

File created: 19-Feb-2025 13:39:40 {WMEDLEY}<library>tedit>TEDIT-STREAM.;862

edit by: rmk

changes to: (FNS \TEDIT.TEXTLEFTMARGIN \TEDIT.TEXTRIGHTMARGIN)

previous date: 17-Feb-2025 12:25:59 {WMEDLEY}<library>tedit>TEDIT-STREAM.;861

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

(RPAQQ TEDIT-STREAMCOMS

```
[(DECLARE%: EVAL@COMPILE DONTCOPY
  (EXPORT (RECORDS PIECE TEXTOBJ TEXTSTREAM)
    (MACROS NEXTPIECE PREVPIECE PLEN PTYPE PCONTENTS PLOOKS PCHARLOOKS PCHARSET PPARALOOKS
      PPARALAST PFPOS PBYTELEN PNEW PBINABLE PBYTESPERCHAR POBJ)
    (MACROS SETPC FSETPC GETPC FGETPC)
    (MACROS THINPIECEP)
    (MACROS VISIBLEPIECEP \NEXT.VISIBLE.PIECE \PREV.VISIBLE.PIECE)
    (MACROS GETTOBJ SETTOBJ FGETTOBJ FSETTOBJ TEXTLEN TEXTSEL TEXTOBJ!)
    (MACROS GETTSTR SETTSTR FGETTSTR FSETTSTR TEXTSTREAM!)
    (CONSTANTS * PTYPES)
    (GLOBALVARS \TEXTIMAGEOPS \TEXTFDEV)))
  (INITRECORDS PIECE TEXTOBJ TEXTSTREAM)
  (COMS
    ;; The BIN-level functions
    (FNS \TEDIT.TEXTBIN \TEDIT.TEXTPEEKBIN \TEDIT.TEXTBACKFILEPTR \TEDIT.TEXTBOUT
      \TEDIT.INSTALL.FILEBUFFER)
    (DECLARE%: EVAL@COMPILE DONTCOPY (MACROS \ENDOFFPIECEP \STARTOFFPIECEP \ENDOFFBUFFERP \STARTOFFBUFFERP
      )))
    ;; External format functions: equivalent to BIN-level except for COUNTP
    (FNS \TEDIT.TEXTOUTCHARFN \TEDIT.TEXTINCCODEFN \TEDIT.TEXTBACKCCODEFN \TEDIT.TEXTFORMATBYTESTREAM
      \TEDIT.TEXTFORMATBYTESTRING)
    ;; High-level stream operations
    (FNS OPENTEXTSTREAM COPYTEXTSTREAM TEDIT.STREAMCHANGEDP TXTFILE)
    (FNS \TEDIT.REOPENTEXTSTREAM \TEDIT.OPENTEXTSTREAM.PIECES \TEDIT.OPENTEXTSTREAM.PROPS
      \TEDIT.OPENTEXTSTREAM.SETUP.SEL \TEDIT.OPENTEXTSTREAM.WINDOW \TEDIT.OPENTEXTSTREAM.DEFAULTLOOKS
      \TEDIT.OPENTEXTFILE \TEDIT.CREATE.TEXTSTREAM \TEDIT.REOPEN.STREAM \TEDIT.TEXTINIT)
    ;; Is this being used:
    (FNS \TEDIT.TTYBOUT)
    [INITVARS (*TEDIT-EXTENSIONS* ' (TEDIT TED TXT TEXT BRAVO NIL)]
    ;; Low-level generic stream operations
    (FNS \TEDIT.TEXTCLOSEF \TEDIT.TEXTDSPFONT \TEDIT.TEXTEOF \TEDIT.TEXTGETEOFPTR \TEDIT.TEXTSETEOFPTR
      \TEDIT.TEXTGETFILEPTR \TEDIT.TEXTSETFILEINFO \TEDIT.TEXTOPENF \TEDIT.TEXTSETEOF
      \TEDIT.TEXTSETFILEPTR \TEDIT.TEXTDSPXPOSITION \TEDIT.TEXTDSPYPOSITION \TEDIT.TEXTLEFTMARGIN
      \TEDIT.TEXTRIGHTMARGIN \TEDIT.TEXTDSPCHARWIDTH \TEDIT.TEXTDSPSTRINGWIDTH \TEDIT.TEXTDSPLINEFEED)
    (COMS
      ;; Editing support
      (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (INSERTSTRINGLENGTH 512))
        (MACROS \INSERTCH.EXTENDABLE))
      (FNS \TEDIT.DELETE.SELPIECES \TEDIT.INSERTCH \TEDIT.INSERTCH.HISTORY \TEDIT.INSERTEOL
        \TEDIT.INSERTCH.INSERTION \TEDIT.INSERTCH.EXTEND)
      (FNS \TEDIT.NEXTCHANGEABLE.CHNO \TEDIT.LASTCHANGEABLE.CHNO)
      (FNS \SETUPGETCH)
      ; Deprecated, maybe still external callers
      (FNS \TEDIT.INSTALL.PIECE)
      [COMS
        ; Support for TEXTPROP
        (FNS TEXTPROP GETTEXTPROP PUTTEXTPROP GETTEXTPROPS PUTTEXTPROPS \TEDIT.TEXTPROP)
        (FNS \TEDIT.TEXTOBJ.PROPNAMES \TEDIT.TEXTOBJ.PROPFETCHFN \TEDIT.TEXTOBJ.PROPSTOREFN)
        ; For TEXTOBJ inspection
        ; Only if the declaration is loaded
        (DECLARE%: DONTCOPY
          (ADDVARS (INSPECTMACROS (TEXTOBJ \TEDIT.TEXTOBJ.PROPNAMES \TEDIT.TEXTOBJ.PROPFETCHFN
            \TEDIT.TEXTOBJ.PROPSTOREFN)
            (INITVARS (*TEDIT-OLD-STREAM-ERROR-HANDLER* (CONDITION-HANDLER 'XCL:STREAM-NOT-OPEN)
              (DECLARE%: DONTEVAL@LOAD DOCOPY (P (\TEDIT.TEXTINIT)))
              (DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS (ADDVARS (NLAMA)
                (NLAML)
                (LAMA TEXTPROP))
                (DECLARE%: EVAL@COMPILE DONTCOPY
```

(DECLARE%: EVAL@COMPILE DONTCOPY

;; FOLLOWING DEFINITIONS EXPORTED

(DECLARE%: EVAL@COMPILE

(DATATYPE PIECE (; The piece describes either a string or part of a file. , or a
; generalized OBJECT.

```

PCONTENTS ; The background source of data for this piece (stream, string,
; block, object, depending on the PTYPE).
(PCTYPE BITS 4) ; How the characters are delivered: thinfile, fatstring, object,
; substream
PBYTELEN ; Length of this character piece in bytes. PBYTELEN =
; PLEN*PBYTESPERCHAR
PFPOS ; The FILEPTR of the start of the piece in the file
PLEN ; Length of the piece, in characters.
NEXTPIECE ; -> Next piece in this textobj.
(PREVPPIECE FULLXPOINTER) ; -> Prior piece in this text object.
PCHARLOOKS ; Character formatting info
PBYTESPERCHAR ; The number of bytes per character, given that all characters in
; a piece are the same length.
(PPARALAST FLAG) ; This piece ends paragraph
PPARALOOKS ; Paragraph looks for this piece
(PNEW FLAG) ; This text is new here; used by the tentative edit system, and
; anyone else interested.
(NIL FLAG) ; Was PFATP
(PBINABLE FLAG) ; 8-bit bytes are binable (THINSTRING and THINFILE)
(PTREENODE XPOINTER) ; Points to the PCTB tree-node that contains this piece.
(PCHARSET BYTE) ; High-order charset for FATFILE1 pieces
(UTF8BYTESPERCHAR BYTE) ; The number of bytes in the UTF-8 encoding of all the Unicode
; characters in this piece

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[ACCESSFNS ((POBJ (AND (EQ OBJECT.PTYPE (PTYPE DATUM))
; (type? IMAGEOBJ (PCONTENTS DATUM))
; (PCONTENTS DATUM)))
(PLOOKS (STANDARD (fetch (PIECE PCHARLOOKS) of DATUM)
FAST
(fetch (PIECE PCHARLOOKS) of DATUM))
(STANDARD (replace (PIECE PCHARLOOKS) of DATUM with NEWVALUE)
FAST
(replace (PIECE PCHARLOOKS) of DATUM with NEWVALUE)
PFPOS _ 0 PLEN _ 0 PBYTELEN _ 0 PPARALOOKS _ TEDIT.DEFAULT.FMTSPEC)

