```
LLL              IIIIIIIII    BBBBBBBBBBBB   RRRRRRRRRRR   TTTTTTTTTTTTTTT  LLL
LLL              IIIIIIIII    BBBBBBBBBBBB   RRRRRRRRRRR   TTTTTTTTTTTTTTT  LLL
LLL              IIIIIIIII    BBBBBBBBBBBB   RRRRRRRRRRR   TTTTTTTTTTTTTTT  LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT        LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT        LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT        LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT        LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT        LLL
LLL                 III       BBBBBBBBBBBB   RRRRRRRRRRR        TTT        LLL
LLL                 III       BBBBBBBBBBBB   RRRRRRRRRRR        TTT        LLL
LLL                 III       BBB      BBB   RRR   RRR          TTT        LLL
LLL                 III       BBB      BBB   RRR   RRR          TTT        LLL
LLL                 III       BBB      BBB   RRR   RRR          TTT        LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT        LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT        LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT        LLL
LLLLLLLLLLLLLLL  IIIIIIIII    BBBBBBBBBBBB   RRR      RRR        TTT        LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL  IIIIIIIII    BBBBBBBBBBBB   RRR      RRR        TTT        LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL  IIIIIIIII    BBBBBBBBBBBB   RRR      RRR        TTT        LLLLLLLLLLLLLLL
```

FILEID**LIBATTACH

```
LL          IIIIII  BBBBBBBB      AAAAAA   TTTTTTTTTT TTTTTTTTTT    AAAAAA   CCCCCCCC HH        HH
LL          IIIIII  BBBBBBBB      AAAAAA   TTTTTTTTTT TTTTTTTTTT    AAAAAA   CCCCCCCC HH        HH
LL            II    BB      BB  AA      AA     TT         TT      AA      AA CC       HH        HH
LL            II    BB      BB  AA      AA     TT         TT      AA      AA CC       HH        HH
LL            II    BB      BB  AA      AA     TT         TT      AA      AA CC       HH        HH
LL            II    BB      BB  AA      AA     TT         TT      AA      AA CC       HH        HH
LL            II    BBBBBBBB    AA      AA     TT         TT      AA      AA CC       HHHHHHHHHH
LL            II    BBBBBBBB    AA      AA     TT         TT      AA      AA CC       HHHHHHHHHH
LL            II    BB      BB  AAAAAAAAAA     TT         TT      AAAAAAAAAA CC       HH        HH
LL            II    BB      BB  AAAAAAAAAA     TT         TT      AAAAAAAAAA CC       HH        HH
LL            II    BB      BB  AA      AA     TT         TT      AA      AA CC       HH        HH
LL            II    BB      BB  AA      AA     TT         TT      AA      AA CC       HH        HH   ....
LLLLLLLLLL  IIIIII  BBBBBBBB    AA      AA     TT         TT      AA      AA CCCCCCCC HH        HH   ....
LLLLLLLLLL  IIIIII  BBBBBBBB    AA      AA     TT         TT      AA      AA CCCCCCCC HH        HH   ....

LL          IIIIII    SSSSSSSS
LL          IIIIII    SSSSSSSS
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    0001   0  %TITLE 'LIB$ATTACH - Attach terminal to command subprocess'
   2    0002   0  MODULE LIB$ATTACH (
   3    0003   0                    IDENT = '1-002'           ! File: LIBATTACH.B32 Edit: MDL1002
   4    0004   0                    ) =
   5    0005   1  BEGIN
   6    0006   1  !
   7    0007   1  !**********************************************************************
   8    0008   1  !*                                                                    *
   9    0009   1  !*    COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                         *
  10    0010   1  !*    DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.          *
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  21    0021   1  !*    AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT  *
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  23    0023   1  !*                                                                    *
  24    0024   1  !*    DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS  *
  25    0025   1  !*    SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.         *
  26    0026   1  !*                                                                    *
  27    0027   1  !*                                                                    *
  28    0028   1  !**********************************************************************
  29    0029   1  !
  30    0030   1
  31    0031   1  !++
  32    0032   1  ! FACILITY:        General Utility Library
  33    0033   1  !
  34    0034   1  ! ABSTRACT:
  35    0035   1  !
  36    0036   1  !        This module contains LIB$ATTACH, a procedure to attach the
  37    0037   1  !        user's terminal to a command subprocess
  38    0038   1  !
  39    0039   1  ! ENVIRONMENT:  User mode - AST reentrant
  40    0040   1  !
  41    0041   1  ! AUTHOR: Steven B. Lionel, CREATION DATE: 15-Dec-1981
  42    0042   1  !
  43    0043   1  ! MODIFIED BY:
  44    0044   1  !
  45    0045   1  ! 1-001 - Original.  SBL 15-Dec-1981
  46    0046   1  ! 1-002 - Map CLI$_TRMMBX to LIB$_ATTREQREF.  MDL 10-Sep-1984
  47    0047   1  !--
  48    0048   1
```

