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0001 0 MODULE MODIFY (
0002 0     LANGUAGE (BLISS32),
0003 0     IDENT = 'V04-000'
0004 0 ) =
0005 1 BEGIN
0006 1
0007 1
0008 1 *****
0009 1 *
0010 1 *  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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0027 1 *
0028 1 *
0029 1 *****
0030 1
0031 1 ++
0032 1
0033 1 FACILITY: F11ACP Structure Level 1
0034 1
0035 1 ABSTRACT:
0036 1
0037 1     This routine implements the MODIFY function.
0038 1
0039 1 ENVIRONMENT:
0040 1
0041 1     STARLET operating system, including privileged system services
0042 1     and internal exec routines.
0043 1
0044 1 --
0045 1
0046 1
0047 1 AUTHOR: Andrew C. Goldstein, CREATION DATE: 6-Jan-1977 23:03
0048 1
0049 1 MODIFIED BY:
0050 1
0051 1     V03-004 LMP0154 L. Mark Pilant, 14-Sep-1983 15:38
0052 1     Do access conflict checks here rather than in WRITE_ATTRIB.
0053 1
0054 1     V03-003 ACG0343 Andrew C. Goldstein, 19-Jul-1983 16:50
0055 1     Inhibit revision count if NORECORD is specified
0056 1
0057 1     V03-002 ACG56916 Andrew C. Goldstein, 21-Jun-1983 12:05

```

MODIFY
V04-000

E 4
16-Sep-1984 01:11:19
14-Sep-1984 12:29:45

VAX-11 Bliss-32 V4.0-742
DISK3VMSMASTER:[F11A.SRC]MODIFY.B32;1 Page 2 (1)

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VO

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.. 58      0058 1  | Update revision date on MODIFY operations
.. 59      0059 1  |
.. 60      0060 1  | V03-001 ACG0282 Andrew C. Goldstein, 6-Apr-1982 16:08
.. 61      0061 1  | Check for device write-locked before attempting operations
.. 62      0062 1  |
.. 63      0063 1  | V02-002 ACG0171 Andrew C. Goldstein, 7-May-1980 18:55
.. 64      0064 1  | Condition check of truncate lock on presence of FCB
.. 65      0065 1  |
.. 66      0066 1  | V02-001 ACG0167 Andrew C. Goldstein, 7-May-1980 18:51
.. 67      0067 1  | Previous revision history moved to F11A.REV
.. 68      0068 1  | **
.. 69      0069 1  |
.. 70      0070 1  |
.. 71      0071 1  | LIBRARY 'SYSSLIBRARY:LIB.L32';
.. 72      0072 1  | REQUIRE 'SRC$:FCPDEF.B32';
.. 73      0387 1  |
.. 74      0388 1  |
.. 75      0389 1  | FORWARD ROUTINE
.. 76      0390 1  | MODIFY, : MODIFY function routine
.. 77      0391 1  | INCREMENT; : increment write count in WCB
```

```

79 0392 1 GLOBAL ROUTINE MODIFY =
80 0393 1
81 0394 1 :++
82 0395 1
83 0396 1 FUNCTIONAL DESCRIPTION:
84 0397 1
85 0398 1     This routine implements the MODIFY function.
86 0399 1
87 0400 1 CALLING SEQUENCE:
88 0401 1     MODIFY ()
89 0402 1
90 0403 1 INPUT PARAMETERS:
91 0404 1     NONE
92 0405 1
93 0406 1 IMPLICIT INPUTS:
94 0407 1     CURRENT_WINDOW: window for file
95 0408 1     PRIMARY_FCB: FCB of file
96 0409 1     IO_PACKET: I/O packet in process
97 0410 1     FILE_HEADER: address of current file header
98 0411 1
99 0412 1 OUTPUT PARAMETERS:
100 0413 1     NONE
101 0414 1
102 0415 1 IMPLICIT OUTPUTS:
103 0416 1     NONE
104 0417 1
105 0418 1 ROUTINE VALUE:
106 0419 1     NONE
107 0420 1
108 0421 1 SIDE EFFECTS:
109 0422 1     file and FCB modified
110 0423 1
111 0424 1 :--
112 0425 1
113 0426 2 BEGIN
114 0427 2
115 0428 2 LOCAL
116 0429 2     ABD           : REF BBLOCKVECTOR [,ABD$C_LENGTH],
117 0430 2                 : buffer descriptors