```

(DATATYPE TEXTOBJ (.. This is where TEdit stores its state information, and internal data about the text being edited.

```

PCTB ; The piece table
TEXTLEN ; # of chars in the text
PRIMARYPANE ; A sequence of panes (split subwindows) that are open on this
; document. Was INSERTPC: The string-piece that received the
; last insertion. Now HINTPC
SUFFIXPIECE ; The last (end-of-stream) piece of the textstream, for easy
; insertion at the end
CHARFN ; Was: INSERTNEXTCH CH# of next char which is typed into
; that piece. Taken over by HINTPCSTARTCH#
HINTPC ; Was: Space left in the type-in piece
HINTPCSTARTCH# ; Was # of characters already in the piece.
INSERTSTRING ; A substring of storage that is available for an insertion.
TXTHISTORYUNDONE ; Events that result from undoing other events, for revoking the
; UNDO. Was: CH# of first char in the piece.
(NIL FLAG) ; Was INSERTPCVALID. T if it's OK to use the cached piece.
; Set to NIL by people who require that the next insertion/deletion
; use a different piece. Now just set HINTPC to NIL.
(TXTREADONLYQUIET FLAG) ; T => don't print READONLY abort messages
PARABREAKCHARS ; Characters that cause a paragraph break. Was WINDOW. The
; window-pane<s> where this textobj is displayed. Now chained
; through PRIMARYPANE
MOUSEREGION ; Section of the window the mouse is in.
LOOPFN ; Was: A list of lines (parallel to the panes in WINDOW) each of
; which is the top of chain of line descriptors for the part of the
; text that is visible in the corresponding pane. Now: each PANE
; has its own PLINES.
DS ; NOTE: THIS IS ONLY USED INCORRECTLY BY
; TEDIT-CHAT Display stream where this textobj is displayed
SEL ; The current selection within the text
LASTARROWX ; X for next arrow up or arrow down. Was: Scratch space for the
; selection code
NIL ; Was MOVESEL: Source for the next MOVE of text
NIL ; Was SHIFTEDSEL: Source for the next COPY
NIL ; Was DELETEDSEL: Text to be deleted imminently
WRIGHT ; Right edge of the window (or subregion) where this is displayed
WTOP ; Top of the window/region
WBOTTOM ; Bottom of the window/region
WLEFT ; Left edge of the window/region
TXTFILE ; The original text file we're editing
(\XDIRTY FLAG) ; T => changed since last saved.
(STREAMHINT FULLXPOINTER) ; -> the TEXTOFD stream which gives access to this textobj
EDITFINISHEDFLG ; T => The guy has asked the editor to go way
NIL ; Was CARET: Describes the flashing caret for the editing
; window
CARETLOOKS ; Font to be used for inserted text.
WINDOWTITLE ; Original title for this window, of there was one.
THISLINE ; Cache of line-related info, to speed up selection &c
(MENUFLG FLAG) ; T if this TEXTOBJ is a tedit-style menu
DEFAULTPARALOOKS ; Default Formatting Spec to be used when formatting
; paragraphs
(FORMATTEDP FLAG) ; Flag for paragraph formatting. T if this document is to contain
; paragraph formatting information.

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(TXTREADONLY FLAG) ; This is only available for shift selection.
(TXTEDITING FLAG) ; T => This document is in a window and there is an edit process
; behind it. For example, it only makes sense to have a caret
; show up if you are editing.
(TXTNOTSPLITTABLE FLAG) ; Can't split into panes, split-region not show. Was
; CANNOTNSCHARS: T => If TEdit rns into a 255, it won't attempt
; to convert to NS characters. Used for REALLY plain-text
; manipulation.
TXTTERMSA ; Special instructions for displaying characters on the screen
EDITOPACTIVE ; T if there is an editing operation in progress. Used to interlock
; the TEdit menu
DEFAULTCHARLOOKS ; The default character looks -- if any -- to be applied to
; characters coming into the file from outside.
TXTRTBL ; The READTABLE to be used by the command loop for
; command dispatch
TXTWTBL ; The READTABLE to be used to decide on word breaks
EDITPROPS ; The PROPS that were passed into this edit session
(BLUEPENDINGDELETE FLAG) ; T if the next insertion in this document is to be preceded by a
; deletion of the then-current selection
(TXTHISTORYINACTIVE FLAG) ; T if history events are not recorded (e.g. for transcript files)
TXTHISTORY ; The history list for this edit session.
(SELPANE FULLXPOINTER) ; The pane in which the last 'real' selection got made for this edit;
; used by TEDIT.NORMALIZECAREET
PROMPTWINDOW ; A window to be used for unscheduled interactions; normally a
; small window above the edit window
DISPLAYCACHE ; The bitmap to be used when building the image of a line for
; display
DISPLAYCACHEDS ; The DISPLAYSTREAM that is used to build line images
DISPLAYHPCYDS ; The DISPLAYSTREAM used to build line images of lines that
; are displayed in 'hardcopy' simulation mode
TXTPAGEFRAMES ; A tree of page frames, specifying how the document is to be
; laid out.
TXTCHARLOOKSLIST ; List of all the CHARLOOKSs in the document, so they can be
; kept unique
TXTPARALOOKSLIST ; List of all the PARALOOKS in the document, so they can be
; kept unique
(TXTAPPENDONLY FLAG) ; Allows updates only at the end of the stream. Was
TXTNEEDSUPDATE: T => Screen invalid, need to run updater
(TXTDON'TUPDATE FLAG) ; T if we're holding off on screen updates until later. Used, e.g.,
; by the menu-SHOW code so that you don't get piecemeal
; updates, but only one at the end of the SHOW.
TXTRAWINCLUDESTREAM ; NODIRCORE stream used to cache RAW includes (and maybe
; later, all includes?)
DOCPROPS ; Document properties that are stored with the document (not
; used yet)
TXTSTYLESHEET ; Style sheet local to this document. Not currently saved as part
; of the file.

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)
[ACCESSFNS TEXTOBJ ((\DIRTY (ffetch (TEXTOBJ \XDIRTY) of DATUM)
; (PROGN (FSETTOBJ DATUM LASTARROWX NIL)
; (CL:UNLESS (EQ NEWVALUE (ffetch (TEXTOBJ \XDIRTY) of DATUM))
; (\TEDIT.WINDOW.TITLE DATUM NEWVALUE)
; (replace \XDIRTY OF DATUM WITH NEWVALUE)))]
SEL _ (create SELECTION)
TEXTLEN _ 0 WRIGHT _ 0 WTOP _ 0 WLEFT _ 0 WBOTTOM _ 0 MOUSEREGION _ 'TEXT THISLINE _ (create THISLINE)
DEFAULTPARALOOKS _ TEDIT.DEFAULT.FMTSPEC PARABREAKCHARS _ (CHARCODE (EOL FORM LF CR))

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(ACCESSFNS TEXTSTREAM (.; Overlay for the STREAM record to allow mnemonic access to stream fields for Text streams.
;; The # of characters that have already been read from the current piece
(TEXTOBJ (fetch (STREAM F3) of DATUM)
; (REPLACE (STREAM F3) OF DATUM WITH NEWVALUE))
; The TEXTOBJ that is editing this text
(PIECE (fetch (STREAM F5) of DATUM)
; (REPLACE (STREAM F5) OF DATUM WITH NEWVALUE))
; The PIECE we're currently fetching chars from/putting chars
; into
(PCCHARSLEFT (fetch (STREAM F1) of DATUM)
; (replace (STREAM F1) of DATUM with NEWVALUE))
; Runs from PLEN to 0: piece exhausted
(NIL) ; Was CURRENTLOOKS at F10: The CHARLOOKS that are
; currently applicable to characters being taken from the stream.
; This is now CARETLOOKS of the TEXTOBJ.
(CURRENTPARALOOKS (fetch (STREAM IMAGEDATA) of DATUM)
; (replace (STREAM IMAGEDATA) of DATUM with NEWVALUE))
; THIS IS SOMEHOW INVOLVED IN STYLES, NOT SENSIBLE.
; REMOVE? The PARALOOKS that is currently applicable to
; characters being taken from the stream. This was the only
; residual field of TEXTIMAGEDATA, now gone.
(APPLYLOOKSUPDATEFN (fetch (STREAM F4) of DATUM)
; (replace (STREAM F4) OF DATUM with NEWVALUE))
; Determines whether to call
; \TEDIT.FORMATLINE.UPDATELOOKS at every piece change
; when line-formatting.
(STARTINGOFFSET (fetch (STREAM F2) of DATUM)
; (replace (STREAM F2) of DATUM with NEWVALUE))

