn_n/UN=username,PW=password,PN=packname,
R=r,NA,RT,WB.

Parameter	Description
lfn_i=pfn_i	Specifies the local file name lfn_i given the retrieved copy of indirect access permanent file pfn_i. If lfn_i= is omitted, the local copy of the permanent file is called pfn_i. If no files are named, the system uses the primary file name for the permanent file.

The full descriptions of the following optional parameters are given at the beginning of this section.

Parameter	Description
UN=username	Specifies the user name. Specified if the permanent file(s) is in another user's catalog. You must have permission to read or execute the file(s) (refer to SAVE Command in this section). If only execute permission has been granted, the file is retrieved in execute-only mode.
PW=password	Specifies the file password. Specified if UN=username is specified, and if the permanent file has a password.
PN=packname	Specifies the auxiliary device name. Specified if the permanent file(s) resides on an auxiliary device.
R=r	Specifies the device type. Specified if PN=packname is specified, or if a PACKNAM command has been processed and the device type is other than the system default.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
RT	Specifies the real-time processing option. If RT is specified, the job continues processing after requesting staging of a file from alternate storage to disk. If staging is not required (the file is already resident on disk), the file is assigned to the job. If the file must be staged, you must issue a second GET command to assign the file to the job.

If RT is omitted and the file resides only on alternate storage, job processing is suspended while the file is staged to disk and assigned to the job. For more information on alternate storage, refer to Alternate Storage in section 2. |
| WB | Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs. |

Each permanent file named must be an indirect access file. If the file, lfn$_i$, is assigned
to the job before this command is processed, it is returned. The new local file is rewound
after it is retrieved. More than one user can have local copies of an indirect access file
assigned to their jobs simultaneously.

If your current primary file is specified as an lfn on the command, a copy of the associated
permanent file, pfn, becomes the primary file. The subsystem associated with the permanent
file, pfn, becomes the job's current subsystem (refer to section 8).

If an auxiliary device has been previously specified by a PACKNAM command, the system
attempts to find pfn$_i$ on the auxiliary device rather than on the family device.

MFLINK COMMAND

The MFLINK command optionally transfers a file to or from another mainframe or creates,
purges, or otherwise changes the attributes of a permanent file on another mainframe. You
must be authorized to use the MFLINK command (refer to the LIMITS command).

Format:

   MFLINK,lfn,ST=lid,I=dirfile,DD=dd,EP,RT,PC=c.

Parameter lfn is order-dependent, it must be the first parameter. If you omit lfn, you must
have two consecutive delimiters after MFLINK. The other parameters are order-independent.

Parameter	Description
lfn	Specifies the optional local file name to be used in any file transfers. The file name must be one to seven alphanumeric characters and lfn must reside on disk. If the transfer is from the local host to the remote host, lfn must be a local file before you enter the MFLINK command. If the transfer is from the remote host to the local host, MFLINK either writes over the existing lfn, or if there is no local file, MFLINK creates a new file with the name lfn. If you omit lfn, but subsequent directives call for a file transfer, MFLINK uses LFILE as the default lfn. Some directives, such as CHANGE, PERMIT, and PURGE (for a NOS remote host) do not require an lfn, because they do not cause a file transfer. MFLINK rewinds lfn before and after the transfer.
ST=lid	Specifies the logical identifier (LID) of the remote host to which MFLINK is to send the directives record. The LID must be a three-character string defined by your site. You must specify the ST parameter on the first, and only the first, MFLINK command of a series of MFLINK commands (an MFLINK session) that are for the same remote host. The ST=lid specification remains in effect during the entire session. On subsequent MFLINK commands in the same session, any other parameters not specified revert to their default values. The occurrence of the ST=lid parameter on an MFLINK command initiates a new MFLINK session with the specified remote host. Once you have entered an MFLINK command with an ST=lid parameter, you can resume that MFLINK session at any time during your job by entering an MFLINK command without an ST=lid parameter.

Parameter	Description

I=dirfile   Specifies the local file which contains the directives that the system sends to the remote host. The file name must be one to seven alphanumeric characters. The system reads directives from the current position on the file to the next EOR. If you specify only the keyword I, file INPUT becomes the directives file. If you omit the I=dirfile parameter, the system reads directives from the lines immediately following the MFLINK command. In this case, the directives must all begin with a prefix character and the system reads directives until it comes to a line without the prefix character.

DD=dd   Specifies the data format of the file to be transferred. The DD=dd parameter both describes the character set of lfn on the host where it currently resides and also specifies the character set lfn is to have after the transfer.

For file transfers between NOS mainframes and between NOS/BE and NOS mainframes this parameter is effectively ignored. The file will have the same format on both mainframes.

The interpretation of the DD=dd parameter depends on the operating system(s) involved in the file transfer. The following paragraphs describe how NOS interprets the DD=dd parameter. For its interpretation by other operating systems, refer to the Remote Host Facility Usage manual.

On NOS, you can specify the following values for dd:

dd	Description
C6	The file contains character data in a 64-character (or less) subset of the ASCII 128-character set. The character code of lfn is 6-bit display code and its lines are zero-byte terminated.
C8	The file contains character data in a larger than 64-character subset of the ASCII 128-character set. The character code of lfn is the 7-bit ASCII code (right-justified in 12-bit fields) and its lines are zero-byte terminated.
US	Specifies that the file contains binary data in structured format with EORs and EOFs. The file is transmitted as a continuous string of binary data, broken only by EORs and EOFs as appropriate.
UU	Specifies that the file contains binary data without EORs and EOFs. NOS treats UU as US. If you send a file to a non-NOS or non-NOS/BE remote host with DD=UU specified and the file contains EORs or EOFs, the remote host may ignore them.

Parameter	Description
	If the file is character data, you do not need to specify a DD=dd parameter. The remote host determines the format in which to read/write the file. If you transfer a binary file to or from a mainframe with a different word size than the model 170, the mainframe may add extra bits at EORs or EOFs.
EP	Specifies the error processing that ensues if network problems cause a loss of the connection during a file transfer. If you omit the parameter EP, the system retries the request. The EP parameter inhibits this retry. The system attempts to correct data transmission errors, regardless of the EP parameter.
RT	Specifies the real-time action the system is to take when network resources are temporarily unavailable. If you specify RT and some network resource necessary for you to connect to a remote host is unavailable, MFLINK aborts without any retries. If you do not specify RT, after an installation-defined period of time MFLINK retries until the connection is successful.
PC=c	Specifies the prefix character for MFLINK directives. The default prefix character is an asterisk (*). The prefix character can be any 6-bit display code character except a closing parenthesis, a dollar sign, a period, comma, or a colon. To avoid confusion between commands and routing directives, use caution in selecting alphabetic characters for the prefix character.

MFLINK DIRECTIVES

The action taken by MFLINK depends on the directives you specify. You can specify directives immediately following the MFLINK command if you prefix each directive with the prefix character. The system discards the prefix characters before forwarding the directives to the remote host. Alternatively, you can specify a directives file with the I=dirfile parameter. The directives in the directives file do not require the prefix character. The directives must be commands recognized by the remote host; for example, if the remote host is a NOS/BE system, your directives must be NOS/BE commands. NOS allows only a small subset of its commands to be used as MFLINK directives and, further, may require some directives to have a slightly different form or function from their command counterparts.

