

3. ARCHIVE UTILITY

3.1 INTRODUCTION

The Archive utility, AR68, creates a library or replaces, adds, deletes, lists, or extracts object modules in an existing library. AR68 can be used on the C Run-time Library distributed with GEM DOS and documented in the GEM DOS Supplement to the C Language Programmer's Guide for CP/M-68K.

3.2 AR68 SYNTAX

To invoke AR68, specify the components of the following command line. Optional components are enclosed in square brackets ([]).

AR68 DRTWX[AV][F pathname] [OPMOD] ARCHIVE OBMOD1 [OBMOD2...] [>filespec]

You can specify multiple object modules in a command line provided the command line does not exceed 127 bytes. The delimiter character between components consists of one or more spaces.

Table 3-1 lists and describes the components of the AR68 command line.

Table 3-1. AR68 Command Line Components

AR68

Invokes the Archive utility. However, if you specify only the AR68 command, AR68 returns the following command line syntax and system prompt.

{a}ar68

usage: AR68 DRTWX[AV][F pathname] [OPMOD] ARCHIVE OBMOD1[OBMOD2...] [>filespec]

DRTWX

Indicates you must specify one of these letters as an AR68 command. Each of these one-letter commands and its options are described in Section 3.4.

AV

Indicates you can specify one or both of these one-letter options. These options are described with the commands in Section 3.4.

F pathname

Specifies the path to the directory in which the temporary file created by AR68 resides. If no path name is specified, the current default directory is used. AR68 creates a temporary file called AR68.TMP that AR68 uses as a scratch pad area.

OPMOD

Indicates an object module within the library that you specify. The OPMOD parameter indicates the position in which additional object modules reside when you incorporate modules in the library and specify the A option.

ARCHIVE

File specification of the library.

OBMOD1 [OBMOD2 ...]

Indicates one or more object modules in a library that AR68 deletes, adds, replaces, or extracts.

>filespec

Redirects the output to the file specification you specify, rather than sending the output to the standard output device, which is usually the console device (CONSOLE). You can redirect the output for any of the AR68 commands described in Section 3.4

3.3 AR68 OPERATION

AR68 sequentially parses the command line once. AR68 searches for, inserts, replaces, or deletes object modules in the library in the sequence in which you specify them in the command line. Section 3.4 describes each of the commands AR68 supports.

When AR68 processes a command, it creates a temporary file called AR68.TMP, which it uses as a scratch pad. After the operation is complete AR68 erases AR68.TMP. However, AR68.TMP is not always erased if an error occurs. If this occurs, erase AR68.TMP with the ERA command and refer to Appendix D for error messages output by AR68.

3.4 AR68 COMMANDS AND OPTIONS

This section describes AR68 commands and their options. Examples illustrate the effect and interaction between each command and the options it supports.

3.4.1 The D Command

The D command deletes from the library one or more object modules specified in the command. The D command supports the following option:

V

Lists the modules in the library and indicates which modules are retained and deleted by the D command. The V option precedes modules retained in the library with the lowercase letter c and modules deleted from the library with the lowercase letter d as follows:

```
{a}ar68 dv myrah.arc orc.o
c red.o
c blue.o
d orc.o
c white.o
```

The D command deletes the module ORC.O from the library MYRAH.ARC. In addition to listing the modules in the library, the V option indicates which modules are retained and deleted.

3.4.2 The R Command

The R command creates a library when the one specified in the command line does not exist, or replaces or adds object modules to an existing library. You must specify one or more object modules.

You can replace more than one object module in the library by specifying the module names in the command line. However, when the library contains two or more modules with the same name, AR68 replaces only the first module it finds that matches the one specified in the command line. AR68 replaces modules already in the library only if you specify their names prior to the names of new modules to be added to the library. For example, if you specify the name of a module you want replaced after the name of a module you are adding to the library, AR68 adds both modules to the end of the library.

By default, the R command adds new modules to the end of the library. The R command adds an object module to a library if:

- The object module does not already exist in the library.
- You specify the A option in the command line.
- The name of the module follows the name of a module that does not already exist in the library.

The A option indicates where AR68 adds modules to the library. You specify the relative position by including the OPMOD parameter with the A option.

The R command also supports the V option, which lists the modules in the library and indicates the result of the operation performed on the library. Both the A and V options are described below

A

The A option adds one or more object modules following the module specified in the command line:

```
{a}ar68 rav sdav.o myrah.arc work.o mail.o
c much.o
c sdav.o
a work.o
a mail.o
c less.o
```

The RAV command adds the object modules WORK.O and MAIL.O after the module SDAV.O in the library MYRAH.ARC. The V option, described below, lists all the modules in the library. New modules are preceded by the lowercase letter a and existing modules are preceded by the lowercase letter c.

V

The V option lists the object modules that the R command replaces or adds.

```
{a}ar68 rv jnnk.man nail.o wrench.o
c saw.o
c ham.o
r nail.o
c screw.o
a wrench.o
```

The R command replaces the object module NAIL.O and adds the module WRENCH.O to the library JNNK.MAN. The V option lists object modules in the library and indicates which modules are replaced or added. Each object module that is replaced is preceded with the lowercase letter r and each one that is added is preceded with the lowercase letter a.

