

CCCCCCCCCCCC	LLL	IIIIIIII	UUU	UUU	TTTTTTTTTTTTTTTT	LLL
CCCCCCCCCCCC	LLL	IIIIIIII	UUU	UUU	TTTTTTTTTTTTTTTT	LLL
CCCCCCCCCCCC	LLL	IIIIIIII	UUU	UUU	TTTTTTTTTTTTTTTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCC	LLL	III	UUU	UUU	TTT	LLL
CCCCCCCCCCCC	LLLLLLLLLLLLLLLL	IIIIIIII	UUUUUUUUUUUUUU	UUUUUUUUUUUUUU	TTTT	LLLLLLLLLLLLLLLL
CCCCCCCCCCCC	LLLLLLLLLLLLLLLL	IIIIIIII	UUUUUUUUUUUUUU	UUUUUUUUUUUUUU	TTTT	LLLLLLLLLLLLLLLL
CCCCCCCCCCCC	LLLLLLLLLLLLLLLL	IIIIIIII	UUUUUUUUUUUUUU	UUUUUUUUUUUUUU	TTTT	LLLLLLLLLLLLLLLL

```
SSSSSSSS  FFFFFFFF  TTTTTT  CCCCCC  LL  UU  UU  SSSSSSS  TTTTTTTTTT  RRRRRRRR
SSSSSSSS  FFFFFFFF  TTTTTTTTTT  CCCCCC  LL  UU  UU  SSSSSSS  TTTTTTTTTT  RRRRRRRR
SS  FF  TT  CC  LL  UU  UU  SS  TT  RR  RR  RR
SS  FF  TT  CC  LL  UU  UU  SS  TT  RR  RR  RR
SS  FF  TT  CC  LL  UU  UU  SS  TT  RR  RR  RR
SSSSSS  FFFFFFFF  TT  CC  LL  UU  UU  SSSSS  TT  RRRRRRRR
SSSSSS  FFFFFFFF  TT  CC  LL  UU  UU  SSSSS  TT  RRRRRRRR
SS  FF  TT  CC  LL  UU  UU  SS  TT  RR  RR  RR
SS  FF  TT  CC  LL  UU  UU  SS  TT  RR  RR  RR
SSSSSSSS  FFFFFFFF  TT  CC  CCCCCC  LLLLLLLLLL  UUUUUUUUU  SSSSSSS  TT  RR  RR  RR
SSSSSSSS  FFFFFFFF  TT  CC  CCCCCC  LLLLLLLLLL  UUUUUUUUU  SSSSSSS  TT  RR  RR  RR
...
LL  IIIIII  SSSSSSS
LL  IIIIII  SSSSSSS
LL  II  SS
LL  II  SS
LL  II  SS
LL  II  SSSSSS
LL  II  SSSSSS
LL  II  SS
LL  II  SS
LL  II  SS
LL  IIIIII  SSSSSSS
LLLLLLLLLLL  IIIIII  SSSSSSS
LLLLLLLLLLL  IIIIII  SSSSSSS
```

```

1 0001 0 MODULE setclustr (
2 0002 0 IDENT= 'V04-000'
3 0003 0 LANGUAGE (BLISS32),
4 0004 0 ADDRESSING_MODE (EXTERNAL = GENERAL, NONEXTERNAL=LONG_RELATIVE)
5 0005 0 ) =
6 0006 1 BEGIN
7 0007 1
8 0008 1 *****
9 0009 1 *
10 0010 1 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY *
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27 0027 1 *
28 0028 1 *
29 0029 1 *****
30 0030 1 **
31 0031 1
32 0032 1 FACILITY: SET CLUSTER
33 0033 1
34 0034 1 ABSTRACT: Implement SET CLUSTER qualifiers
35 0035 1
36 0036 1 AUTHOR: Paul R. Beck
37 0037 1
38 0038 1 DATE: 19-FEB-1984
39 0039 1
40 0040 1 REVISION HISTORY:
41 0041 1
42 0042 1 V03-001 DAS0001 David Solomon 09-Jul-1984
43 0043 1 Fix truncation errors; make nonexternal refs LONG_RELATIVE.
44 0044 1
45 0045 1 --