This section documents only those MFLINK directives valid for a NOS remote host. For other remote hosts, refer to the Remote Host Facility Usage manual.

NOS, as a remote host, processes directives of up to 80 characters. A directive longer than 80 characters terminates the processing of the current directives record. A directive can span more than one line as long as it does not exceed the 80-character limit. You indicate that the next line is a continuation line by ending the current line with a comma.

The MFLINK directives fall into the three categories of recovery directives, file transfer directives, and file alteration directives as follows:

Recovery	File Transfer	File Alteration
USER	APPEND	CHANGE
CHARGE	ATTACH	PERMIT
	DEFINE	PURGE
	GET	PACKNAM
	REPLACE	
	SAVE	

Recovery directives are directives that a host must send a remote host any time you initiate or resume an MFLINK session. File transfer directives are directives that transfer a file from one host to another. There can be only one file transfer directive in a given directives record.

The directives operate in a manner similar to that of their NOS command counterparts. One exception is the function of the NA keyword.

The NA option on an MFLINK directive works in a manner very similar to the NA option on NOS permanent file commands. The main difference is that the system does not suspend MFLINK processing indefinitely while it waits for a temporary error condition to clear. If APLO (removable pack option) is set to NONZERO (refer to the description of COMSPFM parameters in the Installation Handbook) and the temporary error condition persists beyond an installation-defined timeout period, MFLINK issues a message indicating that the timeout occurred and then continues. If APLO is set to ZERO, MFLINK will not wait for a pack to be mounted but will continue immediately.

The following directive descriptions show the format of each directive and describe the function of each directive whose function differs from that of its NOS command counterpart.

APPEND Directive

The APPEND directive adds the file specified on the MFLINK command (lfn) to the end of pfn.

Format:

    APPEND,pfn/UN=username,PW=password,PN=packname,R=r,NA,WB.

ATTACH Directive

The ATTACH directive retrieves a copy of pfn from the remote host and makes that copy a temporary file with the name specified on the MFLINK command. No interlock is maintained between lfn and pfn, except during the file transfer (as if M=READ had been specified).

Format:

    ATTACH,pfn/UN=username,PW=password,PN=packname,R=r,NA,RT,WB.

CHANGE Directive

The CHANGE directive operates the same as the NOS command.

Format:

    CHANGE,nfn=ofn/PW=password,CT=ct,M=m,BR=br,PR=pr,PN=packname,
       R=r,NA,CE,WB,XD=expiredate,XT=expireterm,AC=ac,CP.

CHARGE Directive

The CHARGE directive operates the same as its NOS command counterpart, including the handling of default charges.

Format:

        CHARGE,chargenumber,projectnumber.

If the CHARGE directive is required, it must immediately follow the USER directive.

DEFINE Directive

The DEFINE directive creates a direct access file named pfn on the remote host and copies onto it the file specified by lfn on the MFLINK command. There is no provision to copy over an existing direct access file; you must purge the existing file. No interlock is maintained between lfn and pfn, except during the file transfer (as if M=READ had been specified).

Format:

        DEFINE,pfn/PW=password,CT=c,M=m,BR=br,PR=pr,PN=packname,R=r,S=space,NA,WB,
          AL=level,XD=expiredate,XT=expireterm,AC=ac.

DROPDS Directive

The DROPDS directive releases the current copy of a permanent file from mass storage when a backup copy has been saved on a storage device.

Format:

        DROPDS,pfn/PN=packname,R=r,NA,WB.

GET Directive

The GET directive retrieves a copy of a permanent file from the remote host and gives it the name lfn, specified on the MFLINK command.

Format:

        GET,pfn/UN=username,PW=password,PN=packname,R=r,NA,RT,WB.

PACKNAM Directive

The PACKNAM directive operates the same as its NOS command counterpart. If you use the PACKNAM directive, it must precede any file transfer directive in the same directives record. The PACKNAM directive only applies to the directive record in which it appears.

Format:

        PACKNAM,PN=packname,R=r.

          or

        PACKNAM,packname,R=r.

If you are authorized to access auxiliary devices, you can always access files on an
auxiliary device that is already mounted. If you attempt an MFLINK access of a file on an
unmounted auxiliary device, you get a DEVICE UNAVAILABLE message unless your site has
enabled the wait-for-unmounted-device installation option. If this option is present on
more than one mainframe in an RHF network, a deadlock situation is possible. If such a
deadlock occurs, MFLINK would time-out the connection as discussed previously.

PERMIT Directive

The PERMIT directive operates the same as its NOS command counterpart.

Format:

> PERMIT,pfn,username=m/PN=packname,R=r,NA,WB,XD=expiredate,XT=expireterm.

PURGE Directive

The PURGE directive operates the same as its NOS command counterpart.

Format:

> PURGE,pfn/UN=username,PW=password,PN=packname,R=r,NA,WB.

REPLACE Directive

The REPLACE directive replaces pfn on the remote host with file lfn, as specified on the
MFLINK command.

Format:

> REPLACE,pfn/UN=username,PW=password,PN=packname,R=r,NA,WB.

SAVE Directive

The SAVE directive creates an indirect access file named pfn on the remote host and copies
onto it the file specified by lfn on the MFLINK command.

Format:

> SAVE,pfn/PW=password,CT=ct,M=m,BR=br,PR=pr,PN=packname,R=r,NA,WB,AL=level,
>   XD=expiredate,XT=expireterm,AC=ac.

USER Directive

The USER directive specifies validation information for the remote host. It operates the
same as its NOS command counterpart. The USER directive must be the first directive
associated with an MFLINK command that has ST=lid specified. You do not need to specify
this directive at any other time.

Format:

> USER,username,password,familyname.

If the remote host is a NOS Version 2.2 or higher system, the password specified must be the
batch password.

INTERACTIVE USE OF MFLINK

When you use MFLINK in an interactive job, the system obtains the directives in one of the following ways:

- If you specify I=dirfile on the MFLINK command, the system reads the local file named dirfile. If dirfile is assigned to the terminal, the system prompts the terminal using the prefix character.

- If you omit the I=dirfile parameter, the system also prompts the terminal using the prefix character. If the MFLINK command is part of a procedure, the system reads the lines immediately following the command. If the first line following the command does not begin with the prefix character, the system prompts the terminal.

When reading from the terminal, the system prompts for directives until you enter an empty line (only a carriage return) or the prefix character in response to a prompt. The system then sends the directives (minus the prefix character) to the remote host. The remote host responds with messages indicating the success or failure of the operations.

Any time you enter an MFLINK command that has the ST=lid specified, the system initiates a new MFLINK session. If you enter the command without the ST=lid parameter, the system resumes the session with the remote host currently connected.

Examples: (NOS to NOS)

1. Assume you are at mainframe MFB. To transfer a file from mainframe MFA to MFB and purge it on MFA, you must enter commands and directives similar to the following:

```
MFLINK,NEWFILE,ST=MFA.
*USER,XYX,ABC.
*ATTACH,OLDFILE/PN=USER.
*PURGE,OLDFILE/PN=USER.
```

2. Assume you are on mainframe MFB. To transfer four files from mainframe MFA, enter commands and directives similar to the following:

```
MFLINK,FILE1,ST=MFA,I=DIRECTS.
MFLINK,FILE2,I=DIRECTS.
MFLINK,FILE3,I=DIRECTS.
MFLINK,FILE4,I=DIRECTS.
```

The file DIRECTS has the following contents:

```
USER,XYZ,ABC.
CHARGE,1234,345N355.
GET,LFN1.
-EOR-
GET,LFN2.
-EOR-
ATTACH,PFN1/PN=USER.
-EOR-
ATTACH,PFNS.
-EOI-
```

OLD COMMAND

The OLD command retrieves a copy of an indirect access permanent file and makes it the primary file.

