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**Burroughs Corporation**



COMPUTER SYSTEMS GROUP  
SANTA BARBARA PLANT

B1800/B1700 DISK/ALLOCATOR

2219 0425

### PRODUCT SPECIFICATION

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## DISK/ALLOCATOR

### INTRODUCTION

The DISK/ALLOCATOR program is used to create Installation Allocated Disk (IAD) files. Absolutely allocated disk files are useful for:

1. Recovering files after COLDSTARTing a system disk or purging a user disk.
2. Allocating file areas to specific EU's or packs of system disk.
3. Recovering specific areas of files that have been physically or logically corrupted.

however, these capabilities are bought at the cost of a mechanism which subverts all reasonable requirements of a data-secure system. Any installation supporting IAD files should realize that their system may no longer be secure.

### RELATED PUBLICATIONS

<u>Name</u> -----	<u>Number</u> -----
Software Operational Guide MCPII	1068731 P.S. 2212 5462

## OPERATING INSTRUCTIONS

DISK/ALLOCATOR expects input specifications to be in the format described in this section. Input is from the SPD, unless Program Switch Zero is set to one (1). Then input is from a card deck labelled "CARDS".

### KEYWORD SYNTAX

DISK/ALLOCATOR requires all specifications to be in the form:

<keyword> = <value>

More than one specification can be entered per accept message, with individual specifications separated by either blanks or a comma. Users may enter as many ACCEPT messages as are needed to input all the file specifications. However, individual keyword-value pairs cannot be separated between different ACCEPT messages nor can they be broken across record boundaries if the input is from cards.

The equals sign (=) must be included. Numbers can be either hexadecimal or decimal digits, but hex digits must be enclosed with a-signs.

## KEYWORD LIST

Users must specify all non-default characteristics of each IAC file. The keywords, along with their default values, are listed below. If no default is given, the keyword is required. All keywords with defaults listed are optional.

KEYWORD -----	DESCRIPTION -----	DEFAULT -----
TITLE	Allowable file name	None
RECSIZE	Characters per record	180
BLOCKSIZE	Records per block	1
AREASIZE	Blocks per area	100
AREAS	Number of areas	25
LASTRECORD	Eof pointer	0
FAMILYINDEX	Disk unit (EU)	0
AREANBR	area number	None
AREAADDRESS	physical sector address	None

## SPECIFICATION PROCESS

More than one file can be allocated per execution. File specifications are initiated by the keyword "TITLE", and an individual file is considered complete when one of the following conditions is true:

- 1) Another "TITLE" is encountered in the input stream.
- 2) The user enters a blank AX message.
- 3) End-of-file is reached on the card deck.

The first keyword specified for each file must be "TITLE", and TITLE must be an allowable file name, eg:

TITLE = MYDISK/TEST/FILE

Following TITLE, users must specify all the characteristics of the file that must be set before the file is opened: RECSIZE, BLOCKSIZE, AREASIZE, and AREAS. If any of these specifications are omitted, the defaults will be used. The defaults for record size and blocking are 180/1. Areasize and number of areas will default to 100 blocks per area and 25 areas.

Then, users can specify individual areas and their addresses through the keywords FAMILYINDEX, AREANBR, and AREAADDRESS.

FAMILYINDEX specifies the continuation number of the disk family. This indicates the disk EL number. If FAMILYINDEX is zero, the areas are assigned in the system's normal rotational order. FAMILYINDEX is optional, but once it is set it is used for all of that file's areas, until it is reset.

Users must specify an area number for each area to be allocated. AREANBR can be between 1-105, but cannot exceed the total number of areas declared for the file. AREAADDRESS gives the actual physical disk address requested for the file. The specified areas will be allocated if the requested disk address is available.

LASTRECORD specifies the setting of the end-of-file pointer. Extreme caution should be used to insure that LASTRECORD is actually pointing to somewhere within the file's allocated areas. LASTRECORD can be specified anywhere after the TITLE keyword. However, only the last value requested will be used. The default setting is zero.

## FILE ALLOCATION

DISK/ALLOCATOR will open the IAD file OUTPLT NEW, and will then attempt to allocate the areas. If it succeeds in allocating the areas, it will close the file, lock it into the disk directory, and display the message

<title> ALLOCATED

If it fails to allocate an area, or if no areas are requested, the program will purge the file. Once the file has been successfully allocated, DISK/ALLOCATOR will attempt to set the last record. If it fails, it will display a warning message, but the file will remain intact.