118 0431 2     FIB           : REF BBLOCK,       : FIB
119 0432 2     FCB           : REF BBLOCK,       : FCB of file
120 0433 2     HEADER       : REF BBLOCK,       : file header
121 0434 2     IDENT_AREA  : REF BBLOCK;      : ident area of file header
122 0435 2
123 0436 2 EXTERNAL
124 0437 2     IO_PACKET      : REF BBLOCK,       : I/O packet in process
125 0438 2     FILE_HEADER   : REF BBLOCK,       : address of currently resident file header
126 0439 2     CURRENT_WINDOW : REF BBLOCK,       : window of file
127 0440 2     PRIMARY_FCB   : REF BBLOCK,       : FCB of file
128 0441 2     CURRENT_VCB   : REF BBLOCK,       : VCB of volume
129 0442 2     CURRENT_UCB   : REF BBLOCK;      : UCB of volume
130 0443 2
131 0444 2 EXTERNAL ROUTINE
132 0445 2     GET_FIB,       : get FIB of request
133 0446 2     FIND,         : find name in directory
134 0447 2     SEARCH_FCB,   : search FCB list
135 0448 2     READ_HEADER,  : read file header

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: 136 0449 2 CHECK_PROTECT,           ! check file protection
: 137 0450 2 GET_TIME,             ! get date/time string
: 138 0451 2 MARK_DIRTY,          ! mark header for write-back
: 139 0452 2 WRITE_ATTRIB,       ! write file attributes
: 140 0453 2 EXTEND,             ! extend file
: 141 0454 2 TRUNCATE,          ! truncate file
: 142 0455 2 CHECKSUM,          ! checksum the file header
: 143 0456 2 UPDATE_FCB;        ! update FCB contents
: 144 0457 2
: 145 0458 2
: 146 0459 2 ! First find the buffer descriptor, FIB, FCB, etc., and read the header.
: 147 0460 2 !
: 148 0461 2
: 149 0462 2 ! pointer to buffer descriptors
: 150 0463 2 ABD = .BBLOCK [.IO_PACKET[IRPSL_SVAPTE], AIBSL_DESCRIPTOR];
: 151 0464 2 FIB = GET_FIB (.ABD);
: 152 0465 2
: 153 0466 2 ! If a directory ID is present, do a directory search first.
: 154 0467 2 !
: 155 0468 2
: 156 0469 2 IF .FIB[FIBSW_DID_NUM] NEQ 0
: 157 0470 2 THEN FIND (.ABD, .FIB, 0);
: 158 0471 2
: 159 0472 2 ! If there is a file open on the channel, check the file ID returned by the
: 160 0473 2 ! FIND against the file ID that is open. If they are different, drop the FCB
: 161 0474 2 ! and window addresses on the floor.
: 162 0475 2 !
: 163 0476 2
: 164 0477 2 IF .PRIMARY_FCB NEQ 0
: 165 0478 2 THEN
: 166 0479 2 IF .PRIMARY_FCB[FCBSW_FID_NUM] NEQ .FIB[FIBSW_FID_NUM]
: 167 0480 2 OR .PRIMARY_FCB[FCBSW_FID_RVN] NEQ .FIB[FIBSW_FID_RVN]
: 168 0481 2 THEN
: 169 0482 2 BEGIN
: 170 0483 2 PRIMARY_FCB = 0;
: 171 0484 2 CURRENT_WINDOW = 0;
: 172 0485 2 END;
: 173 0486 2
: 174 0487 2 FCB = SEARCH_FCB (FIB[FIBSW_FID]);
: 175 0488 2 PRIMARY_FCB = .FCB;
: 176 0489 2 HEADER = READ_HEADER (FIB[FIBSW_FID], .FCB);
: 177 0490 2
: 178 0491 2 ! Check that the volume is write enabled.
: 179 0492 2 !
: 180 0493 2
: 181 0494 2 IF .BBLOCK [CURRENT_UCB[UCBSL_DEVCHAR], DEVSV_SWL]
: 182 0495 2 THEN ERR_EXIT (SS$_WRITLCK);
: 183 0496 2
: 184 0497 2 ! Arbitrate access interlocks. If this is the accessor, then the file
: 185 0498 2 ! must be write accessed. Count a write to the file.
: 186 0499 2 !
: 187 0500 2
: 188 0501 2 IF .CURRENT_WINDOW NEQ 0
: 189 0502 2 THEN
: 190 0503 2 BEGIN
: 191 0504 2 IF NOT .CURRENT_WINDOW[WCBSV_WRITE]
: 192 0505 2 THEN ERR_EXIT (SS$_NOPRIV);

