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FILEID**EDT

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+ This file, EDTREQ, contains definitions for EDT.

Edit history:

- 1-001 - Beginning of edit history.
- 1-002 - Add ASSERT macro, remove bugcheck codes. JBS 01-Jun-1981
- 1-003 - Offset the PDP-11 error codes. so they can be distinguished from system-specific error codes. JBS 16-Jul-1981
- 1-004 - Remove the error messages, putting them in ERRMSG.REQ. JBS 20-Jul-1981
- 1-005 - Add two fields to TBCB ; one points to the previous buffer, the other marks the buffer as a macro. Delete the creation of the MAC BLOCK structure TMV 6-Aug-81
- 1-006 - Add the verb number for the new bell verb. STS 10-Aug-1981
- 1-007 - Add INP JOURNAL and INP COMMAND to replace INP FILE. This lets us journal the responses to SUBSTITUTE/QUERY in the journal file. JBS 16-Aug-1981
- 1-008 - Add the verb number for the new day/time verb. STS 31-Aug-1981
- 1-009 - Update the routine and variable names. JBS & TMV 16-Aug-1981
- 1-010 - Add new verbs to set up default verb. STS 21-Sep-1981
- 1-011 - Add new verbs for delete select and toggle select. STS 23-Sep-1981
- 1-012 - Add new search and select verb. STS 24-Sep-1981
- 1-013 - Add literals for word and para types. STS 23-Oct-1981
- 1-014 - Add PREV RANGE. JBS 02-Nov-1981
- 1-015 - Add definitions for file i/o codes and streams. STS 08-Dec-1981
- 1-016 - Change edt\$\$k to edt\$k for file i/o definitions. STS 09-Dec-1981
- 1-017 - Add macro to set up address and length in string desc. STS 11-Jan-1982
- 1-018 - Fix above macro to work with 11's. STS 13-Jan-1982
- 1-019 - Add literals for open output seq and open output noseq. STS 13-Jan-1982
- 1-020 - Chang string desc macro for bliss16. STS 15-Jan-1982
- 1-021 - Change 32-bit arithmetic to 48-bit arithmetic. SMB 15-Jan-1982
- 1-022 - Modify block allocation so that odd address traps don't occur on 11's. SMB 25-Jan-1982

- 1-023 - Remove original line numbers. SMB 29-Jan-1982
- 1-024 - Make callable literals global. STS 08-Mar-1982
- 1-025 - Remove callable literals. STS 08-Mar-1982
- 1-026 - Add symbols for control C handling. JBS 24-May-1982
- 1-027 - Change VMS multiply. SMB 25-May-1982
- 1-028 - Add EDT\$SK_FMT_BUflen. JBS 05-Jul-1982
- 1-029 - Add verb for xlate. STS 13-Aug-1982
- 1-030 - Remove the keypad definitions to KEYPADDEF.REQ. JBS 13-Aug-1982
- 1-031 - Add ASC_K_CSI, for 8-bit keyboards. JBS 17-Aug-1982
- 1-032 - Add ASC_K_SS3, for 8-bit keyboards. JBS 20-Aug-1982
- 1-033 - Add verb K_clss. STS 26-Aug-1982
- 1-034 - Add K_RDAHED_LEN. JBS 31-Aug-1982
- 1-035 - Add new screen data structures. SMB 11-Sep-1982
- 1-036 - Put back a line that was deleted by mistake. SMB 15-Sep-1982
- 1-037 - Revise the EDIT section of the new screen data structures. JBS 17-Sep-1982
- 1-038 - Add CC_RDCNT. JBS 17-Sep-1982
- 1-039 - Remove CC_RDCNT. STS 20-Sep-1982
- 1-040 - Work on conditionalizing addline macro for speed. STS 30-Sep-1982
- 1-041 - Add memory allocation maximum. SMB 18-Oct-1982
- 1-042 - Add macros for comparing line numbers. STS 20-Oct-1982
- 1-043 - Work on 11-version of compare macro. STS 21-Oct-1982
- 1-044 - Bind high word of linenumbers in compare macro. STS 21-Oct-1982
- 1-045 - Fix bug in compare. STS 22-Oct-1982
- 1-046 - Work on 11 version of compare macro. STS 26-Oct-1982
- 1-047 - Change 11 compare to call EDT\$\$CMP_LNO. STS 27-Oct-1982
- 1-048 - Add SCR EDIT_MINPOS, remove a bunch of unused and obsolete definitions. JBS 27-Oct-1982
- 1-049 - Reduce the size of the screen edit area on the PDP-11. This saves space at the expense of time. JBS 15-Nov-1982
- 1-050 - Remove the edit buffer entirely. JBS 27-Dec-1982
- 1-051 - Reduce the amount of code generated by the ASSERT macro, to try to save space on the PDP-11. JBS 16-Jan-1983
- 1-052 - Correct the definition of SS3. JBS 19-Jan-1983
- 1-053 - Change the format buffer size for VMS. SMB 24-Feb-1983
- 1-054 - Remove WC_K_NUM_BUKT. JBS 29-Mar-1983

DEFINITION_DEFINITIONS

The following definitions are used to facilitate further definitions.

+ Field definition macros. This set of macros allows for definitions
of the fields of data structures, letting the compiler compute the
the offsets.

COMPILETIME FIELD_OFFSET = 0;
COMPILETIME NUMBER_ONE = 1;

MACRO START_FIELDS(FIELD_NAME) =
FIELD_FIELD_NAME =
SET
%ASSIGN(FIELD_OFFSET,0) %;

MACRO A_FIELD(FIELD_NAME1,LENGTH) =
FIELD_NAME1 = [FIELD_OFFSET/8,FIELD_OFFSET MOD 8,LENGTH,0]
%ASSIGN(FIELD_OFFSET,FIELD_OFFSET+LENGTH) %;

MACRO INC_FIELD (LENGTH) =
%ASSIGN(FIELD_OFFSET,FIELD_OFFSET+LENGTH) %;

MACRO END_FIELDS = TES;%;

MACRO STRUC_SIZE(SIZE) = LITERAL SIZE = (FIELD_OFFSET+7)/8; %;

+ IMPLEMENTATION PARAMETERS.

- The following definitions are parameters used in the work-file system
which may require re-definition for different implementations.