```

```

[TYPE? (AND (type? STREAM DATUM)
            (type? TEXTOBJ (ffetch (TEXTSTREAM TEXTOBJ) of DATUM)
            (CREATE (create STREAM
                    BINABLE _ NIL
                    BOUTABLE _ NIL
                    ACCESS _ 'BOTH
                    USERCLOSEABLE _ T
                    USERVERSIBLE _ T
                    DEVICE _ \TEXTFDEV
                    F1 _ NIL
                    F2 _ 0
                    F3 _ NIL
                    F4 _ NIL
                    F5 _ NIL
                    MAXBUFFERS _ 10
                    IMAGEOPS _ \TEXTIMAGEOPS
                    IMAGEDATA _ NIL)))
)
(/DECLAREDATATYPE 'PIECE
  '(POINTER (BITS 4)
    POINTER POINTER POINTER POINTER FULLXPOINTER POINTER POINTER FLAG POINTER FLAG FLAG FLAG XPOINTER
    BYTE BYTE)
  ;; ---field descriptor list elided by lister---
  '22)
(/DECLAREDATATYPE 'TEXTOBJ
  '(POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
    POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
    FLAG FULLXPOINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
    POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
    POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER)
  ;; ---field descriptor list elided by lister---
  '96)
(DECLARE%: EVAL@COMPILE
(PUTPROPS NEXTPIECE MACRO ((PC)
                          (ffetch (PIECE NEXTPIECE) of PC)))
(PUTPROPS PREVPIECE MACRO ((PC)
                          (ffetch (PIECE PREVPIECE) of PC)))
(PUTPROPS PLEN MACRO ((PC)
                     (ffetch (PIECE PLEN) of PC)))
(PUTPROPS PTYPE MACRO ((PC)
                      (ffetch (PIECE PTYPE) of PC)))
(PUTPROPS PCONTENTS MACRO ((PC)
                          (ffetch (PIECE PCONTENTS) of PC)))
(PUTPROPS PLOOKS MACRO ((PC)
                       (ffetch (PIECE PCHARLOOKS) of PC)))
(PUTPROPS PCHARLOOKS MACRO ((PC)
                            (ffetch (PIECE PCHARLOOKS) of PC)))
(PUTPROPS PCHARSET MACRO ((PC)
                          (ffetch (PIECE PCHARSET) of PC)))
(PUTPROPS PPARALOOKS MACRO ((PC)
                            (ffetch (PIECE PPARALOOKS) of PC)))
(PUTPROPS PPARALAST MACRO ((PC)
                           (ffetch (PIECE PPARALAST) of PC)))
(PUTPROPS PFPOS MACRO ((PC)
                      (ffetch (PIECE PFPOS) of PC)))
(PUTPROPS PBYTELEN MACRO ((PC)
                          (ffetch (PIECE PBYTELEN) of PC)))
(PUTPROPS PNEW MACRO ((PC)
                     (ffetch (PIECE PNEW) of PC)))
(PUTPROPS PBINABLE MACRO ((PC)
                          (ffetch (PIECE PBINABLE) of PC)))
(PUTPROPS PBYTESPERCHAR MACRO ((PC)
                               (ffetch (PIECE PBYTESPERCHAR) of PC)))
(PUTPROPS POBJ MACRO ((PC)
                    (ffetch (PIECE POBJ) of PC)))
)

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(DECLARE%: EVAL@COMPILE
(PUTPROPS SETPC MACRO ((PC FIELD NEWVALUE)
  (replace (PIECE FIELD) of PC with NEWVALUE)))
(PUTPROPS FSETPC MACRO ((PC FIELD NEWVALUE)
  (freplace (PIECE FIELD) of PC with NEWVALUE)))
(PUTPROPS GETPC MACRO ((PC FIELD)
  (fetch (PIECE FIELD) of PC)))
(PUTPROPS FGETPC MACRO ((PC FIELD)
  (ffetch (PIECE FIELD) of PC)))
)
(DECLARE%: EVAL@COMPILE
(PUTPROPS THINPIECEP MACRO ((PC)
  ;; Assume that objects start out thin, for CHARSET in \TEDIT.PUT.PCTB. The putfn might immediately change
  ;; that, but we don't care.
  (SELECTC (PTYPE PC)
    (THIN.PTYPES T)
    (UTF8.PTYPE (EQ 1 (FGETPC PC PUTF8BYTESPERCHAR)))
    NIL)))
)
(DECLARE%: EVAL@COMPILE
(PUTPROPS VISIBLEPIECEP MACRO [(PC)
  (AND PC (NEQ 0 (PLEN PC))
    (NOT (FGETCLOOKS (PCHARLOOKS PC)
      CLINVISIBLE]))
(PUTPROPS NEXT.VISIBLE.PIECE MACRO ((PC)
  (find NPC inpieces (AND PC (NEXTPIECE PC)) suchthat (VISIBLEPIECEP NPC))))
(PUTPROPS PREV.VISIBLE.PIECE MACRO ((PC)
  (find PPC backpieces (AND PC (PREVPIECE PC)) suchthat (VISIBLEPIECEP PPC))))
)
(DECLARE%: EVAL@COMPILE
(PUTPROPS GETTOBJ MACRO ((TOBJ FIELD)
  (fetch (TEXTOBJ FIELD) of TOBJ)))
(PUTPROPS SETTOBJ MACRO ((TOBJ FIELD NEWVALUE)
  (replace (TEXTOBJ FIELD) of TOBJ with NEWVALUE)))
(PUTPROPS FGETTOBJ MACRO ((TOBJ FIELD)
  (ffetch (TEXTOBJ FIELD) of TOBJ)))
(PUTPROPS FSETTOBJ MACRO ((TOBJ FIELD NEWVALUE)
  (freplace (TEXTOBJ FIELD) of TOBJ with NEWVALUE)))
(PUTPROPS TEXTLEN MACRO ((TOBJ)
  (ffetch (TEXTOBJ TEXTLEN) of TOBJ)))
(PUTPROPS TEXTSEL MACRO ((TOBJ)
  (fetch (TEXTOBJ SEL) of TOBJ)))
(PUTPROPS TEXTOBJ! MACRO ((TOBJ)
  (\DTEST TOBJ 'TEXTOBJ)))
)
(DECLARE%: EVAL@COMPILE
(PUTPROPS GETTSTR MACRO ((TSTR FIELD)
  (fetch (TEXTSTREAM FIELD) of TSTR)))
(PUTPROPS SETTSTR MACRO ((TSTR FIELD NEWVALUE)
  (replace (TEXTSTREAM FIELD) of TSTR with NEWVALUE)))
(PUTPROPS FGETTSTR MACRO ((TSTR FIELD)
  (ffetch (TEXTSTREAM FIELD) of TSTR)))
(PUTPROPS FSETTSTR MACRO ((TSTR FIELD NEWVALUE)
  (freplace (TEXTSTREAM FIELD) of TSTR with NEWVALUE)))
(PUTPROPS TEXTSTREAM! MACRO (OPENLAMBDA (TSTR)
  (AND (\DTEST TSTR 'STREAM)
    (TEXTOBJ! (FGETTSTR TSTR TEXTOBJ)
      TSTR)))
)

```


POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
FLAG FULLXPOINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER FLAG POINTER FLAG FLAG FLAG
POINTER POINTER POINTER POINTER POINTER POINTER POINTER FLAG POINTER FULLXPOINTER POINTER POINTER
POINTER POINTER POINTER POINTER POINTER POINTER FLAG FLAG POINTER POINTER POINTER)

;; ---field descriptor list elided by lister---
' 96)

;; The BIN-level functions

(DEFINEQ

(\TEDIT.TEXTBIN

[LAMBDA (TSTREAM)

;; Edited 21-Oct-2024 00:26 by rmk
;; Edited 3-May-2024 14:57 by rmk
;; Edited 28-Apr-2024 11:30 by rmk
;; Edited 18-Mar-2024 23:34 by rmk
;; Edited 3-Feb-2024 14:27 by rmk
;; Edited 1-Feb-2024 11:44 by rmk
;; Edited 7-Jan-2024 12:00 by rmk
;; Edited 17-Jun-2023 13:47 by rmk
;; Edited 3-May-2023 15:09 by rmk
;; Edited 22-Dec-2021 10:29 by rmk: Return value of OBJECTCHAR property for image objects
;; Edited 28-Mar-94 15:33 by jds

;;; The BIN slow case for a text stream. For the fast, binable (THINFILE, THINSTRING) cases, this is called when an end-of-buffer is reached. If it is not
;;; also an end-of-piece, get a new buffer and continue. Otherwise, get a new piece (which may not be binable).

;;; If the stream is not binable (all other piece types) this gets called on every BIN. Then we start an extra test to distinguish between buffer overflow and
;;; piece overflow.

;;; The external filepointer (GETFILEPTR, SETFILEPTR) is calculated in characters: the total number of characters in all previous pieces, plus the
;;; characters (based on the offset) in the current piece.

(DECLARE (LOCALVARS . T))

(LET ((PC (fetch (TEXTSTREAM PIECE) of TSTREAM))
(PCCHARSLEFT (ffetch (TEXTSTREAM PCCHARSLEFT) of TSTREAM)))
(PROG1 (if (ffetch (STREAM BINABLE) of TSTREAM)

then
;; The BIN opcode detected a buffer overflow, move either to the next buffer for this piece, or the next piece. The
;; opcode doesn't manages only COFFSET, so here we have to figure out what4 PCCHARSOFFSET should have
;; been. NOTE: PCCHARSOFFSET cannot be changed in the stream unless the STARTINGCOFFSET is also bumped
;; to the COFFSET.

;; The COFFSET goes from 0 to CBUFSIZE--when it is = to CBUFSIZE we get an overflow. That maps to 0 in the
;; next buffer. When we come here in that case, we haven't actually read that character.

[SETQ PCCHARSLEFT (IDIFFERENCE PCCHARSLEFT (IDIFFERENCE (ffetch (STREAM COFFSET)
of TSTREAM)
(ffetch (TEXTSTREAM STARTINGCOFFSET)
of TSTREAM))
; 1-byte characters

(if (\ENDOFPIECEP PCCHARSLEFT)
then
;; Move to next piece. EOF handled below

(SETQ PC (\TEDIT.INSTALL.PIECE TSTREAM (NEXTPIECE PC)
0))

else
;; Set up for the next buffer in the same piece. We want to set it for the next unread character. We don't SUB1
;; because the character hasn't yet been read.