```

```

: 47      0046 1 LIBRARY 'SYSS$LIBRARY:LIB';
: 48      0047 1 LIBRARY 'SYSS$LIBRARY:CLIMAC.L32';      ! CLI macros
: 49      0048 1
: 50      0049 1      External routines
: 51      0050 1
: 52      0051 1 EXTERNAL ROUTINE
: 53      0052 1      set$validate_quorum,      ! Validate and set new quorum value
: 54      0053 1      cli$present,      ! Get qualifiers
: 55      0054 1      cli$get_value,      ! Get values of qualifiers
: 56      0055 1      lib$put_output,      ! $PUT message to SYSS$OUTPUT
: 57      0056 1      lib$cvdt_dtb;      ! Convert ASCII to numerical
: 58      0057 1
: 59      0058 1      Literal data definitions
: 60      0059 1
: 61      0060 1 LITERAL
: 62      0061 1      true = 1
: 63      0062 1      false = 0;
: 64      0063 1
: 65      0064 1
: 66      0065 1      Declare the error messages
: 67      0066 1
: 68      0067 1      Definitions in [CLIUTL.SRC]SET.MSG
: 69      0068 1
: 70      0069 1 EXTERNAL LITERAL
: 71      0070 1      set$_nocluster,      ! node not in cluster
: 72      0071 1      set$_syntax;      ! syntax error
: 73      0072 1
: 74      0073 1      Routines used in this module
: 75      0074 1
: 76      0075 1 FORWARD ROUTINE
: 77      0076 1      set$cluster;      ! Analyze qualifiers for SET CLUSTER
: 78      0077 1
: 79      0078 1      Macros to generate a string with a descriptor.
: 80      0079 1
: 81      0080 1 MACRO
: 82      M 0081 1      ASCID[]=%CHARCOUNT(%REMAINING), ! string descriptor
: 83      0082 1      UPLIT BYTE(%REMAINING)%;
```

```

0083 1 %SBTTL 'SET$CLUSTER'
0084 1 ++
0085 1 SET$CLUSTER
0086 1
0087 1 FUNCTIONAL DESCRIPTION:
0088 1
0089 1     Add support for the following commands:
0090 1     SET CLUSTER/QUORUM=n     ! set active quorum to specified value
0091 1     Further description of each qualifier accompanies the code implementing
0092 1     that qualifier.
0093 1
0094 1 CALLING SEQUENCE:
0095 1
0096 1     CALL SET$CLUSTER
0097 1
0098 1 FORMAL PARAMETERS:
0099 1
0100 1     none
0101 1
0102 1 IMPLICIT INPUTS:
0103 1
0104 1     Qualifiers are obtained through calls to the CLI.
0105 1
0106 1 IMPLICIT OUTPUTS:
0107 1
0108 1     none
0109 1
0110 1 ROUTINE VALUE:
0111 1
0112 1     none
0113 1
0114 1 COMPLETION CODES:
0115 1
0116 1     none
0117 1
0118 1 SIDE EFFECTS:
0119 1
0120 1 --
0121 1
0122 1 GLOBAL ROUTINE set$cluster =
0123 2 BEGIN
0124 2
0125 2 LOCAL
0126 2     oldpriv      : $BBLOCK [8],           ! Permanent privileges
0127 2     desc         : $BBLOCK [dsc$c_s_bln],  ! general descriptor
0128 2     quorum       : LONG,                   ! /QUORUM=q value
0129 2     new_quorum   : LONG,                   ! quorum value set
0130 2     fao_buffer   : BLOCK [132,BYTE],       ! buffer used with FAO
0131 2     fao_desc     : $BBLOCK [dsc$c_s_bln],  ! descriptor for same
0132 2     output_desc  : $BBLOCK [dsc$c_s_bln],  ! work descriptor for output
0133 2     status       : LONG;                  ! completion status
0134 2
0135 2 OWN
0136 2     quorum_ctrstr : VECTOR [2, LONG]       ! FAO control string
0137 2     INITIAL ('ASCID('%SET-I-QUORUM, new quorum is !UW.'));
0138 2
0139 2
0140 2
0141 2 EXTERNAL