LITERAL

WF_BLN_LEN = 16; ! Bit length of a work-file block number.
LINE_NOM_LEN = 16; ! Bit length of a line number. (actually 3*16=48)

TBCB_DEFINITION

The EDT work file can contain multiple, independent data sets referred to as Text Buffers. A text buffer corresponds to the construct of the same name found in EDT user documentation, it is a sequential file of variable length records. The records are grouped together into blocks of 512 characters. The records in a block are sequentially ordered, though the blocks themselves are not. Each block contains a two-byte link to the previous and following blocks. In addition to the lines in the work-file, an input file may be associated with a text buffer. In this case the input file is logically placed at the end of the text buffer. The Text buffer is accessed via a control block called the Text Buffer Control Block, or TBCB.

```
START_FIELDS(TBCB_FIELDS)
A_FIELD(TBCB_LINE_ADDR,%BPADDR),           ! Pointer to current line.
A_FIELD(TBCB_CUR_BUKT,WF_BLN_LEN),         ! Current bucket number.
A_FIELD(TBCB_CUR_LIN,LINE_NUM_LEN),          ! Current line number.
A_FIELD(TBCB_CUR_LINM,LINE_NUM_LEN),
A_FIELD(TBCB_CUR_LINH,LINE_NUM_LEN),
A_FIELD(TBCB_CHAR_POS,WF_B[N]LEN),           ! The character position within the line
A_FIELD(TBCB_FIRST_BUKT,WF_B[N]LEN),          ! First bucket number.
A_FIELD(TBCB_LAST_BUKT,WF_BLN[EN])           ! Last bucket number.
A_FIELD(TBCB_INPUT_LINE,LINE_NUMLEN),          ! Number of last input line.
A_FIELD(TBCB_INPUT_LINM,LINE_NUMLEN),
A_FIELD(TBCB_INPUT_LINH,LINE_NUMLEN),
A_FIELD(TBCB_LINE_COUNT,LINE_NUMLEN),          ! Count of lines in buffer.
A_FIELD(TBCB_LC_M,LINE_NUMLEN),
A_FIELD(TBCB_LC_H,LINE_NUMLEN),
A_FIELD(TBCB_CHAR_COUNT,%BPVAL),              ! Count of chars in buffer.
A_FIELD(TBCB_PREV_BUF,%BPADDR),               ! Pointer to previous text buffer.
A_FIELD(TBCB_NEXT_BUF,%BPADDR),               ! Pointer to next text buffer.
A_FIELD(TBCB_INPUT_RAB,8),                    ! Pointer to input RAB.
A_FIELD(TBCB_IS_MAC,8),                      ! This buffer is a macro
A_FIELD(TBCB_NAME_LEN,8),                     ! Length of buffer name.
A_FIELD(TBCB_NAME,0)                         ! Name of buffer
```

END_FIELDS

STRUC_SIZE(TBCB_SIZE) ! Define size of TBCB.

MACRO TBCB_BLOCK = BLOCK[TBCB_SIZE,BYTE] FIELD(TBCB_FIELDS)% :

The pos block is the portion of the TBCB which contains information needed to locate the current line. This block must be identical to the first part of the TBCB or everything will fail.

```
START_FIELDS(POS_FIELDS)
A_FIELD(POS_LINE_ADDR,%BPADDR),           ! Pointer to current line.
A_FIELD(POS_CUR_BUKT,WF_BLN_LEN),         ! Current bucket number.
```

```
A_FIELD(POS_CUR_LIN,LINE_NUM_LEN),      ! Current line number.  
A_FIELD(POS_CUR_LINM,LINE_NUM_LEN),  
A_FIELD(POS_CUR_LINH,LINE_NUM_LEN);  
A_FIELD(POS_CHAR_POS,WF_BCN_LEN)  
END_FIELDS  
  
STRUC_SIZE(POS_SIZE)                  ! Define size of position information  
MACRO POS_BLOCK = BLOCK[POS_SIZE,BYTE] FIELD(POS_FIELDS)%;
```

♦ TEXT LINE DEFINITIONS

A line number contains an integer part and a fractional part.

```
START_FIELDS(LIN_FIELDS)
  A_FIELD(LIN_LENGTH,8)           ! Length of line
  A_FIELD(LIN_NUM,LINE_NUM_LEN),   ! The line number
  A_FIELD(LIN_NUMM,LINE_NUM_LEN),
  A_FIELD(LIN_NUMH,LINE_NUM_LEN),
  A_FIELD(LIN_TEXT,0)             ! The actual text
END_FIELDS
```

```
STRUC_SIZE(LIN_FIXED_SIZE)
```

```
MACRO LIN_BLOCK = BLOCK[LIN_FIXED_SIZE,BYTE] FIELD(LIN_FIELDS)%;
```

WORK-FILE_BUCKET_DEFINITIONS

The work file is organized into blocks of WF_BLOCK_SIZE characters.
Each Text Buffer in the work file consists of a linked list of blocks.

```
LITERAL WF_BUKT_SIZE = 512;           ! Size of a work-file block

START_FIELDS(WFB_FIELDS)
A_FIELD(WFB_PREV_BUKT,WF_BLN_LEN),    ! Number of previous bucket
A_FIELD(WFB_NEXT_BUKT,WF_BLN_LEN),    ! Number of next bucket
A_FIELD(WFB_END,ZBPVAL),              ! Offset to last record in block
A_FIELD(WFB_RECORDS,0)                ! Address of first record in block
END_FIELDS

STRUC_SIZE(WFB_FIXED_SIZE)
```

♦ LINE NUMBER BLOCK DEFINITIONS

The line number is defined as a block, so it can be handled as
three 16-bit words.

```
FIELD LN_FIELDS =
  SET
  LN_LO = [0,0,16,0],
  LN_MD = [2,0,16,0],
  LN_HI = [4,0,16,0]
  TES;

MACRO LN_BLOCK = BLOCK[6,BYTE] FIELD(LN_FIELDS) %;

LITERAL LN_SIZE = 6;

STRUCTURE
  LNOVECTOR[I;N] = [N*LN_SIZE] (LNOVECTOR+I*LN_SIZE);
```

* Semantic node definitions.

The following defines the structures created by the EDT command parser semantic routines. These structures form a tree-like representation of the command.

The fields which are grouped together are re-definitions of the same slot for use in different types of nodes.