(\TEDIT.INSTALL.FILEBUFFER TSTREAM PCCHARSLEFT))

(CL:IF PC
(BIN TSTREAM)
(STREAMOP 'ENDOFSTREAMOP TSTREAM TSTREAM))

else
;; Not binable, more complicated return values. Opcode kicked out, didn't test for buffer overflow .

(CL:WHEN (\ENDOFBUFFERP TSTREAM)

;; Buffer overflow. Installers replace PCCHARSLET

(if (\ENDOFPIECEP PCCHARSLEFT)
then (SETQ PC (\TEDIT.INSTALL.PIECE TSTREAM (NEXTPIECE PC)
0))
else (\TEDIT.INSTALL.FILEBUFFER TSTREAM (SUB1 PCCHARSLEFT)))

(if (NOT PC)
then (STREAMOP 'ENDOFSTREAMOP TSTREAM TSTREAM)

elseif (ffetch (STREAM BINABLE) of TSTREAM)

then
;; We are here because BIN punted. If it punted because it reached the end of a binable piece, then we have
;; just advanced to the next piece. If it's binnable, then try running the opcode on the new situation. If it punted
;; because we were not working on a binnable piece then and we are looking at one now, then again we must
;; have advanced.

(BIN TSTREAM)

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else (add (ffetch (TEXTSTREAM PCCHARSLEFT) of TSTREAM)
      -1) ; Where we will be when the operation completes
(SELECTC (PTYPE PC)
 (FATSTRING.PTYPE ; This counts offset in characters, not bytes
 (PROG1 (\GETBASEFAT (ffetch (STREAM CBUFPTR) of TSTREAM)
 (ffetch (STREAM COFFSET) of TSTREAM))
 (add (ffetch (STREAM COFFSET) of TSTREAM)
 1)))
 (FATFILE2.PTYPE
 (PROG1 (create WORD
         HIBYTE _ (BIN (PCONTENTS PC))
         LOBYTE _ (BIN (PCONTENTS PC)))
 (add (ffetch (STREAM COFFSET) of TSTREAM)
 2)
 (CL:WHEN (\ENDOFBUFFERP TSTREAM)
 (\TEDIT.INSTALL.FILEBUFFER TSTREAM (ffetch (TEXTSTREAM PCCHARSLEFT)
 of TSTREAM))))))
(OBJECT.PTYPE ;; Return the object as BIN's result, and make sure we'll go to the next page next time.
              ;; OBJECTBYTE is for callers (like COMPARETEXT) that can't deal with image objects
 (PROG1 (OR (GETTEXTPROP (ffetch (TEXTSTREAM TEXTOBJ) of TSTREAM)
 'OBJECTBYTE)
 (PCONTENTS PC))
 (add (ffetch (STREAM COFFSET) of TSTREAM)
 1)))
(UTF8.PTYPE (PROG1 (UTF8.BINCODE (PCONTENTS PC))
 (add (ffetch (STREAM COFFSET) of TSTREAM)
 (PBYESPERCHAR PC))
 (CL:WHEN (\ENDOFBUFFERP TSTREAM)
 (\TEDIT.INSTALL.FILEBUFFER TSTREAM (ffetch (TEXTSTREAM
 PCCHARSLEFT)
 of TSTREAM))))))
(FATFILE1.PTYPE
 (PROG1 (create WORD
         HIBYTE _ (PCHARSET PC)
         LOBYTE _ (BIN (PCONTENTS PC)))
 (add (ffetch (STREAM COFFSET) of TSTREAM)
 1)
 (CL:WHEN (\ENDOFBUFFERP TSTREAM)
 (\TEDIT.INSTALL.FILEBUFFER TSTREAM (ffetch (TEXTSTREAM PCCHARSLEFT)
 of TSTREAM))))))
(THINFILE.PTYPE ; Fall through when the underlying stream is not binable
 (PROG1 (BIN (PCONTENTS PC))
 (add (ffetch (STREAM COFFSET) of TSTREAM)
 1)
 (CL:WHEN (\ENDOFBUFFERP TSTREAM)
 (\TEDIT.INSTALL.FILEBUFFER TSTREAM (ffetch (TEXTSTREAM PCCHARSLEFT)
 of TSTREAM))))))
(PROGN
 ;; For pieces not listed because they require more work. Assumes the function updates COFFSET
 ;; and that multi-byte characters are safe: don't cross buffer boundaries.
 (\TEDIT.THELP "\TEXTBIN UNKNOWN PTYPE" (PTYPE PC))

```

(\TEDIT.TEXTPEEKBIN

[LAMBDA (TSTREAM NOERROR)

```

; Edited 21-Oct-2024 00:33 by rmk
; Edited 19-Mar-2024 19:14 by rmk
; Edited 16-Mar-2024 12:44 by rmk
; Edited 1-Feb-2024 11:13 by rmk
; Edited 9-Aug-2022 10:19 by rmk
; Edited 7-Aug-2022 23:53 by rmk

```

```

;; Return the next character (object) without advancing TSTREAM. This may involve moving to the next file buffer or even the next piece. But
;; there is no need to back out that advance, the new position just anticipates what would happen with any following operations. What is important,
;; however, is to make sure that the backing stream for file pieces is left at its original position and thus remains consistent with TSTREAM's
;; parameters.

```

```

(DECLARE (LOCALVARS . T))
(LET ((PC (ffetch (TEXTSTREAM PIECE) of TSTREAM))
      (PCCHARSLEFT (ffetch (TEXTSTREAM PCCHARSLEFT) of TSTREAM))
      (PCONTENTS)
      (if (ffetch (STREAM BINABLE) of TSTREAM)
          then ;; Buffered pieces: thin file or thin string.
              (CL:WHEN (\ENDOFBUFFERP TSTREAM) ; Buffer overflow. Recover piece status from buffer parameters
                [SETQ PCCHARSLEFT (IDIFFERENCE PCCHARSLEFT (IDIFFERENCE (ffetch (STREAM COFFSET)
 of TSTREAM)
 (ffetch (TEXTSTREAM STARTINGCOFFSET)
 of TSTREAM])
 (if (\ENDOFPIECEP PCCHARSLEFT)
      then (SETQ PC (\TEDIT.INSTALL.PIECE TSTREAM (NEXTPIECE PC)
 0)) ; Also at piece end
      else (\TEDIT.INSTALL.FILEBUFFER TSTREAM (SUB1 PCCHARSLEFT))))))
;; TSTREAM is now set up for the next character, possibly for the first byte of the next piece or buffer. That's OK, no need to
;; restore the old ones.

```



```

elseif (\ENDOFPIECEP PCCHARSLEFT)
  then
    ;; Not binnable so the BIN opcode always punts. If no chars left, we advance the stream to the next piece, which may also set
    ;; up the buffer for file pieces. For file streams, the backing stream is properly positioned, and we only have to restore it to its
    ;; initial position. For fat strings, the "buffer" covers the whole string.
    (SETQ PC (\TEDIT.INSTALL.PIECE TSTREAM (NEXTPIECE PC)
              0)))
(if PC
  then (if (ffetch (STREAM BINABLE) of TSTREAM)
    then (\GETBASEBYTE (ffetch (STREAM CBUFPTR) of TSTREAM)
          (ffetch (STREAM COFFSET) of TSTREAM))
    else (SETQ PCONTENTS (PCONTENTS PC))
         (SELECTC (PTYPE PC)
                  (FATSTRING.PTYPE
                   (\GETBASEFAT (ffetch (STREAM CBUFPTR) of TSTREAM)
                                (ffetch (STREAM COFFSET) of TSTREAM)))
                  (FATFILE2.PTYPE
                   (PROG1 (create WORD
                               HIBYTE _ (BIN PCONTENTS)
                               LOBYTE _ (\PEEKBIN PCONTENTS))
                           (\BACKFILEPTR PCONTENTS)))
                  (OBJECT.PTYPE ;; Return the object as BIN's result, and make sure we'll go to the next page next time.
                               ;; OBJECTBYTE is for callers (like COMPARETEXT) that can't deal with image objects
                               (OR (GETTEXTPROP (ffetch (TEXTSTREAM TEXTOBJ) of TSTREAM)
                                       'OBJECTBYTE)
                                   PCONTENTS))
                  (UTF8.PTYPE (UTF8.PEEKCCODEFN PCONTENTS))
                  (FATFILE1.PTYPE
                   (create WORD
                               HIBYTE _ (PCHARSET PC)
                               LOBYTE _ (\PEEKBIN PCONTENTS)))
                  (SUBSTREAM.PTYPE ; A substream stored as an object
                   (\PEEKBIN (IMAGEOBJPROP PCONTENTS 'SUBSTREAM)))
                  (\TEDIT.THELP "UNKNOWN PIECE TYPE"))))
  elseif NOERROR
  then NIL
  else (STREAMOP 'ENDOFSTREAMOP TSTREAM TSTREAM])

```

(\TEDIT.TEXTBACKFILEPTR

[LAMBDA (TSTREAM)

```

; Edited 21-Oct-2024 00:33 by rmk
; Edited 1-Feb-2024 11:25 by rmk
; Edited 5-Jan-2024 17:57 by rmk
; Edited 28-Dec-2023 13:34 by rmk
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; Edited 15-Oct-2023 12:08 by rmk
; Edited 22-Sep-2023 10:11 by rmk
; Edited 17-Jun-2023 13:47 by rmk
; Edited 3-May-2023 15:05 by rmk
; Edited 12-Oct-2022 15:26 by rmk
; Edited 28-Mar-94 15:32 by jds

```

;; BACKFILEPTR of a text stream backs over a character.