Format:

    OLD,lfn=pfn/UN=username,PW=password,PN=packname,R=r,NA,ND,WB,RT.

Parameter	Description
lfn=pfn	Specifies the one- to seven-character file name lfn given to the primary file copy of indirect access permanent file pfn. If lfn= is omitted, the primary file is named pfn.

The full descriptions of the following optional parameters (except ND) are given at the beginning of this section.

Parameter	Description
UN=username	Specifies the user name. Specified if the indirect access permanent file is in another user's catalog.
PW=password	Specifies the file password. Specified if UN=username is specified, and if the permanent file has a password.
PN=packname	Specifies the auxiliary device name. Specified if the permanent file resides on an auxiliary device.
R=r	Specifies the device type. Specified if an auxiliary device of a device type other than the installation-defined default is to be used.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
ND	Specifies the no drop option. If ND is specified, OLD changes the former primary file into a local file, but does not return any files. If ND is omitted, OLD returns all files that do not have checkpoint or no-auto-drop status.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs.
RT	Specifies the real-time processing option. If RT is specified, the job continues processing after requesting staging of a file from alternate storage to disk. If staging is not required (the file is already resident on disk), the file is assigned to the job. If the file must be staged, you must issue a second OLD command to assign the file to the job.
	If RT is omitted and the file resides only on alternate storage, job processing is suspended while the file is staged to disk and assigned to the job. For more information on alternate storage, refer to Alternate Storage in section 2.

If an auxiliary device has been previously specified by a PACKNAM command, the system attempts to find the permanent file, pfn, on the auxiliary device rather than on the family device.

If you do not specify the ND parameter, the system releases all files assigned to the job, except those with checkpoint or no-auto-drop status. Certain system files (for example, ZZZZZC0, ZZZZZC1, ZZZZZC2, and ZZZZZLD) always have no-auto-drop status. You can give any local file this status by using the SETFS command. A copy of the indirect access permanent file named on the OLD command becomes the primary file. The primary file is positioned at its BOI.

The primary file is rewound before every job step. Therefore, the file positioning commands have no effect on the primary file. Also, when two commands are issued to write on the primary file, the second writes over the data written by the first because the primary file is rewound between commands.

PACKNAM COMMAND

The PACKNAM command directs subsequent permanent file requests to the specified auxiliary device.

Format:

          PACKNAM,PN=packname,R=r.

               or

          PACKNAM,packname,R=r.

               or

          PACKNAM.

Parameter	Description
PN=packname	Specifies the one- to seven-character identifier of the auxiliary device to be accessed in subsequent permanent file commands.
R=r	Specifies the device type of the auxiliary device specified by packnam. You specify this parameter if you want to use a removable auxiliary device whose device type differs from the installation-defined default. If you do not specify this parameter for a nondefault type pack, you must specify this parameter on each subsequent permanent file command. A full description of this parameter appears at the beginning of this section.

PACKNAM allows you to omit the PN=packname parameter on command requests for files that reside on the specified auxiliary device. However, to request permanent files on another auxiliary device, you must specify the PN=packname parameter on the file request or enter another PACKNAM command before the request (you must also specify the R=r parameter if the device type is different). Refer to Mass Storage File Residence in section 2 for information concerning auxiliary permanent file devices.

You can access permanent files residing on the family system devices while the PACKNAM request is in effect by specifying PN=0 on permanent file commands. To clear the effect of a PACKNAM command, include a PACKNAM command in either of the following formats.

        PACKNAM.

        or

        PACKNAM,PN=0.

PERMIT COMMAND

The PERMIT command explicitly permits another user to access a private file in your permanent file catalog. The PERMIT command can also change the mode in which another user can access a semiprivate file.

Format:

        PERMIT,pfn,username$_1$=m$_1$,username$_2$=m$_2$,...,username$_n$=m$_n$/PN=packname,R=r,NA,WB,
            XD=expiredate,XT=expireterm.

Parameter	Description
pfn	Name of the private or semiprivate file for which access permission is granted.
username$_i$=m$_i$	Specifies that user name username$_i$ is granted the access permissions indicated by access mode m$_i$. If m$_i$ is omitted, the read access mode is assumed. If m$_i$ is NULL, the user is explicitly denied permission to access the file. For the available access modes, refer to DEFINE Command or SAVE Command in this section.

The full descriptions of the following optional parameters are given at the beginning of this section.

Parameter	Description
PN=packname	Auxiliary device name. Specified if the permanent file resides on an auxiliary device.
R=r	Device type. Specified if a removable auxiliary device on a device type other than the installation-defined default is to be used.

Parameter	Description
NA	No abort option. If NA is specified, processing errors do not terminate the job.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs.
XD=expiredate	Specifies the expiration date for the file permit. The value expiredate must be a six-digit string of the form yymmdd; where yy, mm, and dd are two-digit year, month, and day designators, respectively.
XT=expireterm	Specifies the life of the file permit in days. If you specify 0, the file permit expires immediately. If you specify 4095 or *, the file permit does not expire.

PURGALL COMMAND

The PURGALL command purges all permanent files in your catalog that satisfy the criteria specified by the parameters.

Format:

    PURGALL,TY=ty,CT=ct,AD=ad,MD=md,CD=cd,AF,TM=tm,DN=dn,PN=packname,R=r,NA,WB.

Parameter	Description
TY=ty	Specifies the file type to be purged.

ty	Action
I or INDIR	Purges all indirect access files.
D or DIRECT	Purges all direct access files.
A or ALL	Purges all files.

If this parameter is omitted, but other parameters are specified, the system assumes ty is ALL. To purge all files if no other parameters are specified, you must specify TY=A.

CT=ct	Specifies the permit category to be purged. Entries are P, PR, or PRIVATE for private; S or SPRIV for semiprivate; and PU or PUBLIC for public.
AD=ad	Specifies the last access date; its format is yymmdd. All files last accessed before this date are purged, unless the AF parameter is specified.
MD=md	Specifies the last modification date; its format is yymmdd. All files last modified before this date are purged, unless the AF parameter is specified.

Parameter	Description
CD=cd	Specifies the creation date; its format is yymmdd. All files created before this date are purged, unless the AF parameter is specified.
AF	Specifies that files accessed after the date specified by the AD=ad parameter, modified after the date specified by the MD=md parameter, or created after the date specified by the CD=cd parameter are purged.
TM=tm	Specifies the time of day on the date specified by the AD, MD, or CD parameter; its format is hhmmss.
DN=dn	Specifies the device number assigned to a device during system initialization. Only files on that device are purged.
PN=packname	Specifies the name of the auxiliary device on which the files to be purged reside. The PN parameter cannot be specified if a device number is specified (DN=dn).
R=r	Specifies the type of auxiliary device on which the files to be purged reside. The R parameter cannot be specified if a device number is specified (DN=dn).
NA	Specifies the no abort option. If the specified auxiliary device is not available, the job is suspended until it becomes available.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs.

To purge all files in your catalog, you must enter:

    PURGALL,TY=A.