FIELD_NODE_FIELDS =

SET		
NODE_TYPE	= [0,0,8,0],	: Identifies the type of node
COM_NUM	= [1,0,8,0],	: Identifies the command
RAN_TYPE	= [1,0,8,0],	: Identifier type of range
OP_TYPE	= [1,0,8,0],	: Identifies type of operand
SEQ_VAL	= [1,0,8,0],	: Did the seq switch have value.
RANGE1	= [%UPVAL,0,%BPVAL,0],	: First range specifier
RAN_VAL	= [%UPVAL,0,%BPVAL,0],	: Value for range specifier
SW_BITS	= [%UPVAL,0,%BPVAL,0],	: Bits for each possible switch
SRCHADDR	= [%UPVAL,0,%BPVAL,0],	: Address of search string
SET_TYPE	= [%UPVAL,0,%BPVAL,0],	: Which type of set command
LEFT_OP	= [%UPVAL,0,%BPVAL,0],	: Left operand for binary ops
OP_LEN	= [%UPVAL,0,%BPVAL,0],	: Operand length for op nodes.
OP_VAL	= [%UPVAL,0,%BPVAL,0],	: Operand value for numerics.
COM_EXPR	= [%UPVAL,0,%BPVAL,0],	: Expression pointer for LET
OP_EFTOP	= [%UPVAL,0,%BPVAL,0],	: Left operand for operators.
SUB_BASE	= [%UPVAL,0,%BPVAL,0],	: Substring base string.
RANGE2	= [%UPVAL*2,0,%BPVAL,0],	: Second range specifier
SUB_RANGE	= [%UPVAL*2,0,%BPVAL,0],	: Pointer to range for ranges
STR_PNT	= [%UPVAL*2,0,%BPVAL,0],	: Pointer to a search string
SRCHLEN	= [%UPVAL*2,0,%BPVAL,0],	: Search string length
FILSPEC	= [%UPVAL*2,0,%BPVAL,0],	: File specification address
SW_VAL1	= [%UPVAL*2,0,%BPVAL,0],	: First value for switches
AS_STR	= [%UPVAL*2,0,%BPVAL,0],	: Addr of string for AS
RIGHT_OP	= [%UPVAL*2,0,%BPVAL,0],	: Right operand for binary ops.
BUF_NAME	= [%UPVAL*2,0,%BPVAL,0],	: Address of buffer name
OP_ADDR	= [%UPVAL*2,0,%BPVAL,0],	: Operand address for op nodes.
COM_VARBL	= [%UPVAL*2,0,%BPVAL,0],	: Variable pointer for LET
OP_RIGHTOP	= [%UPVAL*2,0,%BPVAL,0],	: Right operand for operators.
SUB_START	= [%UPVAL*2,0,%BPVAL,0],	: Substring start pos.
TAB_COUNT	= [%UPVAL*2,0,%BPVAL,0],	: Count for tabs adjust.
SET_VAL1	= [%UPVAL*3,0,%BPVAL,0],	: Value for set command
REPADDR	= [%UPVAL*3,0,%BPVAL,0],	: Replace string address
FSPCLEN	= [%UPVAL*3,0,%BPVAL,0],	: File spec length
AS_LEN	= [%UPVAL*3,0,%BPVAL,0],	: Length of string for AS
BUF_LEN	= [%UPVAL*3,0,%BPVAL,0],	: length of buffer name
SUB_LENGTH	= [%UPVAL*3,0,%BPVAL,0],	: Substring length.
NEXT_COM	= [%UPVAL*4,0,%BPVAL,0],	: Pointer to next command

NEXT_RANGE = [%UPVAL*4,0,%BPVAL,0], ! Pointer to next range
REPLLEN = [%UPVAL*4,0,%BPVAL,0], ! Replace string length
SET_VAL = [%UPVAL*4,0,%BPVAL,0], ! Number of key for def key
KEY_VAL = [%UPVAL*4,0,%BPVAL,0]

PREV_RANGE = [%UPVAL*5,0,%BPVAL,0], ! Reverse of NEXT_RANGE
SWITS = [%UPVAL*5,0,%BPVAL,0], ! Switch block pointer
SW_VAL2 = [%UPVAL*5,0,%BPVAL,0], ! Second option switch value
SW_OVR1 = [%UPVAL*6,0,%BPVAL,0], ! Part of second option switch
SW_OVR2 = [%UPVAL*7,0,%BPVAL,0] ! Part of second option switch
TES:

LITERAL
NUM_NODES = 20, ! Number of semantic nodes
NODE_SIZE = 8*%UPVAL; ! Size of semantic node

LITERAL ! Node type equates

COM_NODE = 1, ! Command node
RANGE_NODE = 2, ! Range node
STR_NODE = 3, ! SUBSTITUTE strings
SW_NODE = 4, ! Option switch value
OP_NODE = 5; ! Expression operand

MACRO NODE_BLOCK = BLOCK[NODE_SIZE,BYTE] FIELD(NODE_FIELDS) %;

+ ASCII CHARACTER DEFINITIONS

- Commonly used non-printing ASCII characters.

LITERAL

```
ASC_K_BS    = %0'10';
ASC_K_TAB   = %0'11';
ASC_K_LF    = %0'12';
ASC_K_CTRL_K= %0'13';
ASC_K_FF    = %0'14';
ASC_K_CR    = %0'15';
ASC_K_SO    = %0'16';
ASC_K_SI    = %0'17';
ASC_K_CTRL_U= %0'25';
ASC_K_CTRL_Z= %0'32';
ASC_K_ESC   = %0'33';
ASC_K_SP    = %0'40';
ASC_K_DEL   = %0'177';
ASC_K_CSI   = ASC_K_ESC + %x'80';
ASC_K_SS3   = ASC_K_SI + %x'80';
```

+ COMMAND NUMBER DEFINITIONS

The following values are used in a command type node to specify which command it is.

- LITERAL

COM_NULL	= 0,
COM_CHANGE	= 1,
COM_COPY	= 2,
COM_DEFINE	= 3,
COM_DELETE	= 4,
COM_EXIT	= 5,
COM_FIND	= 6,
COM_INCLUDE	= 7,
COM_INSERT	= 8,
COM_MOVE	= 9,
COM_PRINT	= 10,
COM_QUIT	= 11,
COM_REPLACE	= 12,
COM_RESEQ	= 13,
COM_SET	= 14,
COM_SHOW	= 15,
COM_SUBS	= 16,
COM_TYPE	= 17,
COM_WRITE	= 18,
COM_SUBS_NEXT	= 19,
COM_HELP	= 20,
COM_CLEAR	= 21,
COM_TADJ	= 22,
COM_FILL	= 23,
COM_DEF_MAC	= 24,
COM_MAC_CALL	= 25,
COM_VERIFY	= ?,
LAST_COM	= 25;

RANGE TYPE DEFINITIONS

The following constants are used in range nodes to specify the type of range.

