```
                                                       M 1

BBBBBBBBBBBB        AAAAAAAAA        SSSSSSSSSSSS  RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
BBBBBBBBBBBB        AAAAAAAAA        SSSSSSSSSSSS  RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
BBBBBBBBBBBB        AAAAAAAAA        SSSSSSSSSSSS  RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
BBB         BBB  AAA         AAA  SSS              RRR         RRR        TTT        LLL
BBB         BBB  AAA         AAA  SSS              RRR         RRR        TTT        LLL
BBB         BBB  AAA         AAA  SSS              RRR         RRR        TTT        LLL
BBB         BBB  AAA         AAA  SSS              RRR         RRR        TTT        LLL
BBB         BBB  AAA         AAA  SSS              RRR         RRR        TTT        LLL
BBB         BBB  AAA         AAA  SSS              RRR         RRR        TTT        LLL
BBBBBBBBBBBB     AAA         AAA     SSSSSSSSS     RRRRRRRRRRRR           TTT        LLL
BBBBBBBBBBBB     AAA         AAA     SSSSSSSSS     RRRRRRRRRRRR           TTT        LLL
BBBBBBBBBBBB     AAA         AAA     SSSSSSSSS     RRRRRRRRRRRR           TTT        LLL
BBB         BBB  AAAAAAAAAAAAAAA              SSS  RRR   RRR              TTT        LLL
BBB         BBB  AAAAAAAAAAAAAAA              SSS  RRR   RRR              TTT        LLL
BBB         BBB  AAAAAAAAAAAAAAA              SSS  RRR   RRR              TTT        LLL
BBB         BBB  AAA         AAA              SSS  RRR      RRR           TTT        LLL
BBB         BBB  AAA         AAA              SSS  RRR      RRR           TTT        LLL
BBB         BBB  AAA         AAA              SSS  RRR      RRR           TTT        LLL
BBBBBBBBBBBB     AAA         AAA  SSSSSSSSSSSS     RRR         RRR        TTT        LLLLLLLLLLLLLLL
BBBBBBBBBBBB     AAA         AAA  SSSSSSSSSSSS     RRR         RRR        TTT        LLLLLLLLLLLLLLL
BBBBBBBBBBBB     AAA         AAA  SSSSSSSSSSSS     RRR         RRR        TTT        LLLLLLLLLLLLLLL
```

```
**FILE**ID**BASFETCHD                                        C  3
```

```
BBBBBBBB      AAAAAA      SSSSSSSS  FFFFFFFFFF  EEEEEEEEEE  TTTTTTTTTT    CCCCCCCC  HH      HH  DDDDDDDD
BBBBBBBB      AAAAAA      SSSSSSSS  FFFFFFFFFF  EEEEEEEEEE  TTTTTTTTTT    CCCCCCCC  HH      HH  DDDDDDDD
BB      BB  AA      AA  SS          FF          EE              TT      CC          HH      HH  DD      DD
BB      BB  AA      AA  SS          FF          EE              TT      CC          HH      HH  DD      DD
BB      BB  AA      AA  SS          FF          EE              TT      CC          HH      HH  DD      DD
BB      BB  AA      AA  SS          FF          EE              TT      CC          HH      HH  DD      DD
BBBBBBBB    AA      AA    SSSSSS    FFFFFFFF    EEEEEEEE        TT      CC          HHHHHHHHHH  DD      DD
BBBBBBBB    AA      AA    SSSSSS    FFFFFFFF    EEEEEEEE        TT      CC          HHHHHHHHHH  DD      DD
BB      BB  AAAAAAAAAA          SS  FF          EE              TT      CC          HH      HH  DD      DD
BB      BB  AAAAAAAAAA          SS  FF          EE              TT      CC          HH      HH  DD      DD
BB      BB  AA      AA          SS  FF          EE              TT      CC          HH      HH  DD      DD      ....
BB      BB  AA      AA          SS  FF          EE              TT      CC          HH      HH  DD      DD      ....
BBBBBBBB    AA      AA  SSSSSSSS    FF          EEEEEEEEEE      TT        CCCCCCCC  HH      HH  DDDDDDDD        ....
BBBBBBBB    AA      AA  SSSSSSSS    FF          EEEEEEEEEE      TT        CCCCCCCC  HH      HH  DDDDDDDD        ....

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
```

```
0 MODULE BAS$FETCH_DESC (                               ! Fetch descriptor from array
0                      IDENT = '1-002'                   ! File: BASFETCHD.B32 Edit: PLL10002
0                      ) =
1 BEGIN
1 !
1 !****************************************************************************
1 !*                                                                          *
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1 !*                                                                          *
1 !*                                                                          *
1 !****************************************************************************
1 !