```

```

: 142      0140      2      clu$gl_club;                ! =0 if no cluster
: 143      0141      2      .....
: 144      0142      2      ..... Verify that caller has sufficient privileges. SYSPRV, OPER and CMKRNL
: 145      0143      2      ..... are required.
: 146      0144      2      .....
: 147      0145      2      IF NOT (status = $SETPRV (ENBFLG = 1,          ! Enable
: 148      0146      2      ..... PRVADR = 0,                ! No new privileges
: 149      0147      2      ..... PRMFLG = 1,                ! Permanent privs
: 150      0148      2      ..... PRVPRV = o(dpriv))      ! Store current ones here
: 151      0149      2      THEN SIGNAL_STOP (.status);
: 152      0150      2      .....
: 153      0151      2      ..... Check to see if privileges there. If not, return error.
: 154      0152      2      .....
: 155      0153      2      IF NOT .oldpriv [prv$v_oper] THEN status = $$$_NOOPER;
: 156      0154      2      IF NOT .status
: 157      0155      2      THEN
: 158      0156      2      BEGIN
: 159      0157      2      SIGNAL (.status);
: 160      0158      2      RETURN false;
: 161      0159      2      END;
: 162      0160      2      .....
: 163      0161      2      ..... If this node is not in a cluster, there's not much point in proceeding.
: 164      0162      2      .....
: 165      0163      2      IF .clu$gl_club EQL 0
: 166      0164      2      THEN
: 167      0165      2      BEGIN
: 168      0166      2      SIGNAL (set$_nocluster);
: 169      0167      2      RETURN false;
: 170      0168      2      END;

```

```

: 172      0169 2 %SBTTL ' /QUORUM = q'
: 173      0170 2
: 174      0171 2
: 175      0172 2 Initialize dynamic descriptors
: 176      0173 2
: 177      0174 2 $init_dyndesc (desc);
: 178      0175 2 $init_dyndesc (fao_desc);
: 179      0176 2 $init_dyndesc (output_desc);
: 180      0177 2 fao_desc [dsc$w_length] = 132;
: 181      0178 2 fao_desc [dsc$a_pointer] = fao_buffer;
: 182      0179 2 output_desc [dsc$w_length] = 0;
: 183      0180 2 output_desc [dsc$a_pointer] = fao_buffer;
: 184      0181 2
: 185      0182 2 status = cli$present ( %ASCII 'QUORUM' );
: 186      0183 2 IF .status
: 187      0184 2 THEN
: 188      0185 2 BEGIN
: 189      0186 2
: 190      0187 2 SET CLUSTER /QUORUM = n
: 191      0188 2 The value supplied will be used as a new active quorum value across
: 192      0189 2 the entire cluster. It is checked against high and low limits:
: 193      0190 2 V <= Q <= (2V+2)/2 ! V = current active votes
: 194      0191 2 and is pinned to the high or low limit as appropriate. If the value
: 195      0192 2 supplied is 0, the "proper" quorum for the current cluster is
: 196      0193 2 supplied: (2V+2)/2
: 197      0194 2
: 198      0195 2 IF NOT cli$get_value ( %ASCII 'QUORUM', desc )
: 199      0196 2 THEN
: 200      0197 2 quorum = 0
: 201      0198 2 ELSE
: 202      0199 2 IF (NOT lib$cvt_dtb ( .desc [dsc$w_length],
: 203      0200 2 .desc [dsc$a_pointer],
: 204      0201 2 quorum ))
: 205      0202 2 OR (.quorum GTR 65535)
: 206      0203 2 THEN
: 207      0204 2 BEGIN
: 208      0205 2
: 209      0206 2 QUORUM must be a number no larger than a word.
: 210      0207 2
: 211      0208 2 SIGNAL(set$syntax, 1, desc);
: 212      0209 2 RETURN false;
: 213      0210 2 END;
: 214      0211 2
: 215      0212 2 The rest of the work must be done synchronized with the connection
: 216      0213 2 manager.
: 217      0214 2
: 218      0215 2 status = set$validate_quorum (.quorum, new_quorum);
: 219      0216 2 IF (.status) AND (.new_quorum NEQ 0)
: 220      0217 2 THEN
: 221      0218 2
: 222      0219 2 Report the quorum value which was set
: 223      0220 2
: 224      0221 2 IF $FAO ( quorum_ctrstr, ! ctrstr
: 225      0222 2 output_desc [dsc$w_length], ! outlen
: 226      0223 2 fao_desc, ! outbuf
: 227      0224 2 .new_quorum ) ! p1 = quorum
: 228      0225 2 THEN

```

/QUORUM = q

```

: 229      0226 3      Lib$put_output ( output_desc );
: 230      0227      RETURN true;
: 231      0228      END;
: 232      0229      RETURN true;
: 233      0230      END;
: 234      0231 2      RETURN true;
: 235      0232 1      END;