LITERAL

RAN_NULL	= 0,
RAN_NUMBER	= 1,
RAN_DOT	= 2,
RAN_STR	= 3,
RAN_BEGIN	= 4,
RAN_END	= 5,
RAN_ORIG	= 6,
RAN_PATTERN	= 7,
RAN_LAST	= 8,
RAN_BEFORE	= 9,
RAN_REST	= 10,
RAN_WHOLE	= 11,
RAN_SELECT	= 12,
RAN_BUFFER	= 13,
RAN_PLUS	= 14,
RAN_MINUS	= 15,
RAN_FOR	= 16,
RAN_THRU	= 17,
RAN_MINSTR	= 18,
RAN_ALL	= 19,
RAN_AND	= 20,
NUM_RAN	= 20. Total number of ranges
NUM_SLR	= 7; number of single line ranges

Operand types for operand nodes.

LITERAL

OP_STRING	= 0,	Operand is a quoted string
OP_NUM	= 1,	Operand is a number
OP_VAR	= 2,	Operand is a variable
OP_DOT	= 3,	Operand is the dot pseudo variable
OP_ADD	= 4,	Operand is an addition operator
OP_SUB	= 5,	Operand is a subtractions operator
OP_MULT	= 6,	Operand is a multiplication operator
OP_DIV	= 7,	Operand is a division operator
OP_AND	= 8,	logical and
OP_OR	= 9,	logical or
OP_LSS	= 10,	compare for less
OP_LEQ	= 11,	compare for less or equal
OP_EQL	= 12,	Compare for equality
OP_GEQ	= 13,	compare for greater or equal
OP_GTR	= 14,	compare for greater
OP_NEQ	= 15,	compare for not equal
OP_AMP	= 16,	concatenation
OP_SUBSTR	= 17,	substringing
OP_NEG	= 18,	negation

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OP_NOT	= 19,	logical not
OP_LENGTH	= 20,	length of
OP_COL	= 21,	current column
OP_FIND	= 22,	
OP_POS	= 23,	current position
OP_LAST_OP	= 23;	last operand type

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!+ LINE NUMBER HANDLING MACROS

These macros are used for arithmetic involving line numbers, so it can be transportable across systems with various word lengths. At least 48 bits of precision are required for line numbers. Line numbers are stored as an integer with a scale of -5, i.e. the true value * 10^{+5} , so we can have 5 decimal positions and 10 integer positions in the line number.

```
%IF %BLISS(BLISS32) %THEN
MACRO
  ADDLINE(S1,S2,DEST,MAX) =
  !+ Add 2 48-bit numbers using 2 longwords (so we can
  !+ use the BLISS-32 Built-in macros).
  !-
  BEGIN
%IF %CTCE(S1) %THEN
  %IF %LENGTH EQL 2 %THEN
    !+ add a compile time expression to s2 and store it in s2
    !-
    BEGIN
      BIND
        FIRST_LWORD = S2 :LONG,
        NEXT_WORD = (S2+4) : WORD;
      FIRST_LWORD = .FIRST_LWORD + S1;
      IF .FIRST_LWORD LSSU S1
      THEN
        NEXT_WORD = .NEXT_WORD + 1;
      END
    %ELSE
      !+ add a compile time expression to s2 and store it in dest
      !-
      BEGIN
        BIND FIRST_WORD = (DEST) : LONG,
          NEXT_WORD = (DEST+4) : WORD,
          SOURCE_2LO = (S2) : LONG,
          SOURCE_2HI = (S2+4) : WORD;

        FIRST_WORD = .SOURCE_2LO + S1;
        IF (.FIRST_WORD LSSU S1)
        THEN
          NEXT_WORD = .SOURCE_2HI + 1
        ELSE
          NEXT_WORD = .SOURCE_2HI;
        END
      %FI
    %ELSE
      !+ we don't have a compile time expression, but we are adding two 48-bit numbers
      !-
      %IF %LENGTH EQL 2 %THEN           ! store the result in S2
```

```
BEGIN
LOCAL SAVE: WORD;
BUILTIN ADDM;
BIND UPPER WORD = (S2+6) : WORD;
SAVE = .UPPER WORD;
ADDM(2,S1,S2,S2);
UPPER_WORD = .SAVE;
END
%ELSE
%IF %LENGTH EQL 3 %THEN      ! store the result in DEST
BEGIN
LOCAL
  SAVE : WORD;
BUILTIN ADDM;
BIND UPPER_WORD = (DEST+6) : WORD;

SAVE = .UPPER_WORD;
ADDM(2,S1,S2,DEST);
UPPER_WORD = .SAVE;
END
%ELSE
  BEGIN                  ! store the result in DEST and return
    LOCAL
      SAVES2 : WORD,
      SAVED : WORD;
    BIND
      S1_UP = (S1+6) : WORD,
      S2_UP = (S2+6) : WORD,
      DEST_UP = (DEST+6) : WORD;

    BUILTIN ADDM;
    SAVES2 = .S2_UP + .S1_UP;
    SAVED = .DEST_UP;
    ADDM(2,S1,S2,DEST);

  ! Get the overflow bit
  IF .DEST_UP EQL .SAVES2
  THEN
    MAX = 0
  ELSE
    MAX = 1;
    DEST_UP = .SAVED;
  END
%FI
%FI
END%,
SUBLINE(S1,S2,DEST) =
! Subtract 2 48-bit numbers using 2 longwords
BEGIN
```

```
%IF %CTCE(S1) %THEN
  %IF %LENGTH EQL 2 %THEN
    !+ we have a compile time expression to add to S2 and store in S2
    !-
    BEGIN
      LOCAL SAVE : LONG;
      BIND
        FIRST WORD = S2 : LONG,
        NEXT WORD = (S2+4) : WORD;
      SAVE = .FIRST WORD;
      FIRST WORD = .FIRST WORD - S1;
      IF .FIRST WORD GTRU .SAVE
      THEN
        NEXT WORD = .NEXT WORD - 1;
      END
    %ELSE
    !+ add the compile time expression to S2 and store it in DEST
    !-
    BEGIN
      BIND FIRST WORD = (DEST) : LONG,
      NEXT WORD = (DEST+4) : WORD,
      SOURCE_2LO = (S2) : LONG,
      SOURCE_2HI = (S2+4) : WORD;

      FIRST WORD = .SOURCE_2LO - S1;
      IF .FIRST WORD GTRU .SOURCE_2LO
      THEN
        NEXT WORD = .SOURCE_2HI - 1
      ELSE
        NEXT WORD = .SOURCE_2HI;
      END
    %FI
    %ELSE
      %IF %LENGTH EQL 2 %THEN
      !+ add two 48 bit numbers and store result in S2
      !-
      BEGIN
        LOCAL SAVE: WORD;
        BUILTIN SUBM;
        BIND UPPER WORD = (S2+6) : WORD;
        SAVE = .UPPER WORD;
        SUBM(2,S1,S2,S2);
        UPPER WORD = .SAVE;
      END
    %ELSE
    !+ add two 48 bit numbers and store result in DEST
    !-
    BEGIN
      LOCAL
        SAVE : WORD;
      BUILTIN SUEM;
      BIND UPPER WORD = (DEST+6) : WORD;
```

```
SAVE = .UPPER_WORD;
SUBM(2,S1,S2,-DEST);
UPPER_WORD = .SAVE;
END

XF1 %F1
END%.
```