```

(LET ((PC (ffetch (TEXTSTREAM PIECE) of TSTREAM))
      (PCCHARSLEFT (ffetch (TEXTSTREAM PCCHARSLEFT) of TSTREAM))
      PPC)
  (CL:WHEN (ffetch (STREAM BINABLE) of TSTREAM)
    ;; The stream was keeping track of BINS, we have to recalibrate.
    [SETQ PCCHARSLEFT (IDIFFERENCE PCCHARSLEFT (IDIFFERENCE (ffetch (STREAM COFFSET) of TSTREAM)
                                                             (ffetch (TEXTSTREAM STARTINGCOFFSET) of TSTREAM))

```

;; Back the offset one character's worth of bytes

```

(CL:WHEN (if (\STARTOFPIECEP TSTREAM PCCHARSLEFT)
  then (CL:WHEN (SETQ PPC (\PREV.VISIBLE.PIECE PC))
                ; Back up to last char of previous piece, if any.
                (\TEDIT.INSTALL.PIECE TSTREAM PPC (SUB1 (PLEN PPC)))
                (SETQ PC PPC))
  elseif (AND (MEMB (PTYPE PC)
                   FILE.PTYPES)
            (\STARTOFBUFFERP TSTREAM))
  then
    ;; Must be a buffered file, needs to back up 1 character (not bytes)
    (\TEDIT.INSTALL.FILEBUFFER TSTREAM (ADD1 PCCHARSLEFT))
  else
    ;; This piece can be backed up at least one character's worth of bytes, back it up
    (ADD (ffetch (STREAM COFFSET) of TSTREAM)
         (CL:IF (MEMB (PTYPE PC)
                     FILE.PTYPES)
                (IMINUS (PBYTESPERCHAR PC))
                -1))
    ;; If not binable, PCCHARSLEFT is maintained here.
    (CL:UNLESS (ffetch (STREAM BINABLE) of TSTREAM)
               (replace (TEXTSTREAM PCCHARSLEFT) of TSTREAM with (ADD1 PCCHARSLEFT))))

```

```

T)
;; We have now backed up to a piece that has at least one character. We are supposed to return the character we backed over. These
;; special cases are copied from \TEXTPEEKBIN.
(SELECTC (PTYPE PC)
 (THINFILE.PTYPE
  (\PEEKBIN (PCONTENTS PC)))
 (THINSTRING.PTYPE
  (\GETBASEBYTE (ffetch (STREAM CBUFPTR) of TSTREAM)
   (ffetch (STREAM COFFSET) of TSTREAM)))
 (FATSTRING.PTYPE
  (\GETBASEFAT (ffetch (STREAM CBUFPTR) of TSTREAM)
   (ffetch (STREAM COFFSET) of TSTREAM)))
 (FATFILE2.PTYPE
  (PROG1 (LOGOR (LLSH (BIN (PCONTENTS PC))
    8)
   (\PEEKBIN (PCONTENTS PC)))
  (\BACKFILEPTR (PCONTENTS PC))))
 (OBJECT.PTYPE ;; Return the object as BIN's result, and make sure we'll go to the next page next time.
  ;; OBJECTBYTE is for callers (like COMPARETEXT) that can't deal with image objects
  (OR (GETTEXTPROP (ffetch (TEXTSTREAM TEXTOBJ) of TSTREAM)
   'OBJECTBYTE)
  (PCONTENTS PC)))
 (UTF8.PTYPE (UTF8.PEEKCCODEFN (PCONTENTS PC)))
 (FATFILE1.PTYPE
  (LOGOR (LLSH (PCHARSET PC)
    8)
   (\PEEKBIN (PCONTENTS PC))))
 (SUBSTREAM.PTYPE ; A substream stored as an object
  (BIN (IMAGEOBJPROP (PCONTENTS PC)
   'SUBSTREAM)))
 (\TEDIT.THELP "UNKNOWN PIECE TYPE"))]]

```

(\TEDIT.TEXTBOUT

[LAMBDA (TSTREAM CHAR)

```

; Edited 17-Nov-2024 10:05 by rmk
; Edited 6-Sep-2024 13:06 by rmk
; Edited 27-Aug-2024 14:50 by rmk
; Edited 13-Aug-2024 08:28 by rmk
; Edited 25-Jun-2024 11:59 by rmk
; Edited 22-May-2024 21:02 by rmk
; Edited 18-May-2024 18:56 by rmk
; Edited 10-May-2024 22:37 by rmk
; Edited 8-May-2024 22:51 by rmk
; Edited 17-Mar-2024 11:59 by rmk
; Edited 15-Mar-2024 14:38 by rmk
; Edited 23-Dec-2023 12:14 by rmk
; Edited 18-Oct-2023 21:14 by rmk
; Edited 17-Jun-2023 12:18 by rmk
; Edited 23-Feb-2023 15:26 by rmk
; Edited 12-Aug-2022 23:26 by rmk
; Edited 10-May-93 16:59 by jds

```

```

;; Do BOUT to a text stream, which is an insertion at the caret.
;; Unlike EOL's that are typed in at \TEDIT.INSERT, EOL's here don't create paragraph breaks. We would get a new piece after every line of an
;; image stream
;; ADD1 to convert from "byte" indexing to TEDIT selection-indexing.
;; Seems foolish to use \TEXTGETFILEPTR here to map from the current piece to the absolute character index, just so \INSERTCH can map
;; backwards from the character number to the piece.
;; NOTE: This does not replace the character, it inserts in front. Perhaps calls TEDIT.RPLCHARCODE?

```

```

(CL:UNLESS (OR (\CHARCODEP CHAR)
 (IMAGEOBJP CHAR)
 (\ILLEGAL.ARG CHAR))
 (PROG [(TEXTOBJ (GETTSTR TSTREAM TEXTOBJ))
 (CHNO (ADD1 (\TEDIT.TEXTGETFILEPTR TSTREAM)
 (CL:WHEN [OR (FGETTOBJ TEXTOBJ TXTREADONLY)
 (AND (FGETTOBJ TEXTOBJ TXTAPPENDONLY)
 (ILESSP CHNO (FGETTOBJ TEXTOBJ TEXTLEN))
 ; The generic GETSTREAM missed this, because a textstream
 ; that isn't BOTH can't even be filled in. Although perhaps
 ; OPENTEXTSTREAM can fill in the stream, then reset the
 ; access bit if that's what the props say.
 (ERROR "FILE NOT OPEN" TSTREAM)
 (RETURN))
 (if (ILEQ CHNO (FGETTOBJ TEXTOBJ TEXTLEN))
 then (TEDIT.RPLCHARCODE TSTREAM CHNO CHAR) ; Replace in the middle, add at the end
 elseif (AND (\TEDIT.INSERTCH CHAR CHNO TEXTOBJ (MEMB CHAR (FGETTOBJ TEXTOBJ PARABREAKCHARS)))
 (\TEDIT.PRIMARYPANE TEXTOBJ))
 then (\TEDIT.UPDATE.LINES TEXTOBJ 'INSERTION CHNO 1))

```

```

;; ; We inserted 1 char. Whether or not we introduced a new piece or extended an old one, we want to be positioned so that the next BOUT will
;; insert after this one (if nothing else is changed). Do this after potential redisplay, in case the BINS in reformatting change the position.
;; If the selection points to a later character, should the selection be updated, so it selects the same characters?

```

```
(\TEDIT.TEXTSETFILEPTR TSTREAM CHNO)
(CL:WHEN NIL (FSETTOBJ TEXTOBJ CARETLOOKS OLDCARETLOOKS))
CHAR])
```

(\TEDIT.INSTALL.FILEBUFFER

```
[LAMBDA (TSTREAM PCCHARSLEFT)
```

```
; Edited 21-Oct-2024 00:26 by rmk
; Edited 18-Mar-2024 22:01 by rmk
; Edited 17-Mar-2024 19:37 by rmk
; Edited 28-Dec-2023 17:53 by rmk
; Edited 7-Dec-2023 16:10 by rmk
; Edited 8-Sep-2023 10:40 by rmk
; Edited 8-Sep-2022 14:17 by rmk
; Edited 21-Aug-2022 22:35 by rmk
; Edited 7-Aug-2022 20:35 by rmk
; Edited 31-Jul-2022 20:09 by rmk
```