```

```

.PSECT $SPLITS,NOWRT,NOEXE,2
20 2C 4D 55 52 4F 55 51 2D 49 2D 54 45 53 25 00000 P.AAA: .ASCII \%SET-I-QUORUM, new quorum is !UW.\
21 20 73 69 20 6D 75 72 6F 75 71 20 77 65 6E 0000F
      2E 57 55 0001E
      00 00 4D 55 52 4F 55 51 00024 P.AAC: .BLKB 3
      010E0006 0002C P.AAB: .ASCII \QUORUM\<0><0>
      00000000' 00030 P.AAB: .LONG 17694726
      00 00 4D 55 52 4F 55 51 00034 P.AAE: .ADDRESS P.AAC
      010E0006 0003C P.AAD: .ASCII \QUORUM\<0><0>
      00000000' 00040 P.AAD: .LONG 17694726
      .ADDRESS P.AAE
.PSECT $OWNS,NOEXE,2
00000021 00000 QUORUM_CTRSTR:
00000000' 00004 .LONG 33
      .ADDRESS P.AAA
.EXTRN SET$VALIDATE_QUORUM
.EXTRN CLIS$PRESENT, CLIS$GET_VALUE
.EXTRN LIB$PUT_OUTPUT, LIB$CVT_DTB
.EXTRN SET$NOCLUSTER, SET$SYNTAX
.EXTRN CLUS$GL CLUB, SYS$SETPRV
.EXTRN SYS$FA0
.PSECT $CODE$,NOWRT,2
      000C 00000
      53 00000000G 00 9E 00002
      5E FF54 CE 9E 00009
      F8 AD 9F 0000E
      01 DD 00011
      01 7D 00013
      00000000G 00 04 FB 00016
      52 50 D0 0001D
      09 52 E8 00020
      52 DD 00023
      00000000G 00 01 FB 00025
      05 FA AD 02 E0 0002C 1$:
      52 2894 8F 3C 00031
      04 52 E8 00036 2$:
      52 DD 00039
      0E 11 0003B
      00000000G 00 D5 0003D 3$:
      .ENTRY SET$CLUSTER, Save R2,R3
      MOVAB LIB$SIGNAL, R3
      MOVAB -172(SP), SP
      PUSHAB OLDPRIV
      PUSHL #1
      MOVQ #1, -(SP)
      CALLS #4, SYS$SETPRV
      MOVL R0, STATUS
      BLBS STATUS, 1$
      PUSHL STATUS
      CALLS #1, LIB$STOP
      BBS #2, OLDPRIV+2, 2$
      MOVZWL #10388, STATUS
      BLBS STATUS, 3$
      PUSHL STATUS
      BRB 4$
      TSTL CLUS$GL CLUB