MULTLINE(S1,S2,DEST) =
+ Multiply 2 48-bit numbers, but S1 MUST be <= 100,000

```
BEGIN
BIND
  M1 = S1 : BITVECTOR [32];
  LOCAL M2 : VECTOR[2],
        P : VECTOR[2];
  BUILTIN ADDM, ASHQ;

+ Set up the multiplicand and result in 64 bits, zeroeing
out the upper 16-bits.
- M2[0] = .(S2)<0,32>; M2[1] = .(S2+4)<0,16>;
  P[0] = 0; P[1] = 0;

+ Since 65535 < multiplier <= 100,000... we only need to
examine the low order 17-bits.
- DECR I FROM 16 TO 0
DO
  BEGIN
    ASHQ(%REF(1), P, P);           ! Shift result left by 1 (multiply by 2)
    IF (.M1[.I]) THEN ADDM(2, P, M2, P);   ! Add multiplicand to result
    END;
  (DEST)<0,32> = .P[0];  (DEST+4)<0,16> = .P[1];
END%.
```

+ compare two 48 bit line numbers to see if they are equal

```
LINNOEQL(LIN1,LIN2) =
BEGIN
BIND
  NO_1 = LIN1 : VECTOR[3,WORD];
  NO_2 = LIN2 : VECTOR[3,WORD];
  LOW_1 = NO_1[0] : LONG;
  LOW_2 = NO_2[0] : LONG;
  HIGH_1 = NO_1[2] : WORD;
  HIGH_2 = NO_2[2] : WORD;

IF ((.LOW_1 EQL .LOW_2) AND (.HIGH_1 EQL .HIGH_2))
THEN
  (1)
```

```
ELSE (0)
END%,
CMPLNO(LIN1,LIN2) =
BEGIN
BIND
    NO_1 = LIN1 : VECTOR[3,WORD];
    NO_2 = LIN2 : VECTOR[3,WORD];
    LOW_1 = NO_1[0] : LONG;
    LOW_2 = NO_2[0] : LONG;
    HIGH_1 = NO_1[2] : WORD;
    HIGH_2 = NO_2[2] : WORD;

    IF (.HIGH_1 LSSU .HIGH_2)
    THEN (-1)
    ELSE
        BEGIN
        IF (.HIGH_1 EQL .HIGH_2)
        THEN
            IF (.LOW_1 LSSU .LOW_2)
            THEN (-1)
            ELSE
                IF (.LOW_1 EQL .LOW_2) THEN (0) ELSE (1)
        ELSE (1)
        END
    END%,
MOVELINE(S,D) = (CHSMOVE(6,S,D))%, ! Move 6 bytes of storage
BUILDLINE(S,D) = (D = S; (D+4) = 0)%; ! Build a number
!
!ELSE %IF %BLISS(BLISS16) %THEN
MACRO
ADDLINE(S1,S2,DEST,MAX) =
BEGIN
%IF %CTCE(S1) %THEN
    %IF %LENGTH EQL 2 %THEN
!+
!+ we are adding a constant to source_2 and storing in source_2
!-
        BEGIN
        BIND
            FIRST WORD = S2:WORD,
            NEXT WORD = (S2+2) : WORD,
            HIGH WORD = (S2+4) : WORD;
            FIRST WORD = .FIRST WORD + S1;
            IF .FIRST WORD EQL 0
            THEN
                BEGIN
                NEXT WORD = .NEXT WORD + 1;
```

```
        IF .NEXT_WORD EQL 0 THEN HIGH_WORD = .HIGH_WORD + 1;
        END;
    ELSE
!+ destination is DEST and we have a compile time constant
    BEGIN
        BIND
            SOURCE_1 = S2 : WORD,
            SOURCE_2 = (S2+2) : WORD,
            SOURCE_3 = (S2+4) : WORD,
            FIRST WORD = DEST : WORD,
            NEXT WORD = (DEST+2) : WORD,
            HIGH WORD = (DEST+4) : WORD;
            FIRST WORD = .SOURCE_1 + S1;
            NEXT WORD = .SOURCE_2;
            HIGH WORD = .SOURCE_3;
            IF .FIRST WORD EQL 0
            THEN
                BEGIN
                    NEXT WORD = .NEXT WORD + 1;
                    IF .NEXT WORD EQL 0
                    THEN
                        HIGH WORD = .HIGH WORD + 1 ;
                    END;
                END;
            XF1
!+ we don't have a constant
    ELSE
        %IF %LENGTH EQL 2 %THEN
        BEGIN EXTERNAL ROUTINE A48_ADD; A48_ADD(S1,S2,S2) END
        %ELSE
            %IF %LENGTH EQL 3 %THEN
            BEGIN EXTERNAL ROUTINE A48_ADD; A48_ADD(S1,S2,DEST) END
            %ELSE
                BEGIN EXTERNAL ROUTINE A48_ADD; MAX = A48_ADD(S1,S2,DEST) END
            XF1
        XF1
    END%
    SUBLINE(S1,S2,DEST) =
    BEGIN
        %IF %CTCE(S1) %THEN
        BEGIN
            %IF %LENGTH EQL 2 %THEN
            BEGIN
                LOCAL SAVE : WORD;
                BIND
                    FIRST WORD = S2 : WORD,
                    NEXT WORD = (S2+2) : WORD,
                    HIGH WORD = (S2+4) : WORD;
                SAVE = .FIRST WORD;
```

```

FIRST WORD = .FIRST_WORD - S1;
IF .FIRST_WORD GTRU .SAVE
THEN
BEGIN
NEXT WORD = .NEXT_WORD - 1;
IF .NEXT_WORD EQL -1 THEN HIGH_WORD = .HIGH_WORD - 1;
END;
END
ELSE