```

```

193 0506 3 IF NOT .FIB[FIB$V_NORECORD]
194 0507 THEN KERNEL_CALL TINCREMENT, CURRENT_WINDOW[W.CBSL_WRITES]);
195 0508 END
196 0509
197 0510 ! If it is not, then the file must not be locked against modification
198 0511 ! and the caller must pass file protection.
199 0512 !
200 0513 !
201 0514 ELSE
202 0515 BEGIN
203 0516 IF .FCB NEQ 0
204 0517 THEN
205 0518 IF .FCB[FCB$V_EXCL]
206 0519 OR .FCB[FCB$W_LCNT] NEQ 0
207 0520 THEN ERR_EXIT (SS$_ACCONFLICT);
208 0521 CHECK_PROTECT (WRITE_ACCESS, .HEADER, .FCB);
209 0522
210 0523 ! If the file is not open, count a revision and update the revision
211 0524 ! date now.
212 0525 !
213 0526 !
214 0527 IF NOT .FIB[FIB$V_NORECORD]
215 0528 THEN
216 0529 BEGIN
217 0530 IDENT_AREA = .HEADER + .HEADER[FH1$B_IDOFFSET]*2;
218 0531 IDENT_AREA[F11$W_REVISION] = .IDENT_AREA[F11$W_REVISION] + 1;
219 0532 GET TIME (IDENT_AREA[F11$T_REVDATE]);
220 0533 MARR_DIRTY (.HEADER);
221 0534 END;
222 0535 END;
223 0536
224 0537 !
225 0538 ! If an attribute list exists, perform the write attributes operation.
226 0539 !
227 0540 !
228 0541 IF .IO_PACKET[IRP$W_BCNT] GTR ABD$C_ATTRIB
229 0542 THEN
230 0543 BEGIN
231 0544 WRITE_ATTRIB (.HEADER, .ABD, 1);
232 0545 CHECKSUM (.HEADER);
233 0546 END;
234 0547 !
235 0548 ! If the extend enable bit is on, perform the extend operation.
236 0549 ! If the truncate bit is on, perform the truncate operation. If both are
237 0550 ! on, it is an error.
238 0551 !
239 0552 !
240 0553 IF (.FIB[FIB$V_EXTEND] OR .FIB[FIB$V_TRUNC])
241 0554 AND .CURRENT_VCB[VCB$V_NOALLOC]
242 0555 THEN ERR_EXIT (SS$_WRITLCK);
243 0556 !
244 0557 IF .FIB[FIB$V_EXTEND]
245 0558 THEN
246 0559 BEGIN
247 0560 IF .FIB[FIB$V_TRUNC] THEN ERR_EXIT (SS$_BADPARAM);
248 0561 EXTEND (.FIB, .HEADER);
249 0562 END;