1
1 !++
1 ! FACILITY:  BASIC Language Support
1 !
1 ! ABSTRACT:
1 !
1 !       Fetch an element from an array of descriptors.  Return the
1 !       address of the descriptor.
1 !
1 ! ENVIRONMENT:  VAX-11 User Mode
1 !
1 ! AUTHOR: Pamela L. Levesque, CREATION DATE: 2-Mar-1982
1 !
1 ! MODIFIED BY:
1 !
1 ! 1-001 - Original.  PLL 2-Mar-1982
1 ! 1-002 - Offset for 1st index is 1, not 2.  PLL 19-Mar-1982
1 !--
1
1 !<BLF/PAGE>
```

```
;   50      0049  1 !
;   51      0050  1 ! SWITCHES:
;   52      0051  1 !
;   53      0052  1
;   54      0053  1 SWITCHES ADDRESSING_MODE (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
;   55      0054  1
;   56      0055  1 !
;   57      0056  1 ! LINKAGES:
;   58      0057  1 !
;   59      0058  1 !    NONE
;   60      0059  1 !
;   61      0060  1 !
;   62      0061  1 ! TABLE OF CONTENTS:
;   63      0062  1 !
;   64      0063  1
;   65      0064  1 FORWARD ROUTINE
;   66      0065  1     BAS$FETCH_DESC;                               ! Fetch descriptor from array
;   67      0066  1
;   68      0067  1 !
;   69      0068  1 ! INCLUDE FILES:
;   70      0069  1 !
;   71      0070  1
;   72      0071  1 REQUIRE 'RTLIN:RTLPSECT';                        ! Macros for defining psects
;   73      0166  1
;   74      0167  1 LIBRARY 'RTLSTARLE';                             ! System symbols
;   75      0168  1
;   76      0169  1 !
;   77      0170  1 ! MACROS:
;   78      0171  1 !
;   79      0172  1 !       NONE
;   80      0173  1 !
;   81      0174  1 ! EQUATED SYMBOLS:
;   82      0175  1 !
;   83      0176  1 !       NONE
;   84      0177  1 !
;   85      0178  1 ! PSECTS:
;   86      0179  1 !
;   87      0180  1 DECLARE_PSECTS (BAS);                            ! Declare psects for BAS$ facility
;   88      0181  1 !
;   89      0182  1 ! OWN STORAGE:
;   90      0183  1 !
;   91      0184  1 !       NONE
;   92      0185  1 !
;   93      0186  1 ! EXTERNAL REFERENCES:
;   94      0187  1 !
;   95      0188  1 EXTERNAL ROUTINE
;   96      0189  1     BAS$$STOP : NOVALUE;                          ! Signal fatal error
;   97      0190  1
;   98      0191  1 EXTERNAL LITERAL
;   99      0192  1     BAS$K_ARGDONMAT : UNSIGNED (8),
;  100      0193  1     BAS$K_NOTIMP : UNSIGNED (8),
;  101      0194  1     BAS$K_SUBOUTRAN : UNSIGNED (8),
;  102      0195  1     BAS$K_TOOFEWARG : UNSIGNED (8),
;  103      0196  1     BAS$K_TOOMANARG : UNSIGNED (8);
;  104      0197  1
;  105      0198  1
```

```
1 GLOBAL ROUTINE BAS$FETCH_DESC (                         ! Fetch descriptor from array
1         DESCRIP,                                        ! The descriptor
1         INDEX1                                          ! First index
1     ) : =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       Given a descriptor for the array and the indices, calculate
1 !       the address of an element.  This element will be a descriptor.
1 !       Take into account that this may be a FORTRAN array.  This routine
1 !       does not handle virtual arrays.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       DESCRIP.rx.da   The descriptor of the array
1 !       INDEX1.rl.v     The first index into the array.  More indicies
1 !                       may follow this one in the calling sequence.
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !
1 !       The address of the descriptor is returned
1 !
1 ! COMPLETION CODES:
1 !
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !
1 !       Signals if an error is encountered.
1 !
1 !--
1
2     BEGIN
2
2     BUILTIN
2         ACTUALCOUNT,
2         ACTUALPARAMETER;
2
2     LOCAL
2         INDEX_VALUE,
2         VALUE_LOCATION,
2         MULTIPLIERS : REF VECTOR,
2         BOUNDS : REF VECTOR,
2         LOW_INDEX,
2         HIGH_INDEX,
2         INDEX_INCR,
2         INDEX_NUMBER;
2
```

```
2       MAP
2           DESCRIP : REF BLOCK [8, BYTE];
2
2   !+
2   ! Be sure the number of array subscripts matches the number of
2   ! indicies given to us.