```
:: Sets up the buffer and buffering parameters of TSTREAM and the underlying PFILE of its piece so that the next BIN will return the character
:: PCCHARSLEFT away from the end of the piece. PCCHARSLEFT is piecewise, STARTINGCOFFSET and other buffering parameters are
:: bufferwise.
```

```
:: Called on buffer overflow when the piece itself is not exhausted. .
```

```
:: A binable stream doesn't track the number of 1-byte chars left in this piece, but COFFSET minus STARTINGCOFFSET enables the
:: PCCHARSLEFT to be determined at the end of the buffer.
```

```
(LET* ((PC (fetch (TEXTSTREAM PIECE) of TSTREAM))
       (PFILE (PCONENTS PC))
       (PCBYTESLEFT)
       (CL:UNLESS (MEMB (PTYPE PC)
                        FILE.PTYPES)
                  [\TEDIT.THELP "FILE BUFFER FOR NON-FILE PIECE" (LIST PC (\TEDIT.PCTOCH PC (TEXTOBJ TSTREAM))]
                  (CL:UNLESS (AND PFILE (\GETSTREAM PFILE 'INPUT T)) ; The file was closed for some reason; reopen it.
                              (SETQ PFILE (\TEDIT.REOPEN.STREAM TSTREAM PFILE)))
                  (CL:UNLESS PCCHARSLEFT ; First character of the piece
                              (SETQ PCCHARSLEFT (PLEN PC))))))
```

```
:: PCBYTESLEFT is the number of bytes already covered so that PCCHARSLEFT characters are left in the piece.
```

```
(SETQ PCBYTESLEFT (ITIMES (IDIFFERENCE (PLEN PC)
                                       PCCHARSLEFT)
                          (PBYTESPERCHAR PC)))
```

```
:: Set PFILE to the byte position of the next character of this piece, establishing the PFILE buffer, offset
```

```
(\SETFILEPTR PFILE (IPLUS (PPOS PC)
                          PCBYTESLEFT))
(\PEEKBIN PFILE T)
```

```
:: PFILE's buffer parameters should now be good; steal the fields needed to simulate that stream.
```

```
:: The TSTREAM buffersize is reduced so that it only covers bytes that remain in the current piece.
```

```
(freplace (STREAM CPPTR) of TSTREAM with (ffetch (STREAM CPPTR) of PFILE))
(freplace (STREAM CBUFSIZE) of TSTREAM with (IMIN (IPLUS (ffetch (STREAM COFFSET) of PFILE)
                                                         (IDIFFERENCE (PBYTELEN PC)
                                                         PCBYTESLEFT))
                                                  (ffetch (STREAM CBUFSIZE) of PFILE)))
(freplace (STREAM COFFSET) of TSTREAM with (ffetch (STREAM COFFSET) of PFILE))
(freplace (TEXTSTREAM STARTINGCOFFSET) of TSTREAM with (fetch (STREAM COFFSET) of TSTREAM))
(freplace (TEXTSTREAM PCCHARSLEFT) of TSTREAM with PCCHARSLEFT])
```

)

```
(DECLARE%: EVAL@COMPILE DONTCOPY
```

```
(DECLARE%: EVAL@COMPILE
```

```
(PUTPROPS \ENDOFPIECEP MACRO ((PCLEFT)
                              (ILEQ PCLEFT 0)))
```

```
(PUTPROPS \STARTOFPIECEP MACRO ((TSTREAM PCLEFT)
                                (IEQP (PLEN (ffetch (TEXTSTREAM PIECE) of TSTREAM))
                                       PCLEFT)))
```

```
(PUTPROPS \ENDOFBUFFERP MACRO ((TSTREAM)
                                (IGEQ (ffetch (STREAM COFFSET) of TSTREAM)
                                       (ffetch (STREAM CBUFSIZE) of TSTREAM))))
```

```
(PUTPROPS \STARTOFBUFFERP MACRO ((TSTREAM)
                                  (ILEQ (ffetch (STREAM COFFSET) of TSTREAM)
                                         (ffetch (TEXTSTREAM STARTINGCOFFSET) of TSTREAM))))
```

)

```
:: External format functions: equivalent to BIN-level except for COUNTP
```

```
(DEFINEQ
```

(\TEDIT.TEXTOUTCHARFN

```
[LAMBDA (TSTREAM CHARCODE)
```

```
; Edited 17-Mar-2024 11:12 by rmk
; Edited 18-Oct-2023 21:05 by rmk
```

; Edited 22-Jul-2022 19:05 by rmk
; Edited 12-Oct-2021 15:38 by rmk:

:: OUTCHARFN for TEXTSTREAM -- BOUTs the 16-bit CHARCODE (via \TEXTBOUT), because TEdit streams deal in complete charcodes
;; rather than bytes. Updates the CHARPOSITION of the stream, which is used by some code to decide things.

```
(COND
  ((EQ CHARCODE (CHARCODE EOL))
   (\TEDIT.TEXTBOUT TSTREAM (CHARCODE CR))
   (freplace (STREAM CHARPOSITION) of TSTREAM with 0))
  (T (\TEDIT.TEXTBOUT TSTREAM CHARCODE)
   (freplace (STREAM CHARPOSITION) of TSTREAM with (PROGN ; Ugh. Don't overflow
                                                         (IPLUS16 (ffetch (STREAM CHARPOSITION) of TSTREAM)
                                                         1]))
```

(\TEDIT.TEXTINCCODEFN

[LAMBDA (STREAM COUNTP)

; Edited 31-Jan-2024 16:34 by rmk
; Edited 7-Aug-2022 22:25 by rmk
; Edited 22-Jul-2022 18:47 by rmk
; Edited 6-Aug-2021 15:57 by rmk:

::: Returns a 16 bit character code.

::: If COUNTP is non-NIL, the variable *BYTECOUNTER* is set freely to 1, since we only read 1 16-bit "byte".

```
(DECLARE (USEDFREE *BYTECOUNTER*))
(CL:WHEN COUNTP (SETQ *BYTECOUNTER* 1))
(BIN STREAM])
```

(\TEDIT.TEXTBACKCCODEFN

[LAMBDA (STREAM COUNTP)

; Edited 17-Mar-2024 11:11 by rmk
; Edited 22-Jul-2022 19:01 by rmk
; Edited 19-Jul-2022 17:12 by rmk
; Edited 13-Aug-2021 14:08 by rmk:

```
(DECLARE (USEDFREE *BYTECOUNTER*))
(CL:WHEN COUNTP (SETQ *BYTECOUNTER* -1))
(\TEDIT.TEXTBACKFILEPTR STREAM])
```

(\TEDIT.TEXTFORMATBYTESTREAM

[LAMBDA (STREAM BYTESTREAM)

; Edited 21-Oct-2024 00:26 by rmk
; Edited 19-Mar-2024 16:13 by rmk
; Edited 24-Jun-2021 16:47 by rmk:

:: BYTESTREAM might come in with a textstream external format, but that's presumably a mistake. If STREAM is a text stream, then it traffics in
;; XCCS characters, it's format should be relatively vanilla.

```
(\TEDIT.THELP)
(REPLACE (STREAM CHARSET) OF BYTESTREAM WITH (FETCH (STREAM CHARSET) OF STREAM])
```

(\TEDIT.TEXTFORMATBYTESTRING

[LAMBDA (TSTREAM STRING SCRATCHSTREAM)

; Edited 19-Mar-2024 18:22 by rmk

:: The FORMATBYTESTRINGFN for Text streams. STRING is presumably in internal XCCS character codes, and those are the codes that
;; TSTREAM will match against, independent of however its backing stream characters might be encoded. So we can just return STRING
(MKSTRING STRING])

:: High-level stream operations

(DEFINEQ

(OPENTEXTSTREAM

[LAMBDA (TEXT WINDOW START/PROPS END PROPS)

- :: Edited 17-Feb-2025 08:57 by rmk
- :: Edited 30-Jan-2025 11:15 by rmk
- :: Edited 10-Jan-2025 11:17 by rmk
- :: Edited 21-Nov-2024 00:18 by rmk
- :: Edited 1-Sep-2024 09:20 by rmk
- :: Edited 30-Jun-2024 16:17 by rmk
- :: Edited 25-Jun-2024 11:59 by rmk
- :: Edited 10-May-2024 22:42 by rmk
- :: Edited 6-May-2024 12:38 by rmk
- :: Edited 31-Mar-2024 11:43 by rmk
- :: Edited 17-Mar-2024 12:05 by rmk
- :: Edited 15-Mar-2024 14:23 by rmk
- :: Edited 10-Mar-2024 22:10 by rmk
- :: Edited 21-Jan-2024 10:31 by rmk