```

+ subtract a compile time constant to S2 and put result in DEST

```

BEGIN
BIND
FIRST WORD = DEST : WORD,
NEXT WORD = (DEST+2) : WORD,
HIGH WORD = (DEST+4) : WORD,
S2 LO = S2 : WORD,
S2 M = (S2+2) : WORD,
S2 HI = (S2+4) : WORD;

```

```

FIRST WORD = .S2 LO - S1;
NEXT WORD = .S2 M;
HIGH WORD = .S2 HI;
IF .FIRST_WORD GTRU .S2 LO
THEN
BEGIN
NEXT WORD = .NEXT_WORD - 1;
IF .NEXT_WORD EQL -1
THEN
HIGH WORD = .HIGH_WORD - 1;
END;

```

END

XFI

END

ELSE

+ We don't have a compile time expression

```

%IF %LENGTH EQL 2 %THEN
BEGIN EXTERNAL ROUTINE A48_SUB; A48_SUB(S1,S2,S2) END
%ELSE
BEGIN EXTERNAL ROUTINE A48_SUB; A48_SUB(S1,S2,DEST) END

```

XFI

END%.

MULTLINE(S5,S6,D3) =

```

BEGIN EXTERNAL ROUTINE A48_MUL; A48_MUL(S5,S6,D3) END %,
```

LINNOEQL (LIN1,LIN2) = (CHSEQ(L6,LIN1,6,LIN2))%.

CMPLNO (LIN1,LIN2) =

```

BEGIN EXTERNAL ROUTINE EDTSSCMP_LNO; EDTSSCMP_LNO(LIN1,LIN2) END %,
```

MOVELINE(S11,D6) = (CHSMOVE(6,S11,D6))%.

BUILDLINE(S12,D7) = (D7 = S12; (D7+2) = 0; (D7+4) = 0)%;

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XFI XFI

```
!+  
!_ OPTION SWITCH BIT DEFINITIONS  
!-
```

LITERAL

OPT_QUERY	=	2.
OPT_BRIEF	=	4.
OPT_NOTYP	=	8.
OPT_SEQ	=	16.
OPT_DUPL	=	32.
OPT_SAVE	=	64.
OPT_STAY	=	128;

MACRO

OPB_QUERY	=	1.1 %.
OPB_BRIEF	=	2.1 %.
OPB_NOTYP	=	3.1 %.
OPB_SEQ	=	4.1 %.
OPB_DUPL	=	5.1 %.
OPB_SAVE	=	6.1 %.
OPB_STAY	=	7.1 %.

: Input source definitions.

: These constants define the source command line input.

LITERAL

INP_TERM = 0;	Terminal
INP_MACRO = 1;	A macro
INP_COMMAND = 2;	The startup file
INP_JOURNAL = 3;	The journal file (only during /RECOVER)

+
: Terminal type definitions.

: These literals define the type of terminal we are running on.

LITERAL

TERM_UNKNOWN= 0,
TERM_VT52 = 1,
TERM_VT100 = 2,
TERM_HCPY = 3;

+
: Length of the type-ahead buffer

LITERAL

K_RDAHED_LEN = 32;

: Editor mode definitions.

LITERAL

CHANGE_MODE = 0,
LINE_MODE = 1;

: definitions for types of words and paras

LITERAL

DELIMITED = 0,
NOT_DELIMITED = 1,
WSPARA = 0,
EDTPARA = 1;

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!+ Define the error codes.
REQUIRE 'EDTSRC:ERRMSG.REQ';

+ Definition of the screen update data structure.

This structure has an entry for each line which is represented on the screen.
In NOTRUNCATE mode, each record may occupy one or more screen lines.

```
START_FIELDS(SCR_FIELDS)
  A_FIELD(SCR_PRV_LINE,%BPADDR);      ! Pointer to the previous line
  A_FIELD(SCR_NXT_LINE,%BPADDR);      ! Pointer to the next line
  A_FIELD(SCR_LINE_IDX,8);           ! The i'th screen line of this record
  A_FIELD(SCR_CHR_FROM,8);           ! Workfile char position from
  A_FIELD(SCR_CHR_TO,8);             ! Workfile char position to
  A_FIELD(SCR_EDIT_MINPOS,8);        ! Minimum position that has had an edit
  A_FIELD(SCR_EDIT_MAXPOS,8);        ! Maximum position that has had an edit
  A_FIELD(SCR_EDIT_FLAGS,8)          ! Modify, delete and insert flags
```

END_FIELDS

STRUC_SIZE(SCR_SIZE);

MACRO

```
SCREEN_LINE = BLOCK[SCR_SIZE,BYTE] FIELD(SCR_FIELDS) %;
```

+ These flags go in SCR_EDIT_FLAGS and are also used when calling EDT\$SMRK_LNCHG.