2   !-
2
3       IF ((ACTUALCOUNT () - 1) NEQU .DESCRIP [DSC$B_DIMCT])
2       THEN
3           BEGIN
3
4           IF ((ACTUALCOUNT () - 1) LSSU .DESCRIP [DSC$B_DIMCT])
3           THEN
3               BAS$$STOP (BAS$K_TOOFEWARG)
3           ELSE
3               BAS$$STOP (BAS$K_TOOMANARG);
3
2           END;
2
2   !+
2   ! The coefficients and bounds must be present.
2   !-
2
2       IF ( NOT (.DESCRIP [DSC$V_FL_COEFF] AND .DESCRIP [DSC$V_FL_BOUNDS])) THEN BAS$$STOP (BAS$K_ARGDONMAT);
2
2       MULTIPLIERS = DESCRIP [DSC$L_M1];
2       BOUNDS = DESCRIP [DSC$L_M1] + (%UPVAL*.DESCRIP [DSC$B_DIMCT]);
2   !+
2   ! Compute the lower and upper index numbers based on how the array
2   ! is stored.
2   !-
2
3       IF (.DESCRIP [DSC$V_FL_COLUMN])
2       THEN
3           BEGIN
3           LOW_INDEX = .DESCRIP [DSC$B_DIMCT];
3           HIGH_INDEX = 1;
3           INDEX_INCR = -1;
3           END
2       ELSE
3           BEGIN
3           LOW_INDEX = 1;
3           HIGH_INDEX = .DESCRIP [DSC$B_DIMCT];
3           INDEX_INCR = 1;
2           END;
2
2       INDEX_NUMBER = .LOW_INDEX - .INDEX_INCR;
2   !+
2   ! Compute the linear index from the indices provided.
2   !-
2       VALUE_LOCATION = 0;
2
2       WHILE ((INDEX_NUMBER = .INDEX_NUMBER + .INDEX_INCR) NEQ (.HIGH_INDEX + .INDEX_INCR)) DO
3           BEGIN
3           INDEX_VALUE = ACTUALPARAMETER (.INDEX_NUMBER + 1);
3
```

```
;  221          0313  5          IF ((.INDEX_VALUE LSS .BOUNDS [(.INDEX_NUMBER - 1)*2])   !
;  222          0314  4              OR (.INDEX_VALUE GTR .BOUNDS [((.INDEX_NUMBER - 1)*2) + 1]))
;  223          0315  3          THEN
;  224          0316  3              BAS$$STOP (BAS$K_SUBOUTRAN);
;  225          0317  3
;  226          0318  3          VALUE_LOCATION = (.VALUE_LOCATION*.MULTIPLIERS [.INDEX_NUMBER - 1]) + .INDEX_VALUE;
;  227          0319  2          END;
;  228          0320  2
;  229          0321  2      VALUE_LOCATION = (.VALUE_LOCATION*.DESCRIP [DSC$W_LENGTH]) + .DESCRIP [DSC$A_A0];
;  230          0322  2
;  231          0323  2      RETURN .VALUE_LOCATION;
;  232          0324  2
;  233          0325  1      END;                                    ! end of BAS$FETCH_DESC

                                               .TITLE  BAS$FETCH_DESC
                                               .IDENT  \1-002\

                                               .EXTRN  BAS$$STOP, BAS$K_ARGDONMAT
                                               .EXTRN  BAS$K_NOTIMP, BAS$K_SUBOUTRAN
                                               .EXTRN  BAS$K_TOOFEWARG
                                               .EXTRN  BAS$K_TOOMANARG

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

                            07FC 00000         .ENTRY  BAS$FETCH_DESC, Save R2,R3,R4,R5,R6,R7,R8,- ; 0199
                                                       R9,R10                                      ;
             5A 00000000G  00  9E 00002        MOVAB   BAS$$STOP, R10                              ;
             50            6C  9A 00009        MOVZBL  (AP), R0                                    ; 0264
                           50  D7 0000C        DECL    R0                                          ;
             55     04     AC  D0 0000E        MOVL    DESCRIP, R5                                 ;
             52     0B     A5  9A 00012        MOVZBL  11(R5), R2                                  ;
