



```
CCCCCCCC  AAAAAA  LL
CCCCCCCC  AAAAAA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CC         AA      AA  LL
CCCCCCCC  AA      AA  LLLLLLLLLL
CCCCCCCC  AA      AA  LLLLLLLLLL

CCCCCCCC  MM      MM  AAAAAA  XX      XX
CCCCCCCC  MM      MM  AAAAAA  XX      XX
CC         MMMM  MMMM  AA      AA  XX      XX
CC         MMMM  MMMM  AA      AA  XX      XX
CC         MM   MM  MM  AA      AA  XX      XX
CC         MM   MM  MM  AA      AA  XX      XX
CC         MM   MM  MM  AA      AA  XX      XX
CC         MM   MM  MM  AAAAAAAA  XX      XX
CC         MM   MM  MM  AAAAAAAA  XX      XX
CC         MM   MM  MM  AA      AA  XX      XX
CC         MM   MM  MM  AA      AA  XX      XX
CC         MM   MM  MM  AA      AA  XX      XX
CC         MM   MM  MM  AA      AA  XX      XX
CCCCCCCC  MM      MM  AA      AA  XX      XX
CCCCCCCC  MM      MM  AA      AA  XX      XX
.....
.....
.....
.....
```

```
LL         IIIIII  SSSSSSSS
LL         IIIIII  SSSSSSSS
LL         II      SS
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         II      SS
LLLLLLLLLL IIIIII  SSSSSSSS
LLLLLLLLLL IIIIII  SSSSSSSS
```

(1)	2	copyright notice
(1)	29	Program description
(2)	48	storage definitions
(3)	57	calculate_max -- entry point for this module

```
0000 1 .title calcmax - calculate maximum retention period
0000 2 .sbttl copyright notice
0000 3 .ident 'V04-000'
0000 4 :
0000 5 :*****
0000 6 :*
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0000 27 :
```

```
0000 29 .sbttl Program description
0000 30 :++
0000 31 Facility: SET VOLUME
0000 32 :
0000 33 Abstract: This module calculates the maximum retention period for files,
0000 34 given the minimum retention period.
0000 35 :
0000 36 Environment: Native mode, user mode
0000 37 :
0000 38 Author: Gerry Smith Creation Date: 01-Jan-1982
0000 39 :
0000 40 Modified by:
0000 41 :
0000 42 V03-001 GAS0077 Gerry Smith 23-Apr-1982
0000 43 Instead of returning 7 days, return the minimum period
0000 44 plus 7 days.
0000 45 :
0000 46 :--
```

```
0000 48 .sbttl storage definitions
0000 49 :
0000 50 : storage definitions
0000 51 :
00000000 52 .psect set$rodata,nowrt,noexe
0000 53
FFFFFA7F D71BC000 0000 54 bin_seven:
0000 55 .long ^XD71BC000,^XFFFFFA7F ; Delta time of 7 days
```

```

0008 57      .sbtbl calculate_max -- entry point for this module
0008 58      :++
0008 59      :
0008 60      : The minimum retention period is doubled and compared against the
0008 61      : 64-bit system time representing the minimum retention period plus
0008 62      : 7 days. Whichever value is smaller is used.
0008 63      :
0008 64      : Inputs:
0008 65      : 4(ap) - address of RETMIN_VALUE, the minimum retention period,
0008 66      :           expressed in 64-bit system time format
0008 67      : 8(ap) - address of RETMAX_VALUE, the maximum retention period.
0008 68      :
0008 69      : Outputs:
0008 70      : RETMAX_VALUE is computed and returned.
0008 71      :
0008 72      :--
0008 73
00FC 0008 74      .entry calculate_max,^m<r2,r3,r4,r5,r6,r7>
000A 75
000A 76
000A 77      : Double the minimum retention period. Since this is in quadword format,
000A 78      : a little extra work is required. First the low order longwords are added,
000A 79      : and then the high order longwords, with the carry bit from the addition of
000A 80      : the low order addition.
000A 81
000A 82
52  04 BC 7D 000A 83      movq    @4(ap),r2      : Put minimum period in r2/r3
54  52 7D 000E 84      movq    r2,r4         : Also put it in r4/r5
54  52 C0 0011 85      addl2  r2,r4         : Add low half
55  53 D8 0014 86      adwc   r3,r5         : Add high half including carry
0017 87
0017 88
0017 89      : Now take the minimum value and add the seven-day value to it.
0017 90
0017 91
56  E6 AF 7D 0017 92      movq    bin_seven,r6   : Get a copy of binary seven days
56  52 C0 001B 93      addl2  r2,r6         : Add low half of minimum
57  53 D8 001E 94      adwc   r3,r7         : Add high half
0021 95
0021 96
0021 97      : Compare the doubled value to the minimum plus seven days.
0021 98
0021 99
57  55 D1 0021 100     cmpl   r5,r7         : Compare high longwords
56  03 12 0024 101     bneq  5$,          :
56  54 D1 0026 102     cmpl   r4,r6         : Compare low longwords
56  06 14 0029 103 5$:  bgtr   10$,          : If less, then use twice the retention peri
002B 104
08 BC 56 7D 002B 105     movq   r6,@8(ap)     : Otherwise return minimum plus seven days
04  11 002F 106     brb   20$,          :
0031 107
08 BC 54 7D 0031 108 10$:  movq   r4,@8(ap)     : Return the doubled minimum retention
0035 109
04  0035 110 20$:  ret
0036 111      .end