L 11

LIBSATTACH   LIBSATTACH - Attach terminal to command subproc 16-Sep-1984 00:37:13   VAX-11 Bliss-32 V4.0-742   Page 2
1-002   Declarations   14-Sep-1984 12:38:25   [LIBRTL.SRC]LIBATTACH.B32;2   (2)

```
  50      004y   1 %SBTTL 'Declarations'
  51      0050   1 !
  52      0051   1 ! SWITCHES:
  53      0052   1 !
  54      0053   1 !
  55      0054   1 SWITCHES ADDRESSING_MODE (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
  56      0055   1
  57      0056   1 !
  58      0057   1 ! LINKAGES:
  59      0058   1 !
  60      0059   1 !       NONE
  61      0060   1 !
  62      0061   1 ! TABLE OF CONTENTS:
  63      0062   1 !
  64      0063   1 !
  65      0064   1 FORWARD ROUTINE
  66      0065   1     LIBSATTACH;                                 ! Sample routine
  67      0066   1
  68      0067   1 !
  69      0068   1 ! INCLUDE FILES:
  70      0069   1 !
  71      0070   1
  72      0071   1 LIBRARY 'RTLSTARLE';                            ! System symbols, typically from SYS$LIBRARY:STARLET.L32
  73      0072   1
  74      0073   1 REQUIRE 'RTLIN:RTLPSECT';                       ! Define PSECT declarations macros
  75      0168   1
  76      0169   1 REQUIRE 'RTLML:CLIMSG';                         ! CLIS_ messages
  77      0449   1
  78      0450   1 !
  79      0451   1 ! MACROS:
  80      0452   1 !
  81      0453   1 !       NONE
  82      0454   1 !
  83      0455   1 ! EQUATED SYMBOLS:
  84      0456   1 !
  85      0457   1 !       NONE
  86      0458   1 !
  87      0459   1 ! FIELDS:
  88      0460   1 !
  89      0461   1 !       NONE
  90      0462   1 !
  91      0463   1 ! PSECTS:
  92      0464   1 !
  93      0465   1
  94      0466   1 DECLARE_PSECTS (LIB);                           ! Declare PSECTs for LIB$ facility
  95      0467   1
  96      0468   1 !
  97      0469   1 ! OWN STORAGE:
  98      0470   1 !
  99      0471   1 !       NONE
 100      0472   1 !
 101      0473   1 ! EXTERNAL REFERENCES:
 102      0474   1 !
 103      0475   1
 104      0476   1 EXTERNAL ROUTINE
 105      0477   1     SYS$CLI;                                    ! Request CLI callback
 106      0478   1
```

```
  107    0479  1 EXTERNAL LITERAL                            ! Condition value symbols
  108    0480  1     LIBS_INVARG,                            ! Invalid argument
  109    0481  1     LIBS_NOCLI,                             ! No CLI present
  110    0482  1     LIBS_ATTREQREF;                         ! Attach request refused
  111    0483  1     LIBS_UNECLIERR;                         ! Unexpected CLI error
  112    0484  1
```