```


		0C	12	00043	BNEQ	5\$		
		8F	DD	00045	PUSHL	#SETS NOCLUSTER		0166
63	00000000G	01	FB	0004B	CALLS	#1, LIB\$SIGNAL		
		00C8	31	0004E	BRW	10\$		0167
F0	AD 020E0000	8F	D0	00051	MOVL	#34471936, DESC		0174
		F4	AD	D4	CLRL	DESC+4		
10	AE 020E0000	8F	D0	0005C	MOVL	#34471936, FAO_DESC		0175
		14	AE	D4	CLRL	FAO_DESC+4		
08	AE 020E0000	8F	D0	00067	MOVL	#34471936, OUTPUT_DESC		0176
		0C	AE	D4	CLRL	OUTPUT_DESC+4		
10	AE	84	8F	9B	M,VZBW	#132, FAO_DESC		0177
14	AE	18	AE	9E	MOVAB	FAO_BUFFER, FAO_DESC+4		0178
		08	AE	B4	CLRW	OUTPUT_DESC		0179
0C	AE	18	AE	9E	MOVAB	FAO_BUFFER, OUTPUT_DESC+4		0180
		00000000'	EF	9F	PUSHAB	P.AXB		0182
00000000G	00		01	FB	CALLS	#1, CLIS\$PRESENT		
	52		50	D0	MOVL	R0, STATUS		
	7E		52	E9	BLBC	STATUS, 9\$		0183
		F0	AD	9F	PUSHAB	DESC		0195
		00000000'	EF	9F	PUSHAB	P.AAD		
00000000G	00		02	FB	CALLS	#2, CLIS\$GET_VALUE		
	04		50	E8	BLBS	R0, 6\$		
			6E	D4	CLRL	QUORUM		0197
			2C	11	BRB	8\$		
			5E	DD	PUSHL	SP		0199
		F4	AD	DD	PUSHL	DESC+4		0200
		F0	AD	3C	MOVZWL	DESC, -(SP)		0199
00000000G	7E		03	FB	CALLS	#3, LIB\$CVT_DTB		
	00		50	E9	BLBC	R0, 7\$		
0000FFFF	09		6E	D1	CML	QUORUM, #65535		0202
	8F		10	15	BLEQ	8\$		
		F0	AD	9F	PUSHAB	DESC		0208
			01	DD	PUSHL	#1		
		00000000G	8F	DD	PUSHL	#SETS SYNTAX		
		63	03	FB	CALLS	#3, LIB\$SIGNAL		
			3F	11	BRB	10\$		0209
		04	AE	9F	PUSHAB	NEW QUORUM		0215
		04	AE	DD	PUSHL	QUORUM		
00000000G	00		02	FB	CALLS	#2, SET\$VALIDATE_QUORUM		
	52		50	D0	MOVL	R0, STATUS		
	28		52	E9	BLBC	STATUS, 9\$		0216
		04	AE	D5	TSTL	NEW_QUORUM		
			23	13	BEQL	9\$		
		04	AE	DD	PUSHL	NEW_QUORUM		0224
		14	AE	9F	PUSHAB	FAO_DESC		
		10	AE	9F	PUSHAB	OUTPUT_DESC		
		00000000'	EF	9F	PUSHAB	QUORUM_CTRSTR		
00000000G	00		04	FB	CALLS	#4, SYSS\$FAO		
	0A		50	E9	BLBC	R0, 9\$		
		08	AE	9F	PUSHAB	OUTPUT_DESC		0226
00000000G	00		01	FB	CALLS	#1, LIB\$PUT_OUTPUT		
	50		01	D0	MOVL	#1, R0		0231
			04	00118	RET			
			50	D4	CLRL	R0		0232
			04	0011B	RET			

; Routine Size: 284 bytes, Routine Base: \$CODE\$ + 0000

SETCLUSTER
V04-000

/QUORUM = q

D 9
16-Sep-1984 00:42:29
14-Sep-1984 12:09:00

VAX-11 Bliss-32 V4.0-742
[CLIUTL.SRC]SETCLUSTER.B32;1

Page 8
(4)

SETCLUSTER
V04-000

/QUORUM = q

E 9
16-Sep-1984 00:42:29
14-Sep-1984 12:09:00

VAX-11 Bliss-32 V4.0-742
[CLIUTL.SRC]SETCLUSTER.B32;1

Page 9
(5)

: 237 0233 1 END
: 238 0234 0 ELUDOM

.EXTRN LIB\$SIGNAL, LIB\$STOP

PSECT SUMMARY

Name	Bytes	Attributes
SPLITS	68	NOVEC,NOWRT, RD ,NOEXE,NOSHR, LCL, REL, CON,NOPIC,ALIGN(2)
SOWNS	8	NOVEC, WRT, RD ,NOEXE,NOSHR, LCL, REL, CON,NOPIC,ALIGN(2)
SCODES	284	NOVEC,NOWRT, RD , EXE,NOSHR, LCL, REL, CON,NOPIC,ALIGN(2)

Library Statistics

File	Total	Symbols Loaded	Percent	Pages Mapped	Processing Time
_\$255\$DUA28:[SYSLIB]LIB.L32;1	18619	14	0	1000	00:01.9
-\$255\$DUA28:[SYSLIB]CLIMAC.L32;1	14	0	0	9	00:00.1

COMMAND QUALIFIERS

BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS\$:SETCLUSTER/OBJ=OBJ\$:SETCLUSTER MSRCS:SETCLUSTER/UPDATE=(ENHS:SETCLUSTER)

: Size: 284 code + 76 data bytes
: Run Time: 00:07.6
: Elapsed Time: 00:29.5
: Lines/CPU Min: 1852
: Lexemes/CPU-Min: 11715
: Memory Used: 103 pages
: Compilation Complete

0052 AH-BT13A-SE
VAX/VMS V4.0

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