AF, CT, DN, NA, R, TY, TM, and one date (either AD, MD, or CD) can be entered on a single PURGALL command.

PURGE COMMAND

The PURGE command names files to be removed from the permanent file device.

Format:

    PURGE,pfn$_1$,pfn2,...,pfn$_n$/UN=username,PW=password,PN=packname,R=r,NA,WB.

Parameter	Description
pfn$_1$	Specifies the name of a permanent file to be purged. If no file is named, and if a permanent file exists that has the same name as the primary file, that permanent file is purged; the primary file remains assigned to the job.

The full descriptions of the following optional parameters are given at the beginning of
this section.

Parameter	Description
UN=username	Specifies the user name. Specified if the file(s) to be purged is in another user's catalog. To purge a file, you must have write permission for that file.
PW=password	Specifies the file password. Specified if UN=username is specified, and if the permanent file to be purged has a password.
PN=packname	Specifies the auxiliary device name. Specified if the permanent file resides on an auxiliary device.
R=r	Specifies the device type. Specified if a removable auxiliary device on a device type other than the installation-defined default is to be used.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs and busy files.

When a PURGE command is issued for any direct access file, the file is purged and the
permanent file catalog is altered accordingly. However, if the direct access file is
attached to a job, it remains attached to the job until you return it.

RECLAIM COMMAND

The RECLAIM command performs a number of functions related to the transfer of NOS files
between your job and a dump file. The dump file can be a magnetic tape or a mass storage
(disk) file. Using RECLAIM you can selectively dump local or permanent files, retrieve
files from a dump file, and list information about files previously dumped to tape or mass
storage.

RECLAIM provides you with an easy way of making backup copies of local files or of direct
and indirect access permanent files. It also gives you greater control over the size of
your permanent file disk space. RECLAIM can be entered from a batch or interactive job.

Dumped files can be reloaded as local or permanent files. Reloaded permanent files have the
same permissions, modes, permit categories, and so forth that they had when dumped. Note,
however, that file history information for reloaded files (that is, file creation date, last
date modified, last date accessed, etc.) is set to the date and time of loading. Files can
be reloaded from tape by the file owner or by an alternate user.

Information about dumped files (such as file name, dump date, tape VSN, dump number, and so
forth) can be stored in a dump database. This database is maintained as a direct access
file in your permanent file catalog. RECLAIM automatically creates a dump database when you
enter a DUMP directive unless you specify that you do not want a database for the dump

(using the DB=0 parameter). If you do not specify a name for the database, RECLAIM uses the default name RECLDB. To get information on individual files in the database, enter a RECLAIM command with the LIST directive.

Multiple users can share a dump database. For example, alternate users can access a database in your catalog by entering a RECLAIM command specifying your database file name (on the DB parameter) and your user name (on the UN parameter). As with any other permanent file, alternate users must have WRITE permission to access and use your database file.

MAGNETIC TAPES

As previously mentioned, you can use RECLAIM to dump or retrieve files to or from magnetic tapes as well as mass storage media. You should be aware of the following special rules that apply when using tapes with RECLAIM:

- You do not need to enter a REQUEST command for RECLAIM dump tapes. RECLAIM issues its own REQUEST command internally when you enter a COMPACT, DUMP, LOAD, or COPY directive (RECLAIM directives are described below). RECLAIM uses the default parameter values for the REQUEST command.

NOTE

Since RECLAIM issues the REQUEST command internally, you must be prepared to wait for the tape mount if you enter a COMPACT, DUMP, LOAD, or COPY directive from an interactive job. Other alternatives are to submit the RECLAIM command from a batch job or to detach your interactive job using the Detach (ctD) command.

- RECLAIM dump tapes must be labeled; unlabeled tapes are not permissible.

- If you enter a LOAD, COPY, or LIST directive for a tape that is not already defined to the RECLAIM database, RECLAIM reads the entire tape and adds all files on the tape, or all files matching the specified user index if the UI processing option is specified, to the database. This feature lets you add the entire contents of a tape to the database without having to name each file individually.

- The tape processing options listed under Processing Options in section 12 are valid for RECLAIM tapes. Processing options are specified with the PO option.

- The permanent file tapes are written by the RECLAIM utility in a format compatible with both PFDUMP and PFLOAD. The NOS 2 Analysis Handbook describes these permanent file utilities.