```

```

: 250 0563 2
: 251 0564 2 IF .FIB[FIB$V_TRUNC]
: 252 0565 2 THEN
: 253 0566 2 BEGIN
: 254 0567 2 IF .FCB NEQ 0
: 255 0568 2 THEN
: 256 0569 4 BEGIN
: 257 0570 4 IF .FCB[FCB$_TCNT] NEQ 0
: 258 0571 4 THEN ERR_EXI'-(SS$_ACCONFLICT);
: 259 0572 3 END;
: 260 0573 3 TRUNCATE (.FIB, .HEADER, DEALLOC_BLOCKS);
: 261 0574 2 END;
: 262 0575 2
: 263 0576 2 HEADER = .FILE_HEADER;
: 264 0577 2 CHECKSUM (.HEADER); ! checksum the file header
: 265 0578 2 KERNEL_CALL (UPDATE_FCB, .HEADER);
: 266 0579 2
: 267 0580 2 RETURN 1;
: 268 0581 2
: 269 0582 1 END; ! end of routine MODIFY

```

```

.TITLE MODIFY
.IDENT \V04-000\

```

```

.EXTRN IO_PACKET, FILE_HEADER
.EXTRN CURRENT_WINDOW, PRIMARY_FCB
.EXTRN CURRENT_VCB, CURRENT_UCB
.EXTRN GET_FIB, FIND, SEARCH_FCB
.EXTRN READ_HEADER, CHECK_PROTECT
.EXTRN GET_TIME, MARK_DIRTY
.EXTRN WRITE_ATTRIB, EXTEND
.EXTRN TRUNCATE, CHECKSUM
.EXTRN UPDATE_FCB, SYSSCMKRNL

```

```

.PSECT $CODE$,NOWRT,2

```

			01FC	00000	.ENTRY	MODIFY, Save R2,R3,R4,R5,R6,R7,R8	: 0392
58	0000G	CF	9E	00002	MOVAB	CURRENT_WINDOW, R8	:
57	0000G	CF	9E	00007	MOVAB	PRIMARY_FCB, R7	:
56	00000000G	9F	9E	0000C	MOVAB	@#SYSSCMKRNL, R6	:
50	0000G	CF	D0	00013	MOVL	IO_PACKET, R0	: 0463
55	2C	B0	D0	00018	MOVL	@4(R0), ABD	:
		55	DD	0001C	PUSHL	ABD	: 0464
0000G	CF	01	FB	0001E	CALLS	#1, GET_FIB	:
52		50	D0	00023	MOVL	R0, FIB	:
		0A	A2	00026	TSTW	10(FIB)	: 0469
			0B	13	BEQL	1\$:
			7E	D4	CLRL	-(SP)	: 0470
			52	DD	PUSHL	FIB	:
			55	DD	PUSHL	ABD	:
0000G	CF	03	FB	00031	CALLS	#3, FIND	:
50		67	D0	00036	MOVL	PRIMARY_FCB, R0	: 0477
		12	13	00039	BEQL	3\$:
04	A2	24	A0	0003B	CMPW	36(R0), 4(FIB)	: 0479
			07	12	BNEQ	2\$:
08	A2	28	A0	00042	CMPW	40(R0), 8(FIB)	: 0480