N 11

LIB$ATTACH   LIB$ATTACH - Attach terminal to command subproc 16-Sep-1984 00:37:13   VAX-11 Bliss-32 V4.0-742   Page 4   LI
1-002   LIB$ATTACH - Attach terminal to command subproc 14-Sep-1984 12:38:25   [LIBRTL.SRC]LIBATTACH.B32;2   (3)   1-

```
 114    0485   1   %SBTTL 'LIB$ATTACH - Attach terminal to command subprocess'
 115    0486   1   GLOBAL ROUTINE LIB$ATTACH (
 116    0487   1       PROCESS_ID: REF VECTOR [, LONG]      ! PID of process to attach to
 117    0488   1       ) =
 118    0489   1
 119    0490   1   !++
 120    0491   1   ! FUNCTIONAL DESCRIPTION:
 121    0492   1   !
 122    0493   1   !       LIB$ATTACH requests the calling process's Command Language Interpreter
 123    0494   1   !       (CLI) to detach the terminal of the calling process and to reattach it
 124    0495   1   !       to a different process.  The calling process is put into hibernation.
 125    0496   1   !       It provides the same function as the DCL ATTACH command.
 126    0497   1   !
 127    0498   1   ! CALLING SEQUENCE:
 128    0499   1   !
 129    0500   1   !       status.wlc.v = LIB$ATTACH (process_id.rlu.r)
 130    0501   1   !
 131    0502   1   ! FORMAL PARAMETERS:
 132    0503   1   !
 133    0504   1   !       PROCESS_ID
 134    0505   1   !               The process identification of the process to be attached to,
 135    0506   1   !               passed by reference. The specified process must be part of the
 136    0507   1   !               caller's job.
 137    0508   1   !
 138    0509   1   ! IMPLICIT INPUTS:
 139    0510   1   !
 140    0511   1   !       NONE
 141    0512   1   !
 142    0513   1   ! IMPLICIT OUTPUTS:
 143    0514   1   !
 144    0515   1   !       NONE
 145    0516   1   !
 146    0517   1   ! COMPLETION STATUS:
 147    0518   1   !
 148    0519   1   !       SS$_NORMAL        Normal successful completion
 149    0520   1   !       SS$_NONEXPR       Nonexistent process
 150    0521   1   !       LIB$_INVARG       Invalid argument
 151    0522   1   !       LIB$_NOCLI        No CLI to perform function
 152    0523   1   !       LIB$_ATTREQREF    Attach request refused
 153    0524   1   !       LIB$_UNECLIERR    Unexpected CLI error
 154    0525   1   !
 155    0526   1   ! SIDE EFFECTS:
 156    0527   1   !
 157    0528   1   !       The caller's process is put into hibernation and the user's
 158    0529   1   !       terminal is attached to the designated subprocess.  When the
 159    0530   1   !       user reattaches to the calling process, this procedure will return.
 160    0531   1   !
 161    0532   1   !--
 162    0533   1
 163    0534   2       BEGIN
 164    0535   2
 165    0536   2       BUILTIN
 166    0537   2           NULLPARAMETER;
 167    0538   2
 168    0539   2       LOCAL
 169    0540   2           CLI_DESC: BLOCK [CLI$K_SRVDESC, BYTE],   ! CLI service descriptor
 170    0541   2           RETURN_STATUS: BLOCK [4, BYTE];
```

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LIBSATTACH   LIBSATTACH - Attach terminal to command subproc 16-Sep-1984 00:37:13   VAX-11 Bliss-32 V4.0-742   Page 5   LIE
1-002   LIBSATTACH - Attach terminal to command subproc 14-Sep-1984 12:38:25   [LIBRTL.SRC]LIBATTACH.B32;2   (3)   1-C

```
171    0542  2          !+
172    0543  2          ! Check for a valid argument.
173    0544  2          !-
174    0545  2
175    0546  2
176    0547  2          IF NULLPARAMETER (1)
177    0548  2          THEN
178    0549  2              RETURN LIB$_INVARG;                              . Invalid argument
179    0550  2
180    0551  2          !+
181    0552  2          ! Fill in request descriptor
182    0553  2          !-
183    0554  2
184    0555  2          CH$FILL (0, CLI$K_SRVDESC, CLI_DESC);
185    0556  2          CLI_DESC [CLI$B_RQTYPE] = CLI$K_CLISERV;
186    0557  2          CLI_DESC [CLI$W_SERVCOD] = CLI$K_ATTACH;
187    0558  2          CLI_DESC [CLI$L_PID] = .PROCESS_ID [0];
188    0559  2
189    0560  2          !+
190    0561  2          ! Call CLI with request.
191    0562  2          !-
192    0563  2
193    0564  2          RETURN_STATUS = SYS$CLI (CLI_DESC);
194    0565  2
195    0566  2          !+
196    0567  2          ! Adjust error return status, if any.
197    0568  2          !-
198    0569  2
199    0570  3          IF NOT .RETURN_STATUS AND (.RETURN_STATUS [STS$V_FAC_NO] EQL CLI$_FACILITY)
200    0571  2          THEN
201    0572  3              RETURN_STATUS = (
202    0573  3                  SELECTONE .RETURN_STATUS OF
203    0574  3                      SET
204    0575  3                      [CLI$_INVREQTYP] :      LIB$_NOCLI;
205    0576  3                      [CLI$_REFUSED,CLI$_TRMMBX] :
206    0577  3                                              LIB$_ATTREQREF;
207    0578  3                      [OTHERWISE] :           LIB$_UNECLIERR;
208    0579  2                      TES);
209    0580  2
210    0581  2          RETURN .RETURN_STATUS;
211    0582  2
212    0583  1          END;                                     ! End of routine LIBSATTACH


                                                        .TITLE   LIBSATTACH LIBSATTACH - Attach terminal to comm
                                                                        and subproc
                                                        .IDENT   \1-002\

                                                        .EXTRN   SYS$CLI, LIB$_INVARG
                                                        .EXTRN   LIB$_NOCLI, LIB$_ATTREQREF
                                                        .EXTRN   LIB$_UNECLIERR

                                                        .PSECT   _LIB$CODE,NOWRT,  SHR,  PIC,2

                              003C 00000                .ENTRY   LIBSATTACH, Save R2,R3,R4,R5           ; 0486
                    5E    AC  AE   9E 00002              MOVAB    -84(SP), SP                           ;
                              6C   95 00006              TSTB     (AP)                                  ; 0547
```

```
                                       05 13 00008        BEQL    1$
                                04     AC D5 0000A        TSTL    4(AP)
                                       08 12 0000D        BNEQ    2$
                           50 00000000G 8F D0 0000F 1$:   MOVL    #LIB$_INVARG, R0                      : 0549
                                       04    00016        RET
  0054  8F            00        6E     00 2C 00017 2$:     MOVC5   #0, (SP), #0, #84, CLI_DESC           : 0555
                                6E        0001E
                                6E     05 90 0001F        MOVB    #5, CLI_DESC                          : 0556
                         01    AE     10 B0 00022        MOVW    #16, CLI_DESC+1                       : 0557
                         04    AE  04 BC    00026        MOVL    @PROCESS_ID, CLI_DESC+4              : 0558
                                5E DD 0002B        PUSHL   SP                                   : 0564
                   00000000G 00        01 FB 0002D        CALLS   #1, SYS$CLI
                                39     50 E8 00034        BLBS    RETURN_STATUS, 6$                     : 0570
          03             50        0C 10 ED 00037        CMPZV   #16, #12, RETURN_STATUS, #3
                                32 12 0003C        BNEQ    6$
                     00038822 8F     50 D1 0003E        CMPL    RETURN_STATUS, #231458               : 0575
                                08 12 00045        BNEQ    3$
                           50 00000000G 8F D0 00047        MOVL    #LIB$_NOCLI, RETURN_STATUS
                                       04 0004E        RET
                     000388C2 8F     50 D1 0004F 3$:   CMPL    RETURN_STATUS, #231618               : 0576
                                09 13 00056        BEQL    4$
                     000388F2 8F     50 D1 00058        CMPL    RETURN_STATUS, #231666
                                08 12 0005F        BNEQ    5$
                           50 00000000G 8F D0 00061 4$:   MOVL    #LIB$_ATTREQREF, RETURN_STATUS
                                       04 00068        RET
                           50 00000000G 8F D0 00069 5$:   MOVL    #LIB$_UNECLIERR, RETURN_STATUS      : 0578
                                       04 00070 6$:   RET                                      : 0583
```