```

CALCMAX - calculate maximum retention period<sup>D 4</sup>  
Symbol table

15-SEP-1984 23:37:19 VAX/VMS Macro V04-00  
4-SEP-1984 23:14:52 [CLIUTL.SRC]CALCMAX.MAR;1

Page 5  
(3)

BIN SEVEN 00000000 R 01  
CALCULATE\_MAX 00000008 RG 01

+-----+  
! Psect synopsis !  
+-----+

PSECT name	Allocation	PSECT No.	Attributes															
ABS	00000000 ( 0.)	00 ( 0.)	NOPIC	USR	CON	ABS	LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE					
SETSRODATA	00000036 ( 54.)	01 ( 1.)	NOPIC	USR	CON	REL	LCL	NOSHR	NOEXE	RD	NOWRT	NOVEC	BYTE					

+-----+  
! Performance indicators !  
+-----+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	23	00:00:00.09	00:00:00.55
Command processing	120	00:00:01.00	00:00:04.61
Pass 1	66	00:00:00.40	00:00:01.17
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	38	00:00:00.25	00:00:00.70
Symbol table output	1	00:00:00.01	00:00:00.01
Psect synopsis output	1	00:00:00.03	00:00:00.44
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	251	00:00:01.78	00:00:07.48

The working set limit was 600 pages.  
1417 bytes (3 pages) of virtual memory were used to buffer the intermediate code.  
There were 10 pages of symbol table space allocated to hold 2 non-local and 3 local symbols.  
111 source lines were read in Pass 1, producing 13 object records in Pass 2.  
0 pages of virtual memory were used to define 0 macros.

+-----+  
! Macro library statistics !  
+-----+

Macro library name	Macros defined
_\$255\$DUA28:[CLIUTL.OBJ]CLIUTL.MLB;1	0
-\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	0
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	0
TOTALS (all libraries)	0

0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:CALCMAX/OBJ=OBJ\$:CALCMAX MSRC\$:CALCMAX/UPDATE=(ENH\$:CALCMAX)+EXECML\$/LIB+LIB\$:CLIUTL/LIB



0049 AH-BT13A-SE  
VAX/VMS V4.0

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BCPR5DEF  
REQ

CVCLTATB  
LIS

INFO  
LIS

TYPE  
REQ

CHR SUB  
LIS

CVCLINUM  
LIS

SHODEVDEF  
REQ

CLTMAC  
MAR

CVCLIFRM  
LIS

DIGRAMS  
LIS

CALCMAX  
LIS

CLTUTLMAC  
MAR

CUTTIME  
LIS

BCMDPRS  
LIS

SHOWDEF  
REQ

CREATE  
LIS