             52            50  D1 00016        CMPL    R0, R2                                      ;
                           17  13 00019        BEQL    3$                                          ;
             50            6C  9A 0001B        MOVZBL  (AP), R0                                    ; 0268
                           50  D7 0001E        DECL    R0                                          ;
             52            50  D1 00020        CMPL    R0, R2                                      ;
                           06  1E 00023        BGEQU   1$                                          ;
             7E     00G    8F  9A 00025        MOVZBL  #BAS$K_TOOFEWARG, -(SP)                     ; 0270
                           04  11 00029        BRB     2$                                          ;
             7E     00G    8F  9A 0002B 1$:    MOVZBL  #BAS$K_TOOMANARG, -(SP)                     ; 0272
             6A            01  FB 0002F 2$:    CALLS   #1, BAS$$STOP                               ;
05      0A   A5            06  E1 00032 3$:    BBC     #6, 10(R5), 4$                              ; 0280
                    0A     A5  95 00037        TSTB    10(R5)                                      ;
                           07  19 0003A        BLSS    5$                                          ;
             7E     00G    8F  9A 0003C 4$:    MOVZBL  #BAS$K_ARGDONMAT, -(SP)                     ;
             6A            01  FB 00040        CALLS   #1, BAS$$STOP                               ;
             54     14     A5  9E 00043 5$:    MOVAB   20(R5), MULTIPLIERS                         ; 0282
             56     14 A542    DE 00047        MOVAL   20(R5)[R2], BOUNDS                          ; 0283
0B      0A   A5            05  E1 0004C        BBC     #5, 10(R5), 6$                              ; 0289
             51            52  D0 00051        MOVL    R2, LOW_INDEX                               ; 0292
             50            01  D0 00054        MOVL    #1, HIGH_INDEX                              ; 0293
             57            01  CE 00057        MNEGL   #1, INDEX_INCR                              ; 0294
                           09  11 0005A        BRB     7$                                          ; 0289
             51            01  D0 0005C 6$:    MOVL    #1, LOW_INDEX                               ; 0298
             50            52  D0 0005F        MOVL    R2, HIGH_INDEX                              ; 0299
             57            01  D0 00062        MOVL    #1, INDEX_INCR                              ; 0300
```

```
                         52            51         57 C3 00065 7$:     SUBL3   INDEX_INCR, LOW_INDEX, INDEX_NUMBER           ; 0303
                                                  53 D4 00069         CLRL    VALUE_LOCATION                                ; 0307
                         59            50         57 C1 0006B         ADDL3   INDEX_INCR, HIGH_INDEX, R9                    ; 0309
                                       52         57 C0 0006F 8$:     ADDL2   INDEX_INCR, INDEX_NUMBER                      ;
                                       59         52 D1 00072         CMPL    INDEX_NUMBER, R9                              ;
                                                  2A 13 00075         BEQL    11$                                           ;
                                       58    04 AC42 D0 00077         MOVL    4(AP)[INDEX_NUMBER], INDEX_VALUE              ; 0311