```

;; Edited 20-Dec-2023 10:47 by rmk
;; Edited 11-Dec-2023 09:50 by rmk
;; Edited 26-Oct-2023 10:59 by rmk
;; Edited 23-Oct-2023 22:14 by rmk
;; Edited 21-Oct-2023 12:21 by rmk
;; Edited 12-Oct-2023 23:44 by rmk
;; Edited 31-Jan-2022 17:25 by rmk: A string TEXT is converted here to a stream
;; Edited 4-May-93 14:38 by jds
;; Create a TEXTSTREAM to describe the segment of TEXT between START and END. Optionally, connect that to WINDOW for display. This is
;; the user entry for creating a (sub) textstream.
;;
;; If TEXT designates a file, we want to make sure that the file exists and can be opened before bothering the user to do anything else (like define a
;; window region).
;;
;; If TEXT is already a text stream, that stream and its text are reused. But if START and/or END are non-NIL, the pieces before START and after
;; END are deleted from the given text stream. (An alternative interpretation would be to create a new textstream and insert characters from
;; START to END into it.)
;;
;; If the WINDOW argument is non-NIL, this is responsible for reusing or creating a window and associating it with the text. To avoid needless user
;; interaction, we ask for a region and create the window after we have been able to open the text stream. But we do the other Tedit window
;; initialization after the textstream and textobj have been populated. Note that we do need to make sure the TEXTOBJ exists before we actually
;; get the file, so that the window and its promptwindow are available for messages as the file is read.
;;
;; Finally, WINDOW is passed as T (e.g. from TEDIT) to say that a region must be obtained for a required window.
(CL:WHEN (EQ 0 (NCHARS TEXT)) ; Empty string means empty document, not illegal file name
  (SETQ TEXT NIL))
(RESETLST
  (LET ((TSTREAM (TEXTSTREAM TEXT T))
        TEXTOBJ TEDIT.GET.FINISHEDFORMS PRIMPANE START)
    (DECLARE (SPECVARS TEDIT.GET.FINISHEDFORMS) ; Undocumented, but available for special-purpose actions
              ; specified somewhere below.
             (SETQ START (if (FIXP START/PROPS)
                             then START/PROPS
                             elseif (AND (LISTP START/PROPS)
                                         (NOT (LISTP PROPS)))
                             then (SETQ PROPS START/PROPS)
                             NIL))
             [if TSTREAM
               then (SETQ TEXTOBJ (TEXTOBJ TSTREAM))
                   (CL:WHEN (OR START END) ; Do the end first
                     (CL:WHEN (AND END (ILESSP END (TEXTLEN TEXTOBJ)))
                       (\TEDIT.DELETEPIECES (\TEDIT.SELPIECES (ADD1 END)
                                                             (TEXTLEN TEXTOBJ)
                                                             TEXTOBJ))
                       TEXTOBJ))
                   (CL:WHEN (AND START (IGREATERP START 1))
                     (\TEDIT.DELETEPIECES (\TEDIT.SELPIECES 1 (SUB1 START)
                                                             TEXTOBJ)
                       TEXTOBJ)))
                   (\TEDIT.OPENTEXTSTREAM.PROPS TEXTOBJ PROPS)
                   (\TEDIT.REOPENTEXTSTREAM TSTREAM)
                   (SETQ WINDOW (if [AND (SETQ PRIMPANE (OPENWP (\TEDIT.PRIMARYPANE TSTREAM)))
                                       (OR (NULL WINDOW)
                                           (EQ WINDOW (CAR (WINDOWPROP PRIMPANE 'TYPED-REGION])
                                                             PRIMPANE)
                                           ; Reuse the existing window/region
                                       else (\TEDIT.WINDOW.CREATE WINDOW TSTREAM PROPS)))
                   else (SETQ TSTREAM (\TEDIT.CREATE.TEXTSTREAM PROPS))
                   (SETQ TEXTOBJ (FGETTSTR TSTREAM TEXTOBJ))
                   (CL:WHEN TEXT ; Verify/open the file before the window
                     (SETQ TEXT (\TEDIT.OPENTEXTFILE TEXT PROPS))
                     (FSETOBJ TEXTOBJ TXTFILE TEXT))
                   ;; If we swap the window before the pieces, the local promptwindow is available for messages and queries. Otherwise, those
                   ;; show up in the system prompt. But if we do it in the opposite order, we don't know how to estimate the width for the window
                   ;; region.
                   (CL:WHEN TEXT
                     ;; TEXT is a stream. The fresh TEXTSTREAM is updated to hold that text, ready for window and process attachments.
                     (\TEDIT.OPENTEXTSTREAM.PIECES TEXT TSTREAM START END PROPS))
                   (CL:WHEN WINDOW ; WINDOW is Tedit on call from TEDIT
                     (SETQ WINDOW (\TEDIT.WINDOW.CREATE WINDOW TSTREAM PROPS))])
                   ;; We now have all the pieces, even for TEXT=NIL (empty document) case.
                   (CL:WHEN WINDOW ; Connect to the window
                     (\TEDIT.OPENTEXTSTREAM.WINDOW WINDOW TSTREAM PROPS))
                   (\TEDIT.OPENTEXTSTREAM.SETUP.SEL TSTREAM)
                   (\TEDIT.SCROLL.CARET TSTREAM)

```

```
(CL:UNLESS (FGETTOBJ TEXTOBJ TXTPAGEFRAMES)
  (TEDIT.PAGEFORMAT TEXTOBJ TEDIT.PAGE.FRAMES))
(for FORM in TEDIT.GET.FINISHEDFORMS do (EVAL FORM))
(SETFILEPTR TSTREAM (CL:IF (FGETTOBJ TEXTOBJ TXTAPPENDONLY)
  -1
  0))
TSTREAM)))
```

(COPYTEXTSTREAM

```
[LAMBDA (ORIGINAL CROSSCOPY)
```

```
; Edited 8-Feb-2025 20:10 by rmk
; Edited 12-Jan-2025 12:16 by rmk
; Edited 17-Mar-2024 12:41 by rmk
; Edited 16-Mar-2024 10:03 by rmk
; Edited 16-Jan-2024 12:27 by rmk
; Edited 22-Sep-2023 20:48 by rmk
; Edited 18-Sep-2023 08:21 by rmk
; Edited 16-Sep-2023 13:06 by rmk
; Edited 21-Jun-2023 00:02 by rmk
; Edited 7-May-2023 11:42 by rmk
; Edited 25-Apr-2023 18:07 by rmk
; Edited 18-Mar-2023 21:15 by rmk
; Edited 24-Apr-95 12:02 by sybalsky:mv:envos
```

```
:: Given a stream, textobj or window, returns a new textstream with the same contents. CROSSCOPY is a documented argument, but it doesn't
:: control what happens. It is supposed to force a copy of a file piece to a new underlying source (a string or nodicore piece), so that there is no
:: sharing between the original and the copy so that future edits in one stream are independent and safe even if the original file is deleted or
:: modified by operations on the other stream. But edit operations don't change the source file until the file is saved, and tne you get a new version
:: anyway. In any event, CROSSCOPY is T in all calls within TEDIT (e.g. for installing edit menus).
```

```
(LET ((TEXTOBJ (TEXTOBJ ORIGINAL))
      NEWSTREAM NEWTEXTOBJ)
      ; Create an empty textstream into which the pieces can be
      ; hammered
[SETQ NEWSTREAM (OPENTEXTSTREAM NIL NIL NIL NIL (COPY (FGETTOBJ TEXTOBJ EDITPROPS)
  (SETQ NEWTEXTOBJ (TEXTOBJ NEWSTREAM))
  (for PC NEWPC inpieces (\TEDIT.FIRSTPIECE TEXTOBJ) do (SETQ NEWPC (\TEDIT.COPYPIECE PC TEXTOBJ
    NEWTEXTOBJ NIL 'COPY))
    (CL:UNLESS NEWPC
      (CL:IF (EQ OBJECT.PTYPE (PTYPE PC))
        (ERROR "Image object does not allow
          copying" (POBJ PC))
        (ERROR "Piece cannot be copied " PC)))
      (\TEDIT.INSERTPIECE NEWPC NIL NEWTEXTOBJ))
    (FSETTOBJ NEWTEXTOBJ FORMATTEDP (FGETTOBJ TEXTOBJ FORMATTEDP))
    (FSETTOBJ NEWTEXTOBJ DEFAULTCHARLOOKS (FGETTOBJ TEXTOBJ DEFAULTCHARLOOKS))
    (FSETTOBJ NEWTEXTOBJ DEFAULTPARALOOKS (FGETTOBJ TEXTOBJ DEFAULTPARALOOKS))
    (FSETTOBJ NEWTEXTOBJ TXTRTBL (FGETTOBJ TEXTOBJ TXTRTBL))
    (FSETTOBJ NEWTEXTOBJ TXTWTBL (FGETTOBJ TEXTOBJ TXTWTBL))
    (FSETTOBJ NEWTEXTOBJ TXTSTYLESHEET (FGETTOBJ TEXTOBJ TXTSTYLESHEET))
    (FSETTOBJ NEWTEXTOBJ TXTPAGEFRAMES (FGETTOBJ TEXTOBJ TXTPAGEFRAMES))
    (FSETTOBJ NEWTEXTOBJ TXTPARALOOKSLIST (FGETTOBJ TEXTOBJ TXTPARALOOKSLIST))
    (FSETTOBJ NEWTEXTOBJ TXTCHARLOOKSLIST (FGETTOBJ TEXTOBJ TXTCHARLOOKSLIST))
    (FSETTOBJ NEWTEXTOBJ MENUFLG (FGETTOBJ TEXTOBJ MENUFLG))
    NEWSTREAM])
```

(TEDIT.STREAMCHANGEDP