COMMAND FORMAT

The parameters of the RECLAIM command are order-independent. The directives and the options are appended to the end of the command.

```
NOTE
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For sites using the Tape Management System
(TMS), there are additional directive options
available on the RECLAIM command which are
not described in this manual. For a
description of the RECLAIM command under TMS,
refer to the NOS Version 2 Tape Management
System (TMS) User Reference Manual.

Format:

RECLAIM,p_1,p_2,...,p_n./directive$_1$,options$_1$/directive$_2$,options$_2$/
...//directive$_n$,options$_n$.

Parameter	Description
P_i	Specifies any of the following optional parameters.

Parameter	Description
DB=pfn	Specifies the name of the direct access file that contains the RECLAIM database. The default file name for pfn is RECLDB. If a value of 0 is entered for pfn, no database is created or maintained. Do not attach the database file before you call RECLAIM; RECLAIM attaches the file for you.
I=lfn$_1$	Specifies the name of the local file containing the RECLAIM input directives to be processed. The default file name for lfn$_1$ is INPUT.
L=lfn$_2$	Specifies the name of the local file to receive output listing. The default file name for lfn$_2$ is OUTPUT.
NH	Inhibits RECLAIM from printing a header on file lfn$_2$.
PN=packname	Specifies the auxiliary device name. You specify packname only if the database file resides on an auxiliary device.
PW=password	Specifies the file password for the database file; applicable only if the database file resides in an alternate user catalog.

Parameter		Description

Parameter	Description
NA	No abort option. Inhibits RECLAIM abort in case of a program error.
NV	Specifies that a dump is to be written at end-of-information (EOI), regardless of what precedes the EOI. If this parameter is omitted, RECLAIM will not write a dump beginning at EOI unless at least one valid RECLAIM dump precedes the EOI.
UN=username	Specifies the user name of the database file owner; applicable only if the database file resides in an alternate user catalog. You must have WRITE permission to access files under an alternate user name.
Z	Specifies that the RECLAIM command contains input directives following the terminator. If the Z parameter is specified, the I parameter is ignored. Use of the Z parameter eliminates the need for an input file (lfn_1) when only a few directives are required.
$directive_i$	Specifies how RECLAIM is to manipulate files that meet the criteria set forth in the directive options. (RECLAIM directives and options are described below.)
$options_i$	Specifies a file characteristic or attribute RECLAIM is to use in selecting the file or files to be processed. (RECLAIM directives and options are described below.) Use a comma to separate individual options.

RECLAIM directives define the operation to be performed on a specified file or files. All directives except END can have one or more associated options. A comma is used as the separator between a directive and its associated options.

When you enter a RECLAIM command with the Z parameter, you type in the directives following the command terminator. The first character following the terminator must be the separator character used to separate individual directives. The separator character can be any character that does not appear within the directives. (We use the / character in the examples in this section.)

Following are descriptions of the RECLAIM directives. The description of the options for the directives immediately follows the description of the directives.

Directive	Description
COMPACT	Rewrites a dump file using only the active files from the database. All files logically deleted (using the DELETE directive) from your database are physically deleted from the dump file and the database. Options may also be specified which apply additional file selection criteria. Files which do not meet these additional criteria are also physically deleted. The active files rewritten by the COMPACT directive are consolidated into a single dump before being rewritten; that is, the new dump file contains only one dump. The database is updated to remove all inactive entries and update the dumpfile number for the remaining entries. COMPACT cannot be used on dump files that have no database file.

Directive	Description

You must specify one of the following options to indicate where the dump file to be created by COMPACT is to be stored:

    CF=clfn
    CN=cpfn
    CT=vsn
    OV

Either or both of the CF=clfn and CN=cpfn options must be specified in conjunction with the DT=MS option if a new mass storage file is to receive the dump.

The CT=vsn option must be specified if a new tape is to receive the dump. If you intend to enter a COMPACT directive specifying a new tape, you must issue a RESOURC command to allow RECLAIM to request the two tapes at once.

Directive	Description

You must specify the OV option if the dump is to be rewritten on the original tape or file. To rewrite a dump tape, the compacted dump is first written to a disk scratch file, then copied to the original file.

If you know or expect that a dump will require multiple reels, you must enter a VSN command before entering RECLAIM. The VSN command should specify as many VSNs as necessary and should associate the VSNs with the local file name specified by the CF option. If no CF option is specified, the default local file name NTAPE is used.

COPY

Creates local file copies of all dumped files that meet the criteria specified by the COPY directive options. (The COPY directive is the same as the LOAD directive except that the LOAD directive creates permanent files from dumped files.) The copied files are created using their original permanent file names unless they are explicitly renamed.

The COPY directive performs its own tape requests internally. If a copy is initiated for several files resident on a single tape, that tape is only requested once. If the copy specifies files on multiple tapes, multiple tape requests are initiated.

The COPY directive can be used to read files from a tape that is not listed in the RECLAIM database. When used in this way, RECLAIM reads all files from the tape (regardless of how many files are specified by the COPY directive options) and adds all files to the RECLAIM database.

The latest (most recently dumped) version of each file is copied unless you specify other characteristics. The following are examples of a COPY directive:

    RECLAIM,Z./COPY,PF=ALPHA/COPY,PF=BETA/COPY,PF=SIGMA

        or

    RECLAIM,Z./COPY,PF=*/ALPHA,BETA,SIGMA

Either of the above commands copies the latest (most recently dumped) versions of files ALPHA, BETA, and SIGMA and makes them local files.

DELETE

Disables all files in your database that meet the criteria specified by the DELETE directive options. Deleted files are not physically deleted from the database and can be restored to active status using the RESET directive. Use the LIST directive with the DE option to list deleted files. You can use DELETE to temporarily disable selected files, thus allowing you to load all files except those disabled. All files disabled by DELETE are physically removed from the dump file if a COMPACT directive is entered before the disabled files are reactivated (using RESET). The following is an example of a DELETE directive:

    RECLAIM,Z./DELETE,DD=851204

The above example instructs RECLAIM to disable all files dumped on the date 12/4/85.

Directive	Description

DUMP

Dumps to tape or mass storage all permanent files that meet the criteria specified by the DUMP directive options. Information that RECLAIM requires to perform future reloads from the dump file is stored in a database file within the specified user catalog. If the specified database file does not exist, RECLAIM creates it. You can inhibit the creation or use of a database file by specifying the DB=0 parameter.

Files are dumped in the order they appear in your permanent file catalog unless you specify the PF or FN option. Files are then dumped in the order they are listed for PF or FN. If a file is listed more than once for PF or FN, multiple copies are dumped, in the specified order.

Files dumped are written to the dump file at EOI unless EI=NO is specified. If RECLAIM determines that a dump file is empty or does not contain a RECLAIM dump, it sends the following message to the dayfile and the terminal:

    UNKNOWN DUMP FILE WILL BE REWRITTEN.

If the DUMP directive was entered interactively, RECLAIM issues the prompt:

    IS THIS OK (YES OR NO)?

If you enter YES, the dump proceeds normally. For a NO response, RECLAIM ignores the directive and prompts for the next one. In a noninteractive job, RECLAIM proceeds with the dump.

The following is an example of a RECLAIM DUMP directive:

    RECLAIM,Z./DUMP,TY=D,TN=001442

This example instructs RECLAIM to dump all direct access permanent files in your catalog to a magnetic tape with the VSN of 001442. If a database named RECLDB does not currently exist, RECLAIM creates it.

If you know or expect that a dump will require multiple reels, you must enter a VSN command before entering the RECLAIM command. The VSN command should specify as many VSNs as necessary and should associate the VSNs with the local file name specified by the DF option. The default name is TAPE. For example:

    VSN,TAPE=001442/001501/001995.
    RECLAIM,Z./DUMP,TN=001442,TY=D

The above example duplicates the previous example, but allows for a multi-reel dump.

Directive	Description
END	Ends the current RECLAIM session. At an interactive terminal, a blank line followed by a carriage return is equivalent to an END. In a directive file, an EOR has the same effect as an END directive. You can use the F tape processing option (refer to Processing Options in section 12) to instruct RECLAIM to unload a tape when the END directive is entered. To do this, enter the following SET directive before you initiate any operation that would cause a tape to be mounted (such as a COPY, DUMP, or LOAD): SET,PO=F
LIST	Lists RECLAIM database information about all dumped files that meet the criteria specified by the accompanying directive options. Files are listed in alphabetical order except for dump files without a database. Dump files with no database are listed in sequential order. The LIST directive can be used to list files on a tape that is not listed in the RECLAIM database. When used in this way, RECLAIM adds all files on the tape to the RECLAIM database, regardless of how many files are specified by the LIST directive options.
LOAD	Loads into your permanent file catalog all of the files that meet the criteria specified by the LOAD directive options. (The LOAD directive is the same as the COPY directive except that the COPY directive creates only local files.) The latest (most recently dumped) version of each file is loaded unless you specify other characteristics. If a file name specified in a LOAD directive already exists in the catalog, the file will not be loaded unless the RP or RP=Y option is also specified. The LOAD directive can be used to load files from a tape that is not listed in the RECLAIM database. When used in this way, RECLAIM loads all files from the tape (regardless of how many files are specified by the LOAD directive options) and adds all files to the RECLAIM database. The LOAD directive performs its own tape requests internally. If a load is initiated for several files resident on a single tape, that tape is only requested once. If the load specifies files on multiple tapes, multiple tape requests are initiated. Following are examples of the LOAD directive: RECLAIM,Z./LOAD,PF=MYFILE The above LOAD directive loads into your catalog the most recently dumped version of MYFILE. RECLAIM,Z./LOAD,DD=840112,NF=595 The above LOAD directive loads up to 595 files dumped on the date 1/12/84.

Directive	Description

RECLAIM,Z./LOAD,PF=ALPHA,NN=BETA,MD=831114

    or

RECLAIM,Z./LOAD,PF=*,MD=831114/BETA=ALPHA

Either of the previous LOAD directives loads the latest version of file ALPHA with a modification date of 11/14/83. File ALPHA is loaded into your catalog as file BETA. If a permanent file called BETA already exists in your catalog, the file is not loaded. If a permanent file named ALPHA exists in the catalog, it does not affect, and is not affected by, this operation.

Directive	Description
QUIT	Equivalent to END.
REMOVE	Permanently removes a tape volume serial number (VSN) from the database. This purges from the database all entries for the specified tape.
RESET	Reactivates all files previously disabled by the DELETE directive that meet the criteria specified by the RESET directive options.
SET	Redefines the RECLAIM defaults for any directive options. Typically, this directive is used during a long RECLAIM session to establish criteria for subsequent processing. If a SET directive is encountered without an accompanying option, it has no effect on current defaults.

The options that can be associated with RECLAIM directives are described below.

Option	Description