                         50            52         01 78 0007C         ASHL    #1, INDEX_NUMBER, R0                          ; 0313
                                  F8 A640         58 D1 00080         CMPL    INDEX_VALUE, -8(BOUNDS)[R0]                   ;
                                                  07 19 00085         BLSS    9$                                            ;
                                  FC A640         58 D1 00087         CMPL    INDEX_VALUE, -4(BOUNDS)[R0]                   ; 0314
                                                  07 15 0008C         BLEQ    10$                                           ;
                                       7E    00G  8F 9A 0008E 9$:     MOVZBL  #BAS$K_SUBOUTRAN, -(SP)                       ; 0316
                                       6A         01 FB 00092         CALLS   #1, BAS$$STOP                                 ;
                         50            53    FC A442 C5 00095 10$:    MULL3   -4(MULTIPLIERS)[INDEX_NUMBER], -              ; 0318
                                                                              VALUE_LOCATION, R0                            ;
                         53            50         58 C1 0009B         ADDL3   INDEX_VALUE, R0, VALUE_LOCATION               ;
                                                  CE 11 0009F         BRB     8$                                            ; 0309
                                       50         65 3C 000A1 11$:    MOVZWL  (R5), R0                                      ; 0321
                                       50         53 C4 000A4         MULL2   VALUE_LOCATION, R0                            ;
                         53            50    10   A5 C1 000A7         ADDL3   16(R5), R0, VALUE_LOCATION                    ;
                                       50         53 D0 000AC         MOVL    VALUE_LOCATION, R0                            ; 0323
                                                     04 000AF         RET                                                   ; 0325

; Routine Size:  176 bytes,    Routine Base:  _BAS$CODE + 0000


;  234          0326  1
;  235          0327  1 END                                                     ! end of module BAS$FETCH_DESC
;  236          0328  1
;  237          0329  0 ELUDOM




;                                      PSECT SUMMARY
;
;       Name                        Bytes                      Attributes
;
;   _BAS$CODE                           176  NOVEC,NOWRT,  RD ,  EXE,  SHR,  LCL,  REL,  CON,  PIC,ALIGN(2)




;                               Library Statistics
;
;                                           -------- Symbols --------        Pages        Processing
;       File                                Total    Loaded   Percent        Mapped       Time
;
;   _S255$DUA28:[SYSLIB]STARLET.L32;1        9776         7         0          581          00:01.1
;                                   COMMAND QUALIFIERS

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

; Size:          176 code + 0 data bytes
; Run Time:         00:06.1
; Elapsed Time:     00:14.3
; Lines/CPU Min:      3257
; Lexemes/CPU-Min: 15405
; Memory Used:  84 pages
; Compilation Complete
```

0023 AH-BT13A-SE
VAX/VMS V4.0

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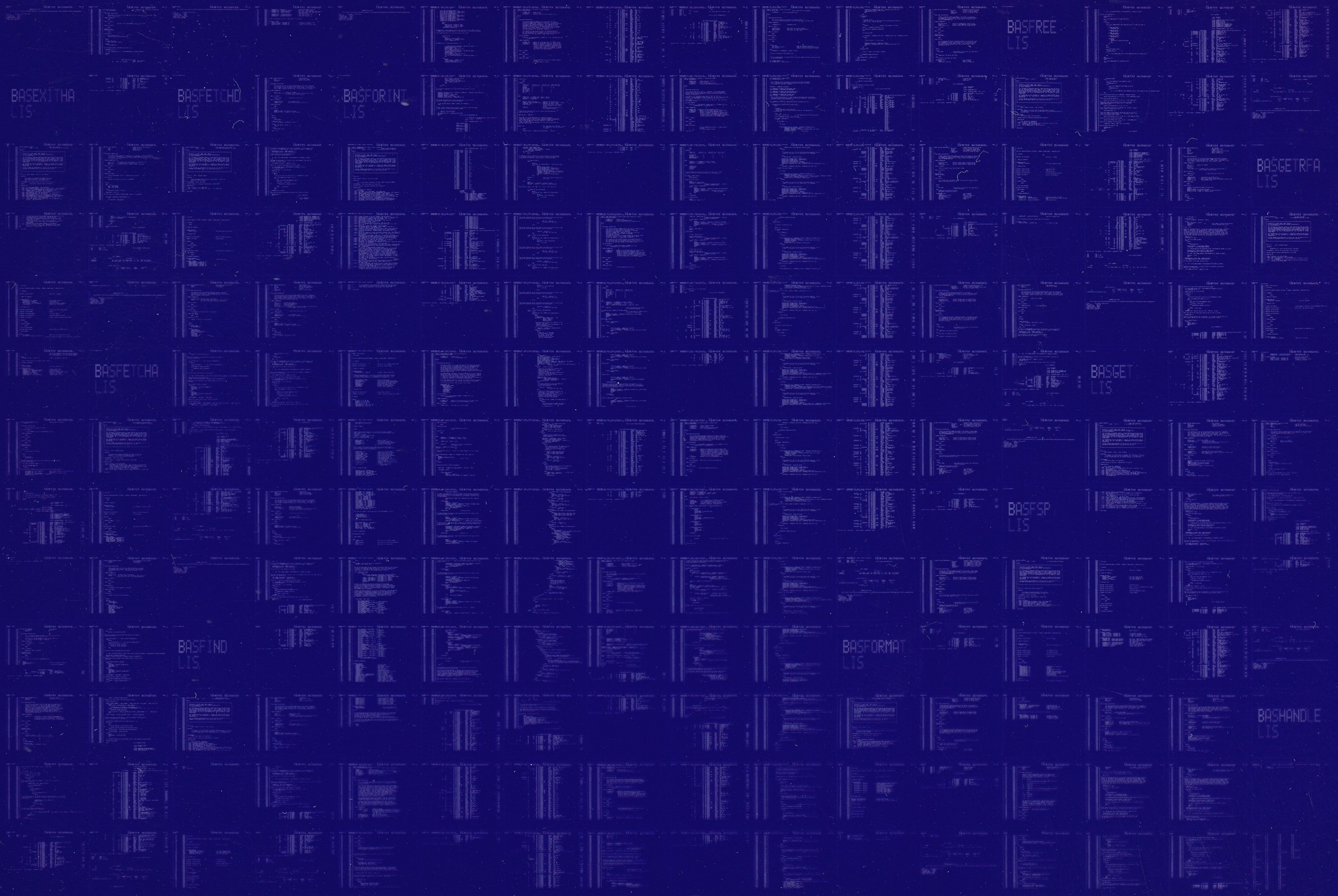

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