		025C	8F	BF	000FE	12\$:	CHMU	#604		: 0555
				04	00102		RET			:
		16	A2	95	00103	13\$:	TSTB	22(FIB)		: 0557
			0E	18	00106		BGEQ	15\$:
	03	17	A2	E9	00108		BLBC	23(FIB), 14\$: 0560
			14	BF	0010C		CHMU	#20		:
				04	0010E		RET			:
			14	BB	0010F	14\$:	PUSHR	#*M<R2,R4>		: 0561
0000G	CF		02	FB	00111		CALLS	#2, EXTEND		:
	17	17	A2	E9	00116	15\$:	BLBC	23(FIB), 18\$: 0564
			53	D5	0011A		TSTL	FCB		: 0567
			0A	13	0011C		BEQL	17\$:
		20	A3	B5	0011E		TSTW	32(FCB)		: 0570
			05	13	00121		BEQL	17\$:
		0800	8F	BF	00123	16\$:	CHMU	#2048		: 0571
				04	00127		RET			:
			01	DD	00128	17\$:	PUSHL	#1		: 0573
			14	BB	0012A		PUSHR	#*M<R2,R4>		:
0000G	CF		03	FB	0012C		CALLS	#3, TRUNCATE		:
	54	0000G	CF	D0	00131	18\$:	MOVL	FILE HEADER, HEADER		: 0576
			54	DD	00136		PUSHL	HEADER		: 0577
0000G	CF		01	FB	00138		CALLS	#1, CHECKSUM		:
			54	DD	0013D		PUSHL	HEADER		: 0578
			01	DD	0013F		PUSHL	#1		:
			5E	DD	00141		PUSHL	SP		:
		0000G	CF	9F	00143		PUSHAB	UPDATE FCB		:
	66		04	FB	00147		CALLS	#4, SYSSCMKRNL		:
	50		01	D0	0014A		MOVL	#1, R0		: 0580
			04	0014D			RET			: 0582

; Routine Size: 334 bytes, Routine Base: \$CODE\$ + 0000

```

: 270      0583  1
: 271      0584  1
: 272      0585  1  Subroutine to increment the write count in the window. This operation
: 273      0586  1  must be done in kernel mode.
: 274      0587  1
: 275      0588  1
: 276      0589  1 ROUTINE INCREMENT (ADDRESS) =
: 277      0590  2 BEGIN
: 278      0591  2
: 279      0592  2 ADDRESS = ..ADDRESS + 1;
: 280      0593  2
: 281      0594  2
: 282      0595  1 END;

```

```

                                0000 0000 INCREMENT:
                                .WORD Save nothing
50      04      BC  D6 00002      INCL @ADDRESS
                                MOVL #1, R0
                                01  D0 00005
                                04  00008      RET

```

MODIFY
V04-000

L 4
16-Sep-1984 01:11:19
14-Sep-1984 12:29:45

VAX-11 Bliss-32 V4.0-742
DISK\$VMSMASTER:[F11A.SRC]MODIFY.B32;1 Page 9 (2)

: Routine Size: 9 bytes, Routine Base: \$CODE\$ + 014E

: 283 0596 1
: 284 0597 1 END
: 285 0598 0 ELUDOM

PSECT SUMMARY

Name	Bytes	Attributes
\$CODE\$	343	NOVEC,NOWRT, RD, EXE,NOSHR, LCL, REL, CON,NOPIC,ALIGN(2)

Library Statistics

File	Symbols		Pages Mapped	Processing Time
	Total	Loaded Percent		
_\$255\$DUA28:[SYSLIB]LIB.L32;1	18619	30 0	1000	00:01.9

COMMAND QUALIFIERS

: BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS\$:MODIFY/OBJ=OBJ\$:MODIFY MSRC\$:MODIFY/UPDATE=(ENH\$:MODIFY)

: Size: 343 code + 0 data bytes
: Run Time: 00:11.1
: Elapsed Time: 00:29.6
: Lines/CPU Min: 3241
: Lexemes/CPU-Min: 14601
: Memory Used: 157 pages
: Compilation Complete

MP
Sy
AQ
BI
CO
CU
DI
FC
HE
IN
IO
MA
MV
RV
UN
VB
VC
WC
WI

PS
--
SA
SC

Ph
--
In
Co
Pa
Sy
Pa
Sy
Ps
Cr
As
Th
63
Th
23
12

The image displays a grid of 100 small terminal window screenshots, each showing a different LIS (Language Integrated System) program. The programs are arranged in a 10x10 grid. Each window contains a mix of text, data tables, and graphical elements like bar charts and histograms. The programs are labeled with names such as MOOTFY, REQUEL, RWATR, SCHFCB, MAKACC, MPWIND, PMS, RDHEDR, RWJB, ROBLOK, RETDIR, SMALOC, MOUNT, MAKMB, and MAKSTR. The overall appearance is that of a dense collection of small-scale data processing or reporting applications.