3.4.3 The T Command

The T command requests that AR68 print a table of contents or a list of specified modules in the library. The T command prints a table of contents of all modules in the library only when you do not specify names of object modules in the command line. It supports the following option.

V

The V option displays the size of each file in the table of contents as shown in the following example.

```
{a}ar68 tv wine.bad
rw-rw-rw- 0/0    6818 rose.o
rw-rw-rw- 0/0    2348 white.o
rw-rw-rw- 0/0     396 red.o
```

The T command prints a table of contents in the library WINE.BAD. In addition to listing the modules in the library, the V option requests the size of each module. The

character string rw-rw-rw- 0/0 that precedes the module size is meaningless for GEM DOS. However, if the file is transferred to a UNIX... system, the character string denotes the file protection and file owner. The size specified by the decimal number that precedes the object module name indicates the number of bytes in the module.

3.4.4 The W Command

The W command writes a copy of an object module in the library to the >filespec parameter specified in the command line. This command allows you to extract a copy of a module from a library and rename the copy when you write it to another disk, as shown below. For this command, the >filespec parameter is required.

```
{a}ar68 w go.arc now.o > b:\root\newd\file.o
```

The W command writes a copy of the object module NOW.O from the library GO.ARC to the file FILE.O in the NEWD subdirectory on drive B.

3.4.5 The X Command

The X command extracts a copy of one or more object modules from a library and writes them to the default disk. If no object modules are specified in the command line, the X command extracts a copy of each module in the library. The X command supports the following option.

V

The V option lists only those modules the X command extracts from the library. It precedes each extracted module with the lowercase letter x as follows:

```
{a}ar68 xv jnnk.man saw.o ham.o screw.o
x saw.o
x ham.o
x screw.o
```

3.5 AR68 ERRORS

When AR68 incurs an error during an operation, the operation is not completed. The original library is not modified if the operation would have modified the library. Thus, no modules in the library are deleted, replaced, added, or extracted.

When you specify the >filespec parameter in the command line to redirect the output and one or more errors occur, the error messages are sent to the output file. Thus, you cannot detect the errors without displaying or printing the file to which the output was sent. If the contents of the output file is an object file (see the W command), you must use the DUMP utility described in Section 4 to read any error messages.

The GEM DOS Archive utility, AR68, returns two types of fatal error messages: diagnostic and logic. Both types of fatal error messages show at the console as they occur.

3.5.1. Fatal Diagnostic Error Messages

Table 3-2 lists AR68 fatal error messages in alphabetical order with explanations and suggested user responses.

Table 3-2. AR68 Fatal Diagnostic Error Messages

filename not in archive file

The object module indicated by the variable filename is not in the library. Check the filename before you reenter the command line.

cannot create filename

The path name for the file indicated by the variable filename is invalid, or the disk to which AR68 is writing is full. Check the path name. If it is valid, the disk is full. Erase unnecessary files, if any, or insert a new disk before you reenter the command line.

cannot open filename

The file indicated by the variable filename cannot be opened because the filename or the path name is incorrect. Check the path name and the filename before you reenter the command line.

invalid option flag: x

The symbol, letter, or number in the command line indicated by the variable x is an invalid option. Refer Section 3 of this manual for an explanation of the AR68 command line options. Specify a valid option and reenter the command line.

not archive format: filename

The file indicated by the variable filename is not a library. Ensure that you are using the correct filename before you reenter the command line.

not object file: filename

The file indicated by the variable filename is not an object file, and cannot be added to the library. Any file added to the library must be an object file, output by the assembler, AS68, or the compiler. Assemble or compile the file before you reenter the AR68 command line.

one and only one of DRTWX flags required

The AR68 command line requires one of the D, R, T, W, or X commands, but not more than one. Reenter the command line with the correct command. Refer to Section 7 for an explanation of the AR68 commands.

filename not in library

The object module indicated by the variable filename is not in the library. Ensure that you are requesting the filename of an existing object module before you reenter the command line.

Read error on filename

The file indicated by the variable filename cannot be read. This message means one of three things: the file listed at filename is corrupted; a hardware error has occurred; or when the file was created, it was not correctly written by AR68 due to an error in the internal logic of AR68.

Cold start the system and retry the operation. If you receive this error message again, you must erase and recreate the file. Use your backup file, if you maintained one.

temp file write error

The temporary file is full. Erase unnecessary files, if any, or insert a new disk before you reenter the command line.

usage: AR68 DRTWX[AV][F D:][OPMOD]ARCHIVE OBMOD1[OBMOD2...][>filespec]

This message indicates a syntax error in the command line. The correct format for the command line is given, with the possible options in brackets.

Write error on filename

The disk to which AR68 is writing the file indicated by the variable filename is full. Erase unnecessary files, if any, or insert a new disk before you reenter the command line.

3.5.2. AR68 Internal Logic Error Messages

The following are messages that indicate fatal errors in the internal logic of AR68:

- cannot reopen filename
- seek error on library
- Seek error on tempname
- Unable to recreate—library is in filename

For the last error, Unable to recreate—library is in filename, you should rename the temporary file indicated by the variable filename. AR68 used the library to create the temporary file, then deleted the library in order to replace it with the updated temporary file. This error occurred because AR68 cannot write the temporary file back to the original location. The entire library is in the temporary file.