LITERAL

```
SCR_EDIT_MODIFY = 1,                ! This line has been modified
SCR_EDIT_INSLN = 2,                  ! This line has been inserted
SCR_EDIT_DELLN = 4;                  ! This line has been deleted
```

+ This hack added to get around problem in CH\$DIFF in BLISS16.
|-

```
%IF %BLISS(BLISS16) OR %BLISS(BLISS32) %THEN
MACRO
  CH$PTR_GTR(P1,P2) = (P1) GTRA (P2) %.
  CH$PTR_GEQ(P1,P2) = (P1) GEQA (P2) %.
  CH$PTR_EQL(P1,P2) = (P1) EQLA (P2) %.
  CH$PTR_LEQ(P1,P2) = (P1) LEQA (P2) %.
  CH$PTR_LSS(P1,P2) = (P1) LSSA (P2) %.
  CH$PTR_NEQ(P1,P2) = (P1) NEQA (P2) %;
%ELSE
MACRO
  CH$PTR_GTR(P1,P2) = CH$DIFF(P1,P2) GTR 0 %.
  CH$PTR_GEQ(P1,P2) = CH$DIFF(P1,P2) GEQ 0 %.
  CH$PTR_EQL(P1,P2) = CH$DIFF(P1,P2) EQL 0 %.
  CH$PTR_LEQ(P1,P2) = CH$DIFF(P1,P2) LEQ 0 %.
  CH$PTR_LSS(P1,P2) = CH$DIFF(P1,P2) LSS 0 %.
  CH$PTR_NEQ(P1,P2) = CH$DIFF(P1,P2) NEQ 0 %;
%FI
```

Define the entity types.

LITERAL

ENT_K_CHAR	= 1,
ENT_K_WORD	= 3,
ENT_K_BW	= 5,
ENT_K_EW	= 7,
ENT_K_LINE	= 9,
ENT_K_BL	= 11,
ENT_K_NL	= 13,
ENT_K_VERT	= 15,
ENT_K_EL	= 17,
ENT_K_SEN	= 19,
ENT_K_BSEN	= 21,
ENT_K_ESEN	= 23,
ENT_K_PAR	= 25,
ENT_K_BPAR	= 27,
ENT_K_EPAR	= 29,
ENT_K_PAGE	= 31,
ENT_K_BPAGE	= 33,
ENT_K_EPAGE	= 35,
ENT_K_BR	= 37,
ENT_K_ER	= 39,
ENT_K_QUOTE	= 41,
ENT_K_SR	= 43,
LAST_R_ENT	= 43;

!+ Define the verb numbers.
These are the codes used to represent the change mode subcommands.
The verbs from VERB_MOVE through VERB_APPEND require entities and
their verb numbers must remain contiguous.
!-

LITERAL

VERB_K_MOVE = 0.
VERB_K_DELETE= 1.
VERB_K_REPLACE= 2.
VERB_K_CHGC = 3.
VERB_K_CHGU = 4.
VERB_K_CHGL = 5.
VERB_K_SSEL = 6.
VERB_K_FILL = 7.
VERB_K_TADJ = 8.
VERB_K_CUT = 9.
VERB_K_APPEND= 10.
VERB_K_SEL = 11.

!+ verbs verb_k_subs through verb_k_cc are special since they
require variable length strings = keep them together with
subs always first and cc last.
!-

VERB_K_SUBS = 12.
VERB_K_PASTE= 13.
VERB_K_INSERT= 14.
VERB_K_XLATE = 15.
VERB_K_CC = 16.
VERB_K_EXIT = 17.
VERB_K_SN = 18.
VERB_K_UNDC = 19.
VERB_K_UNDW = 20.
VERB_K_UNDL = 21.
VERB_K_ADV = 22.
VERB_K_BACK = 23.
VERB_K_REF = 24.
VERB_K_TOP = 25.
VERB_K_HELP = 26.
VERB_K_ASC = 27.
VERB_K_QUIT = 28.
VERB_K_SML = 29.
VERB_K_SHR = 30.
VERB_K_TAB = 31.
VERB_K_TC = 32.
VERB_K_TD = 33.
VERB_K_TI = 34.
VERB_K_EXT = 35.
VERB_K_KS = 36.
VERB_K_DEFK = 37.
VERB_K_BELL = 38.

VERB_K_DATE = 39.
VERB_K_DUPC = 40.
VERB_K_DLWC = 41.
VERB_K_DMOV = 42.
VERB_K_DESEL = 43.
VERB_K_TGSEL = 44.
VERB_K_CLSS = 45.
LAST_K_VERB = 45;

♦
-
♦
-
MA

! Changecase types.

LITERAL

CASE_K_CHGC = 1. ! Invert case, corresponds to VERB_K_CHGC
CASE_K_CHGU = 2. ! Upper case, corresponds to VERB_K_CHGU
CASE_K_CHGL = 3. ! Lower case, corresponds to VERB_K_CHGL

!+ PARSE OP-CODE DEFINITIONS

!_ The following are the op-codes accepted by the parser driver.

LITERAL

OPC_ABORT	=	0,	Abort the parse
OPC_ACTION	=	1,	Perform action routine
OPC_CALL	=	2,	Call sub-table
OPC_RETURN	=	3,	End of table or sub-table (return)
OPC_GOTO	=	4,	Unconditional goto
OPC_OPTION	=	5,	Optional phrase check
OPC_REQUIRE	=	6,	Require a specific token
OPC_SELECT	=	7,	Select one of several options
OP_ABORT	=	0,	! now the bit values
OP_ACTION	=	32,	
OP_CALL	=	64,	
OP_RETURN	=	96,	
OP_GOTO	=	128,	
OP_OPTION	=	160,	
OP_REQUIRE	=	192,	
OP_SELECT	=	224,	

!+ Token class definitions

LITERAL

CL_NAME	=	0,	name class
CL_NUMBER	=	1,	the number class
CL_SPECIAL	=	2,	the special character class
CL_STRING	=	3,	The quoted string class

!+ Parser token handling and matching macros

MACRO

PAR_MIN_LENGTH = 0.0.3.0 %,
PAR_MAX_LENGTH = 0.4.4.0 %,
PAR_OPT_PERCENT = 0.3.1.0 %,
PAR_SYMBOL = 1.0.0.0 %;

!+ Miscellaneous definitions
!-

%IF %BLISS(BLISS32) %THEN

MACRO STRING_DESC(DESC,LEN,ADDR) =
BEGIN EXTERNAL ROUTINE STR\$COPY_R; STR\$COPY_R(DESC,LEN,ADDR) END %;

%ELSE

!+ These DSC\$ macros are defined as system symbols on VAX/VMS. They are
fields in a string descriptor. To get the effect of a string descriptor
on the 11's, we will pass a 4 word field with the following macros defining
the pointer to the string address and the field of the string length.
!-

MACRO

DSCSA_POINTER = 4,0,16,0%;
DSCSW_LENGTH = 0,0,16,0%;

MACRO STRING_DESC (DESC, LEN, ADDR) =

BEGIN
MAP
 DESC: BLOCK[8,BYTE];
DESC[DSCSA_POINTER] = ADDR;
DESC[DSCSW_LENGTH] = .LEN;
END %;

%F1

LITERAL

NO_UPDATE = 256, ! Indicating no update of current line needed
NO_REFRESH = 100, ! Indicating no refresh of screen needed
MESSAGE_LINE= 22, ! Line on which messages are displayed
COMMAND_LINE= 23, ! Line on which command prompts are displayed
DIR_FORWARD = 1, ! Forward direction.
DIR_BACKWARD= 0: ! Backward direction.