; Routine Size: 113 bytes,   Routine Base: _LIB$CODE + 0000

; 213   0584   1 !<BLF/PAGE>

LIB
Sym

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LIB
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MAC

D 12
LIBSATTACH   LIBSATTACH - Attach terminal to command subproc 16-Sep-1984 00:37:13   VAX-11 Bliss-32 V4.0-742   Page 7
1-002   LIBSATTACH - Attach terminal to command subproc 14-Sep-1984 12:38:25   [LIBRTL.SRC]LIBATTACH.B32;2   (4)   **

```
; 215    0585  1 END                                    ! End of module LIBSATTACH
; 216    0586  1
; 217    0587  0 ELUDOM
```

PSECT SUMMARY

Name	Bytes	Attributes
_LIBSCODE	113	NOVEC,NOWRT, RD , EXE, SHR, LCL, REL, CON, PIC,ALIGN(2)

Library Statistics

File	------- Symbols -------			Pages Mapped	Processing Time
	Total	Loaded	Percent		
_255DUA28:[SYSLIB]STARLET.L32;1	9776	1	0	581	00:00.7

COMMAND QUALIFIERS

```
    BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS$:LIBATTACH/OBJ=OBJ$:LIBATTACH MSRC$:LIBATTACH/UPDATE=(ENH$:LIBATTACH
    )
```

```
; Size:         113 code + 0 data bytes
; Run Time:          00:09.1
; Elapsed Time:      00:39.8
; Lines/CPU Min:     3887
; Lexemes/CPU-Min: 98523
; Memory Used:  92 pages
; Compilation Complete
```

RTLMACMAR
MAR

LIBASCEBC
LIS

LIBASTINP
LIS

RTLMACB32
REQ

STRMACROS
REQ

LIBBINTRE
LIS

RTLODBG
REQ

LIBDEF
FOR

LIBANASTR
LIS

LIBASNMBX
LIS

LIBBBCCI
LIS

LIBCHAR
LIS

LIBABUPCA
LIS

LIBADDX
LIS

RTLPSECT
REQ

SIGDEF
FOR

LIBASCTIM
LIS

LIBTABMAC
MAR

LIBATTACH
LIS

STRLNK
REQ

LIBA2EREV
LIS

LIBBBSSI
LIS

LIBCALLG
LIS

LIBCLICAL
LIS

LIBADDP
LIS