Before the MCP opens the IAD file, it must use some disk space for the file header. This requires from one to three contiguous sectors, depending on the number of areas declared for the file:

1-25 areas	1 sector
26-65 areas	2 sectors
66-105 areas	3 sectors

The file header will be located at the lowest available disk address.

### SAMPLE EXECUIES

A sample execution would involve the following messages and responses:

Operator: EX DISK/ALLOCATOR

Program: ENTER SPECS

Operator: <job number> AX TITLE = PERM/DATA, AREAS = 10

Program: ENTER SPECS

Operator: <job number> AX RECSIZE = 90 BLOCKSIZE=2, AREASIZE = 50

Program: ENTER SPECS

Operator: <job number> AX LASTRECORD = 450

Program: ENTER SPECS

Operator: <job number> AX AREANBR = 1, AREAADDRESS = 2682

Program: ENTER SPECS

Operator: <job number> AX AREANBR = 5, AREAADDRESS = 22742

Program: ENTER SPECS

Operator: <job number> AX (for termination)

or

Operator: <job number> AX TITLE = ANOTHER/FILE (for continuation.)



If input to DISK/ALLOCATOR is from cards, Program Switch Zero must be set to one in the execute statement. A sample card deck is given below.

```
-----  
/ ?END |  
-----  
/ AREANBR = 5, AREAADDRESS = 22742 |  
-----  
/ AREANBR = 1, AREAADDRESS = 2682 |  
-----  
/ LASTRECORD = 450 |  
-----  
/ RECSIZE = 90, BLOCKSIZE = 2 AREASIZE = 50 |  
-----  
/ TITLE = PERM/DATA, AREAS = 10 |  
-----  
/ ?DATA CARDS |  
-----  
/ ?EX DISK/ALLOCATOR SW0=1 |  
| |  
-----
```

Figure 2.1 Sample Card Deck

### ERROR MESSAGES

Errors are detected either by the MCP or by the program. Once an error has been detected, the program will stop handling the current file, and will scan the input stream until it finds a "TITLE" keyword. It will continue in the normal manner from that point.

### PROGRAM ERROR MESSAGES

1. INVALID <keyword>--<value>  
  
<value> is not a valid setting for this <keyword>
2. INVALID TOKEN--<string>  
  
The <string> is not a valid keyword.
3. EQUAL SIGN EXPECTED  
  
A keyword was not followed by an "="
4. VALUE EXPECTED AFTER =  
  
The value was missing from a keyword-value pair.
5. UNEXPECTED TOKEN--<keyword>--TITLE EXPECTED  
  
The program was expecting the keyword "TITLE". This usually appears after an input error when the program is scanning for a TITLE so it can resume processing.
6. CANNOT SET FAMILYINDEX TO <integer>  
  
The program could not set the family index to the requested value.
7. CANNOT ALLOCATE AREA--NEED AREANBR  
  
The user specified an AREAADDRESS without first specifying the AREANBR.

8. CANNOT ALLOCATE AREA <integer>

The specified area could not be allocated. An MCF error message will give the reason for failure.

9. LASTRECORD OF <integer> IS NOT WITHIN ASSIGNED FILE AREA

The value for LASTRECORD is outside the file's maximum allocated area.

10. CANNOT SET LASTRECORD TO <integer>

The program could not set the end-of-file pointer to the requested value.

MCF ERROR MESSAGES

1. INVALID IAD COMMUNICATE FOR NON DISK FILE ON FILE ATTRIBUTE REQUEST FOR FILE IADFILE LABELLED <title>

The user directed IADFILE to a non-disk device.

2. IAD REQUESTED AREA <integer> HAS ALREADY BEEN ASSIGNED ON FILE ATTRIBUTE REQUEST FOR IADFILE LABELED <title>

An area number can only be allocated once.

3. IAD REQUESTED DISK ADDRESS <integer> NOT AVAILABLE ON FILE ATTRIBUTE REQUEST FOR FILE IADFILE LABELLED <title>

The specified hex address was not available.

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