!+ Definition of the ASSERT macro. This macro call's EDT\$INTER_ERR if the
condition is not true.
!-

MACRO ASSERT (CONDITION) =

BEGIN
IF (NOT (CONDITION))
THEN
 BEGIN
 EXTERNAL ROUTINE EDT\$INTER_ERR : NOVALUE;
 EDT\$INTER_ERR ();
 END;
END

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%:

ER

1+

1-

ZI

ZT

LI

1+

1-

MA

CO

LI

UN

ZF

1+

1-

1-

MA

!+ Symbols used in control C journaling.

LITERAL

CC_REC_SIZE = 6; ! Size of a control C record
JOO_REC_ESC = %X'FF'; ! First (escape) byte of a non-text record in the journal file
CC_REC_FLAG = 1 ! Second byte: control C record
CC_CTR_MAX = 30000; ! Maximum counter value in control C handling

!+ Symbol used in the formatter

XIF XBLISS(BLISS32) XTHEN

LITERAL

EDTSSK_FMT_BUFLEN = 512; ! Length of the format buffer

XELSE

LITERAL

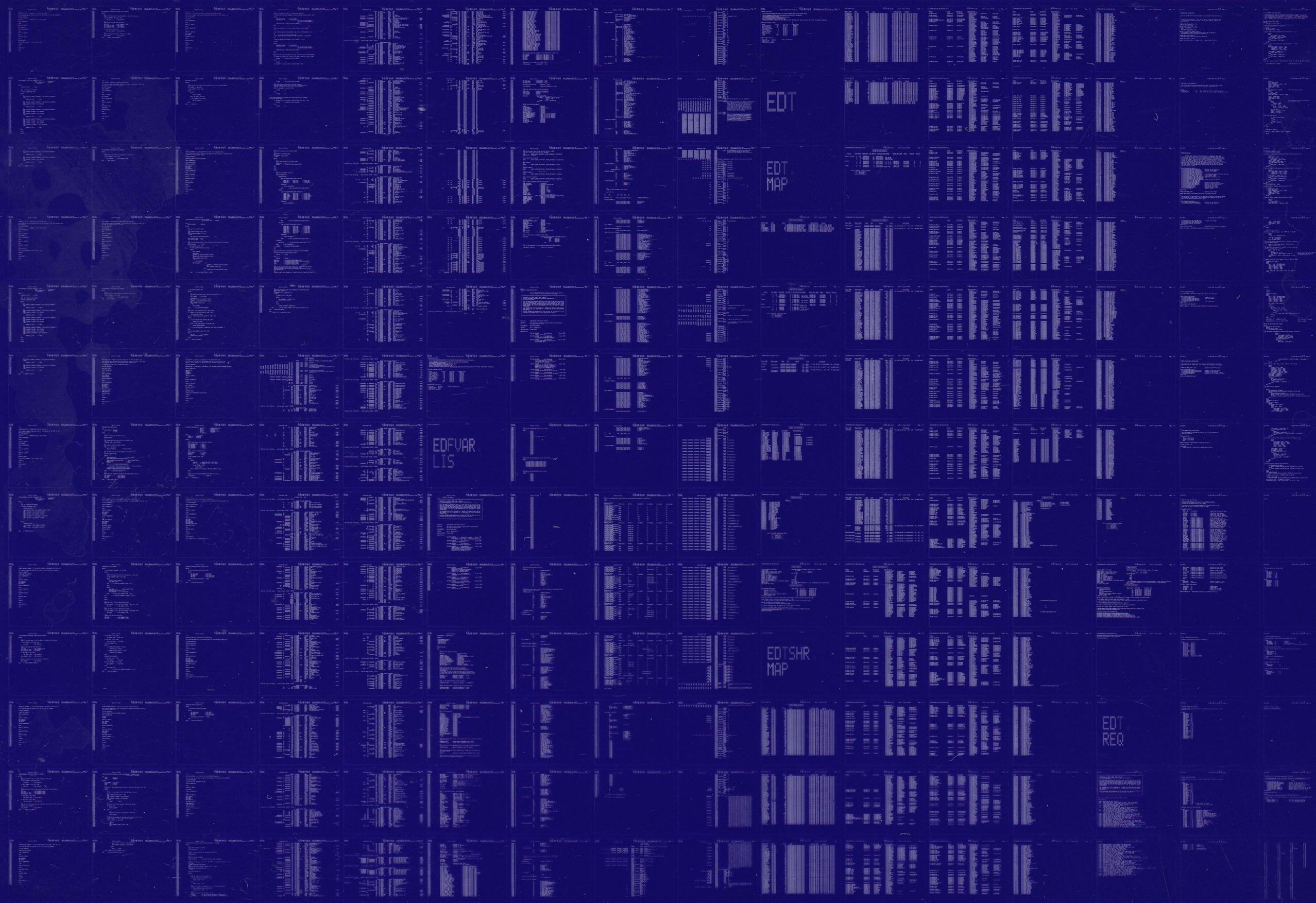
EDTSSK_FMT_BUFLEN = 136; ! Length of the format buffer

XFI

! End of file EDT.REQ

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ERRMSG
REQ

TRACEOFF
REQ

SUPPORTS
REQ

TRACEON
REQ

TRANSLATE
REQ

TRAROUNAM
REQ

BADKEY
LIS

CALLWIO
LIS

CHMBEGSEN
LIS

CHMBELL
LIS

CHMCHGE
LIS

CHMDELLIN
LIS

SYSSYM
REQ

TRANNAME
REQ

TRACELIT
REQ

CALLFIO
LIS

CHMBEPR
LIS

CHMCHANGE
LIS

CHMCRLCC
LIS

EDTREQ
REQ

KEYPADDEF
REQ

RE

TRACEMAC
REQ

PSECTS
REQ

VERSION
REQ

CHMBEGWRD
LIS

CHMCHKCC
LIS

CHMDELCHR
LIS

CHMEINPUT
LIS