AA=yymmdd	Instructs RECLAIM to process only those files accessed after a specified date. The AA option may be used in conjuction with AB to specify a date range. The option is used with DUMP. If DB=0, it may also be used with COPY, LIST, and LOAD.
AB=yymmdd	Instructs RECLAIM to process only those files accessed before a specified date. The AB option may be used in conjuction with AA to specify a date range. The option is used with DUMP. If DB=0, it may also be used with COPY, LIST, and LOAD.
AD=yymmdd	Instructs RECLAIM to process only those files accessed on a specified date. The AD option is used with DUMP. If DB=0, it may also be used with COPY, LIST, and LOAD.
CF=clfn	Specifies the name of the local file to receive the compacted dump. If clfn is omitted, the local file name is the name specified for the CN parameter. If the CN parameter is omitted, the default name NTAPE is used for clfn. This option is used with COMPACT.
CN=cpfn	Specifies the permanent file to receive the compacted dump if you do not want to overwrite the original dump file. (Use the OV option to overwrite the original dump file.) The CN option allows you to specify different names for the local and permanent file copies of the dump file. This option does not create, save, or replace the permanent file. These operations are the user's responsibility. This option is used with COMPACT.
CT=vsn	Specifies the VSN of the tape to which the compacted dump is to be written. The CT option is used with COMPACT.
D=den	Specifies tape density. Values that can be specified for den are as follows:

den	Description
HI	556 cpi; 7-track tapes
HY	800 cpi; 7-track tapes
HD	800 cpi; 9-track tapes
PE	1600 cpi; 9-track tapes
GE	6250 cpi; 9-track tapes

The D option is used with COMPACT and DUMP.

Option	Description
DA=yymmdd	Instructs RECLAIM to process only those files dumped after a specified date. DA may be used in conjunction with DB to specify a date range. The DA option is used with COMPACT, COPY, DELETE, LIST, LOAD and RESET.
DB=yymmdd	Instructs RECLAIM to process only those files dumped before a specified date. DB may be used in conjunction with DA to specify a date range. The DB option is used with COMPACT, COPY, DELETE, LIST, LOAD and RESET.
DD=yymmdd	Instructs RECLAIM to process only those files dumped on a specified date. The DD option is used with COMPACT, COPY, DELETE, LIST, LOAD and RESET.

Option	Description

Option — **Description**

DE — Instructs RECLAIM to process only those files that have been disabled by DELETE. If this option is omitted, only undeleted files are processed. The DE option is used with COMPACT, COPY, LIST, LOAD and RESET.

DF=dlfn — Specifies the name of the local file copy of a dump file. The default name for dlfn is TAPE. The DF option is used with DUMP.

DN=dpfn — Specifies the file to or from which files are to be processed. Only files on this dump file that meet other specified selection criteria are selected. The DN option is logically equivalent to and interchangeable with the TN option except if a DT, MT, or NT option is not specified. In this case, DN implies a mass storage dump file while TN implies a tape dump file (therefore, TN causes RECLAIM to issue an internal REQUEST command, whereas DN does not). The DN option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD, and RESET.

If the DN option (or DT=MS) is used for a DUMP operation, RECLAIM does not make the mass storage dump file permanent. If you wish to make the dump file permanent, you may do so. However, the dump file must be local before you can use it with RECLAIM.

DT=dtype — Specifies the type of dump file to be created. Possible values for dtype are:

dtype	Significance
MS	The dump is placed on a mass storage (disk) file.
MT	The dump is placed on 7-track magnetic tape. (Same as MT option.)
NT	The dump is placed on 9-track magnetic tape. (Same as NT option.)

The DT option is used with COMPACT and DUMP.

EI=NO — Instructs RECLAIM to write dumped files at the beginning of the dump file, thus destroying any existing information on the dump file. If this option is omitted, files to be dumped are written to the dump file at end-of-information. The EI option is used with DUMP.

EX=option — Specifies the use of exception processing for RECLAIM options. Values that can be specified for option are Y or N. Y indicates that exception processing is used; that is, only files that fail one or more selection criteria are processed. N indicates that normal processing is used; that is, only files that meet all selection criteria are processed. The EX option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD, and RESET.

F=format — Specifies any valid NOS tape format. The F option is used with COMPACT or DUMP.

FI=nn — Specifies the dump number (1 to 63) to which the dump file is to be positioned. A dump is the set of user files dumped to a file by a single DUMP or COMPACT directive.

The FI option can be used in conjunction with the RC option to position the tape or file pointer to a particular file within a specified dump. (The FI value associated with a particular file is listed in the FI column of the RECLAIM output listing.) The FI option is used with COPY and LOAD.

Option	Description
FN=filename	Processes files in the same manner as the PF option with one exception: When used with a DUMP directive, it first checks to see if a named file exists as a local file. If so, the local file is dumped.
	The TY option can be used with FN to specify whether named local files are to be dumped as direct access or indirect access files. The default is direct access.
	The FN option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD, and RESET. For all directives except DUMP, the FN and PF options are interchangeable.
FT	Foreign tape. Refer to the NOS 2 Tape Management System (TMS) User Reference Manual for a detailed description.
GT=length	Instructs RECLAIM to process only those files that have a length in PRUs greater than the length specified. GT may be used in conjunction with LT to specify a size range. The GT option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD and RESET.
LT=length	Instructs RECLAIM to process only those files that have a length in PRUs less than the length specified. LT may be used in conjunction with GT to specify a size range. The LT option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD and RESET.
LV	Specifies that the most current version of the specified file is to be processed. This is the default for the COPY and LOAD directives. The LV option is used with COMPACT, COPY, DELETE, LIST, LOAD and RESET.
MA=yymmdd	Instructs RECLAIM to process only those files modified after a specified date. MA may be used in conjunction with MB to specify a date range. The MA option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD and RESET.
MB=yymmdd	Instructs RECLAIM to process only those files modified before a specified date. MB may be used in conjunction with MA to specify a date range. The MB option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD and RESET.
MD=yymmdd	Instructs RECLAIM to process only those files modified on a specified date. The MD option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD and RESET.
MT	Specifies the use of a 7-track tape drive. The MT option is used with DUMP.
NF=num	Specifies the maximum number of files to be processed. If the NF option is omitted, there is no limit on the number of files processed, except for the DUMP directive. The limit for DUMP is 4095 files. The NF option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD and RESET.
NN=pfn	Specifies a new file name for the file named by the PF option. The NN option is used with COPY, DUMP and LOAD.

Option	Description
NT	Specifies the use of a 9-track tape drive. The NT option is used with DUMP.
OV	Specifies that a compacted dump is to be written over the old dump tape. The OV option is used with COMPACT.
PF=pfn	Specifies the name of the permanent file or files to be processed by RECLAIM. If only one file is to be processed, pfn is any valid NOS file name. If PF and FN are both omitted, the files to be processed are determined by the other options which have been specified. If multiple files are to be selected by name, specify an asterisk (*) for pfn.

When PF=* is specified, a file name list containing up to 999 file names may be entered. A line of file names ending with a comma indicates that the file name list is continued on the next line. For interactive requests, RECLAIM prompts you to enter the file names with the message:

    ENTER FILE NAMES.

The file name list contains one entry for each file to be processed. Each entry consists simply of the name of the file to be processed, unless the file is to be renamed. If the file is to be renamed, the entry is in the format, newname=oldname. Entries are separated by commas. An entry not followed by a separator indicates the end of the list. A comma at end of line indicates that another line follows.

Following is an example of a file name list:

    RECLAIM,Z./DUMP,TN=MYVSN,PF=*/ALPHA,GAMMA=BETA

This command will cause RECLAIM to dump files ALPHA and BETA. The files will be identified in the dump and in the data base as ALPHA and GAMMA. The PF option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD and RESET.

Option	Description
PO=plp2...pn	Specifies general tape processing options for a dump tape. Refer to Processing Options in section 12 for a description of dump tape processing options. The PO option is used with COMPACT, COPY, LIST, LOAD, DUMP, and SET. PO=UR is the default for the COPY, LIST, and LOAD directives. PO=UW is the default for the COMPACT and DUMP directives.
PW=password	Password. Refer to the NOS 2 Tape Management System (TMS) User Reference Manual for a detailed description.
RC=nnnn	Specifies the dump record number (1 to 4095) within a dump that indicates where the dump file is to be positioned. The RC option is used in conjunction with the FI option to specify the location of a file within a dump. (The RC value associated with a particular file is listed in the REC column of the RECLAIM listable output.) The RC option is used with COPY and LOAD.

Option	Description

RP=option   Specifies that a file is to be loaded or copied from a dump file even if a local or permanent file by the same name already exists. Possible values for option are Y or N.

When used with the LOAD directive, specifying RP or RP=Y indicates that an existing permanent file will be replaced by a file loaded from a dump. Specifying RP=N or omitting the RP option indicates that an existing permanent file will not be replaced by a loaded file.

When used with the COPY directive, specifying RP or RP=Y indicates that a local file will be overwritten by a file copied from a dump. If RP=N is specified, or if the RP option is omitted, RECLAIM returns the existing local file before copying the file from DUMP.

The RP option is used with COPY and LOAD.

TN=vsn   Specifies the VSN of the tape to or from which files are to be processed (VSN of the first reel for a multi-reel dump). Only files on this tape which also meet any other specified selection criteria are processed. This option is logically equivalent to and interchangeable with the DN option except if a DT, MT, or NT option is not specified. In this case, DN implies a mass storage dump file while TN implies a tape dump file (therefore, TN causes RECLAIM to issue an internal REQUEST command, whereas DN does not). The TN option is used with COMPACT, COPY, DELETE, DUMP, LIST, LOAD, RESET and SET.

TO=username   Username. Refer to the NOS 2 Tape Management System (TMS) User Reference Manual for a detailed description.

TY=type   Specifies the permanent file type to be processed. Values that can be specified for the TY option are: D (direct access) and I (indirect access). If this option is omitted, both file types are eligible for processing. The TY option is used with COMPACT, COPY, DELETE, LIST, LOAD and RESET.

UI=user index   Instructs RECLAIM to process only files for the specified user index when the COPY, LIST, or LOAD directive is used to process a dump tape or file not on the database, or when no database is being used (DB=0). If this option is either omitted or specified as UI=0, the user index of files on the dump tape or file being processed will be ignored.

UN=username   Instructs RECLAIM to process files only for the specified user name on the RECLAIM database, when files are shared among multiple users. If this option is omitted, processing is performed only on the calling user's dumped files. Files for all users will be processed if UN=0 is specified. The UN option is used with COMPACT, COPY, DELETE, LIST, LOAD and RESET. If the UN option specifies a user name not originally in the RECLAIM database, RECLAIM loads all files (LOAD directive) or lists information about all dumped files (LIST directive) on a file set specified by the TN or DN options. Loaded files are recorded in the database under the user name specified by the UN option.

RECLAIM OUTPUT

All RECLAIM directives except END, QUIT and SET generate output listings in the following format:

```
RECLAIM Vvvv    OP=dddddd    UN=username yy/mm/dd. hh.mm.ss.  PAGE nn
PFN   TYPE LAST MOD   DUMP DATE  LENGTH USERNAME    TAPE    FI REC

pfname ty yy/mm/dd  yy/mm/dd       len    dmpuser   dumpid  fi  rc
pfname ty yy/mm/dd  yy/mm/dd       len    dmpuser   dumpid  fi  rc

      n FILES PROCESSED
```

where:

vvv	Current version of RECLAIM.
dddddd	Name of the RECLAIM directive being processed.
username	User name of the calling user.
nn	Current page number (not displayed for interactive users).
pfname	Name of the permanent file being processed.
ty	File type (I for indirect access or D for direct access).
len	Length in PRUs of file pfname when dumped.
dmpuser	The user name under which file pfname was originally dumped.
dumpid	VSN of the tape or name of dump file containing file pfname (VSN of the first reel for a multi-reel dump).
fi	The dump number on dumpid containing file pfname.
rc	The record number on dump fi containing file pfname.

Entering a RECLAIM command with the NH parameter specified suppresses printing of the heading and the n FILES PROCESSED line; only the file information is printed.

Example 1

The following RECLAIM command lists a portion of dump file database MYDB, and terminates the RECLAIM session.

```
/reclaim,db=mydb,z./list,tn=01/end
  RECLAIM V4.2    OP=LIST     UN=OMEN     83/12/14. 13.03.34.
  PFN   TYPE LAST MOD  DUMP DATE  LENGTH USERNAME    TAPE    FI REC

  DEMA    I 83/11/18  83/12/13      187   OMEN      01       1  2
  DEMB    I 83/11/18  83/12/13       27   OMEN      01       1  1

      2 FILES PROCESSED.

  RECLAIM COMPLETE.
/
```

REPLACE COMMAND

The REPLACE command can purge an indirect access permanent file and replace it with a copy of a local file on mass storage. It can also save a copy of a local file on mass storage as a new indirect access permanent file.

Format:

    REPLACE,lfn$_1$=pfn$_1$,lfn$_2$=pfn$_2$,...,lfn$_n$=pfn$_n$/UN=username,PW=password,M=m,
        PN=packname,R=r,NA,WB.

Parameter	Description
lfn$_i$=pfn$_i$	Specifies that a copy of local file lfn$_i$ becomes an indirect access permanent file named pfn$_i$ (one- to seven-character name). If an indirect access file named pfn$_i$ already exists, it is replaced. If lfn$_i$ is omitted, the name of the local file is assumed to be pfn$_i$. If no files are named, a copy of the primary file becomes an indirect access permanent file, replacing any existing indirect access permanent file by that name.

The full descriptions of the following optional parameters are given at the beginning of this section.

Parameter	Description
UN=username	Specifies the user name. Specified if the file to be replaced is in another user's catalog. To replace another user's file, you must have write permission and be validated to create indirect access permanent files (refer to LIMITS Command in section 7).
PW=password	Specifies the file password. Specified if the UN=username is specified, and if the permanent file to be replaced has a password.
M=m	Specifies the file access mode if the file does not already exist, or if you want to change the access mode. If M=m is omitted for a newly created file, M=READ is assumed. If the parameter is omitted for a previously existing file, the current access mode is retained.
PN=packname	Specifies the auxiliary device name. Specified if the permanent file to be replaced resides on an auxiliary device.
R=r	Specifies the device type. Specified if a removable auxiliary device on a device type other than the installation-defined default is to be used.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
WB	Specifies the wait-if-busy option. The job waits for the mounting of disk packs.

The local files, lfn$_i$, are rewound before and after the replace operation.

The indirect access file created has the same access category as the file it replaces. Permission information and alternate user access data for the file are retained when a file is replaced. If the file created is a new file, it is created as a private file.

SAVE COMMAND

The SAVE command retains a copy of a local file on mass storage as an indirect access file. When you save a file using this command, the charge number and project number currently in effect for your job are associated with the file.

Format:

```
SAVE,lfn₁=pfn₁,lfn₂=pfn₂,...,lfnₙ=pfnₙ/PW=password,CT=ct,M=m,SS=subsystem,
   BR=br,PR=pr,PN=packname,R=r,NA,WB,AL=level,XD=expiredate,XT=expireterm,AC=ac.
```

Parameter	Description
lfn_i=pfn_i	Specifies that a copy of local file lfn_i becomes an indirect access permanent file named pfn_i (one- to seven-character name). If lfn_i= is omitted, the name of the local file is assumed to be pfn_i. If no files are named, a copy of the primary file becomes an indirect access permanent file with the same name as the primary file.

The full descriptions of the following optional parameters (except M=m) are given at the beginning of this section.

Parameter	Description
PW=passwrd	Specifies the one- to seven-character password that other users must specify to access the file.
CT=ct	Specifies the file permit category; entries are P, PR, or PRIVATE for private; S or SPRIV for semiprivate; and PU or PUBLIC for public. If CT=ct is omitted, CT=PRIVATE is assumed.
M=m	Specifies the file access mode permitted to other users if the file is public or semiprivate, and if explicit access permission has not been granted to that user. If M=m is omitted, M=READ is assumed.

If m is:	Other users can:
R or READ RU or READUP RA or READAP RM or READMD U or UPDATE	Retrieve a copy of the file. This copy can be read or executed.
E or EXECUTE	Retrieve a copy of the file. This copy can only be executed.
A or APPEND	Append data to the file with the APPEND command.
M or MODIFY	Retrieve a copy of the file or append data to the file. The user can enter GET, OLD, NEW, and APPEND commands, but not a REPLACE command, for the file.
W or WRITE	Retrieve a copy of the file, append data to it, replace it, or purge it.
N or NULL	No access is allowed.

Parameter	Description
SS=subsystem	Specifies the interactive subsystem associated with the file. This subsystem becomes associated with the permanent file pfn, and is selected automatically each time the file is retreived for use as a primary file. If SS=subsystem is omitted, SS=NULL is assumed unless lfn is the primary file. In that case, the file is associated with the currently active subsystem. If SS is specified without a subsystem, the file is associated with the currently active subsystem.
BR=br	Specifies the backup copy requirement; possible values are MD (one backup copy required), N (no backup), or Y (two backup copies required). If BR=br is omitted, BR=Y is assumed.
PR=pr	Specifies the preferred file residence; possible values are D (disk residence preferred), L (locked to disk), M (alternate storage residence preferred), N (no preference), or T (tape alternate storage residence preferred). If PR=pr is omitted, PR=N is assumed.
PN=packname	Specifies the name of the auxiliary device on which the indirect access file is to reside.
R=r	Specifies the device type on which the indirect access file is to reside. The device must be a permanent file mass storage device on which indirect access files are allowed.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
WB	Causes the job to wait for the mounting of disk packs.
AL=level	Specifies the security access level you want asssigned to the file. Unless changed by your site, level can be one of the following names: LVL0, LVL1, LVL2, LVL3, LVL4, LVL5, LVL6, or LVL7 The default is the access level of the local file being saved.
XD=expiredate	Specifies the expiration date for the file password. The value expiredate must be a six-digit string of the form yymmdd; where yy, mm, and dd are two-digit year, month, and day designators, respectively. You can specify this parameter only if you also specify the PW=password parameter.
XT=expireterm	Specifies the life of the file password in days. If you specify 0, the file password expires immediately. If you specify 4095 or *, the file password does not expire. You can specify this parameter only if you also specify the PW=password parameter.
AC=ac	Specifies whether alternate users may obtain information about the file using CATLIST. Entries are Y (yes) and N (no). The default is N.

The local files, lfn_i, are rewound before and after the save operation.

SETPFAC COMMAND

The SETPFAC command changes the set of security access categories associated with a permanent file. You can either specify an entirely new category set or add to or delete from the current category set. By default on a secured system, the system associates all of the access categories for which you are authorized to any permanent file you create.

Format:

SETPFAC,pfn,AC=0,category$_1$,category$_2$,...,category$_n$/PN=packname,R=r,NA,WB.

   or

SETPFAC,pfn,AC=category$_1$,category$_2$,...,category$_n$/PN=packname,R=r,NA,WB.

Parameter	Description
pfn	Specifies the permanent file whose access category set you want to change.
AC=0,... category$_i$...	Specifies a new category set. Unless changed by your site category$_i$ can be any of the following names: CAT00,CAT02,...,CAT31
AC=... category$_i$...	Specifies categories to add or delete from the current category set. To add a category, prefix the category name with a plus sign or use no prefix at all. To delete a category, prefix the category name with a minus sign.
PN=packname	Specifies the auxiliary device name. You must specify this parameter if pfn resides on an auxiliary device.
R=r	Specifies the device type. You must specify this parameter if a removable auxiliary device on a device type other than the installation-defined default is to be used.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs.

The first format creates a new access category set. The second format adds to or deletes from the current category set.

On a secured system, the categories you specify must be valid for your job (ENQUIRE,B returns this information). On an unsecured system, the system does not use the categories to monitor access to the file but does maintain the categories as a file attribute.

SETPFAL COMMAND

The SETPFAL command changes the security access level of a permanent file. By default, a direct access file inherits the access level of the creating job. An indirect access permanent file inherits the access level of the local file from which it was created. You can also explicitly set the access level when you create a permanent file by specifying the AL=level parameter on the command you use to create the file.

Format:

    SETPFAL,pfn,AL=level/PN=packname,R=r,NA,WB.

The first two parameters are required and are order-dependent.

Parameter	Description
pfn	Specifies the permanent file whose access level you want to change.
AL=level	Specifies the security access level you want assigned to the file. Unless changed by your site, level can be one of the following names: LVL0, LVL1, LVL2, LVL3, LVL4, LVL5, LVL6, or LVL7
PN=packname	Specifies the auxiliary device name. You must specify this parameter if pfn resides on an auxiliary device.
R=r	Specifies the device type. You must specify this parameter if a removable auxiliary device on a device type other than the installation-defined default is to be used.
NA	Specifies the no abort option. If NA is specified, processing errors do not terminate the job.
WB	Specifies the wait-if-busy option. WB causes the job to wait for the mounting of disk packs.

On a secured system, the access level you specify must be valid for the job (ENQUIRE,B returns this information). In addition, to lower the access level of a file, you must be authorized to do so (refer to the LIMITS command).

On an unsecured system, the system does not use this access level assignment to monitor access to the file but does maintain this assignment as a file attribute.