```
[LAMBDA (STREAM RESET?)
```

```
; Edited 31-May-91 13:57 by jds
```

```
(PROG1 (fetch (TEXTOBJ \DIRTY) of (TEXTOBJ STREAM))
  (COND
    (RESET? (replace (TEXTOBJ \DIRTY) of (TEXTOBJ STREAM) with NIL))))])
```

(TXTFILE

```
[LAMBDA (TEXTOBJ)
```

```
; Edited 13-Jul-2023 19:49 by rmk
; Edited 31-May-91 13:58 by jds
```

```
:: This function is for compiled access to the TXTFILE field in RESETSAVE expressions. But maybe user functions should be able to call it, hence
:: the call to TEXTOBJ
```

```
(fetch (TEXTOBJ TXTFILE) of (TEXTOBJ TEXTOBJ])
```

)

(DEFINEQ

(\TEDIT.REOPENTEXTSTREAM

```
[LAMBDA (TSTREAM)
```

```
; Edited 17-Mar-2024 11:12 by rmk
; Edited 10-Mar-2024 00:36 by rmk
; Edited 22-Jan-2024 10:20 by rmk
```

```
:: RMK: Not sure whether this should operate on any stream, or just (by virtue of its name) a text stream. I put in the TEXTSTREAMP test.
; Edited 31-May-91 14:18 by jds
```

```
(SETQ TSTREAM (TEXTSTREAM TSTREAM T))
(CL:WHEN TSTREAM
  (LET ((TEXTOBJ (fetch (TEXTSTREAM TEXTOBJ) of TSTREAM)))
    (SETOBJ TEXTOBJ EDITFINISHEDFLG NIL)
    (replace (STREAM ACCESS) of TSTREAM with (CL:IF (GETTOBJ TEXTOBJ TXTREADONLY)
      'INPUT
      'BOTH))
```

:: Not sure why these are needed, and not the rest of the Text external format

```
(replace (STREAM STRMBINFN) of TSTREAM with (FUNCTION \TEDIT.TEXTBIN))
(replace (STREAM STRMBOUTFN) of TSTREAM with (FUNCTION \TEDIT.TEXTBOUT)))
TSTREAM])
```

(\TEDIT.OPENTEXTSTREAM.PIECES

```
[LAMBDA (TEXT TSTREAM START END PROPS)
```

; Edited 26-Sep-2024 22:27 by rmk
; Edited 20-Mar-2024 10:58 by rmk
; Edited 27-Dec-2023 13:33 by rmk
; Edited 23-Oct-2023 13:47 by rmk
; Edited 28-Sep-2023 10:17 by rmk
; Edited 27-Sep-2023 00:13 by rmk
; Edited 18-Sep-2023 17:15 by rmk
; Edited 17-Sep-2023 15:13 by rmk
; Edited 12-Sep-2023 16:46 by rmk
; Edited 9-Sep-2023 16:41 by rmk

:: Don't set TXTFILE here, because TEDIT.GET still needs it. WINDOW is available for size information, but it has not yet been setup for TEDIT.

:: The intent is that the window's promptwindow is available for local messages during the fetch, and the RESETSAVE of PROMPTWINDOW would
:: make even messages to the global promptwindow appear locally. An example is the mouseconfirm in READIMAGEOBJ that asks whether the
:: imageobj code should be loaded from a given file. The problem is that the Tedit prompt window is usually just 1 line high and doesn't
:: automatically grow to show multiple lines, so key information may not be displayed. If the Tedit prompt grows (and it can be determined when/if it
:: should later shrink), then this feature can be enabled.

```
(RESETLST
```

```
(LET* [(TEXTOBJ (TEXTOBJ! (fetch (TEXTSTREAM TEXTOBJ) of TSTREAM))
(PWINDOW (GETTOBJ TEXTOBJ PROMPTWINDOW))
(READONLY (GETTEXTPROP TEXTOBJ 'READONLY) ; READONLY only after creation, if specified
(AND NIL (CL:WHEN PWINDOW (RESETSAVE PROMPTWINDOW PWINDOW))
(FSETTOBJ TEXTOBJ TXTREADONLY NIL)
(FSETTOBJ TEXTOBJ TXTDON'TUPDATE T) ; Don't display or record histories until done
(FSETTOBJ TEXTOBJ TXTHISTORY 'DON'T)
(if (OR (GETTEXTPROP TEXTOBJ 'CACHE)
(NOT (RANDACCESSP TEXT)))
then ; If the file device isn't random access, cache the file locally.
; Also do this if he asks for a local cache.
```

(SETQ TEXT (\TEDIT.CACHEFILE TEXT TEXTOBJ START END))
;; Since we only copied the relevant part of the file into the cache, the whole file is now relevant.

```
(SETQ START 0)
(SETQ END (GETEOFPTR TEXT))
else (SETQ START (IMAX 0 (OR START 0)))
(SETQ END (IMIN (GETEOFPTR TEXT)
(OR END (GETEOFPTR TEXT)))
(if (OR (GETTEXTPROP TEXTOBJ 'CLEARGET)
(GETTEXTPROP TEXTOBJ 'UNFORMATTED?)
(GETTEXTPROP TEXTOBJ 'UNFORMATTED)
(GETTEXTPROP TEXTOBJ 'PLAINTEXT))
then (\TEDIT.GET.UNFORMATTED.FILE TEXT TSTREAM START END PROPS)
elseif (\TEDIT.GET.FORMATTED.FILE TEXT TSTREAM START END PROPS)
elseif (\TEDIT.GET.FOREIGN.FILE TEXT TSTREAM START END PROPS)
else (\TEDIT.GET.UNFORMATTED.FILE TEXT TSTREAM START END))
(FSETTOBJ TEXTOBJ TXTREADONLY READONLY)
(FSETTOBJ TEXTOBJ TXTHISTORY NIL)
(FSETTOBJ TEXTOBJ TXTHISTORYUNDONE NIL)
(\TEDIT.HISTORYADD TEXTOBJ (\TEDIT.HISTORY.EVENT TEXTOBJ :Get))
(FSETTOBJ TEXTOBJ TXTDON'TUPDATE NIL)))
TSTREAM])
```

(\TEDIT.OPENTEXTSTREAM.PROPS

```
[LAMBDA (TEXTOBJ PROPS)
```

; Edited 21-Nov-2024 11:28 by rmk
; Edited 31-Aug-2024 20:21 by rmk
; Edited 30-Aug-2024 14:47 by rmk
; Edited 14-Jul-2024 10:30 by rmk
; Edited 23-Jan-2024 08:36 by rmk
; Edited 22-Sep-2023 21:57 by rmk
; Edited 17-Sep-2023 09:41 by rmk

:: Install the props, with earlier ones overriding the defaults.

:: After this, all values should be retrievable by GETTEXTPROP

```
[PUTTEXTPROPS TEXTOBJ (APPEND PROPS TEDIT.DEFAULT.PROPS `(READTABLE ,TEDIT.READTABLE)
(\TEDIT.OPENTEXTSTREAM.DEFAULTLOOKS TEXTOBJ])
```

(\TEDIT.OPENTEXTSTREAM.SETUP.SEL

```
[LAMBDA (TSTREAM)
```

; Edited 17-Feb-2025 08:56 by rmk
; Edited 25-Nov-2024 14:33 by rmk
; Edited 20-Nov-2024 23:56 by rmk
; Edited 29-Sep-2024 10:51 by rmk
; Edited 7-Jul-2024 11:42 by rmk
; Edited 5-Jul-2024 17:15 by rmk
; Edited 18-May-2024 16:25 by rmk
; Edited 12-May-2024 21:40 by rmk
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; Edited 15-Dec-2023 23:05 by rmk
; Edited 12-Oct-2023 22:48 by rmk
; Edited 17-Sep-2023 12:52 by rmk
; Edited 12-Sep-2023 11:26 by rmk
; Edited 9-Sep-2023 13:43 by rmk
; Edited 1-Sep-2023 23:02 by rmk

:: This sets up the initial SEL for TEXTOBJ according to the SEL PROPS entry. If SELPROP is NIL, the default is 1-0-LEFT--just before the first
:: character. This doesn't show the selection--this stream may not yet have a window.

```
(LET* ((TEXTOBJ (GETTSTR TSTREAM TEXTOBJ))
      (SEL (TEXTSEL TEXTOBJ))
      SELPROP)
  (CL:UNLESS (AND SEL (GETSEL SEL SET))
    (SETQ SELPROP (GETTEXTPROP TEXTOBJ 'SEL))
    (FSETSEL SEL SET T)
    (\TEDIT.SHOWSEL SEL NIL TEXTOBJ)
    (CL:UNLESS (EQ SELPROP 'DON'T)
      (FSETSEL SEL SELKIND 'CHAR)
      (if (type? SELECTION SELPROP)
        then
          (\TEDIT.COPYSEL SELPROP SEL)
        elseif (LISTP SELPROP)
          then
            ;; Default to POINT selection
            (\TEDIT.UPDATE.SEL SEL (CAR SELPROP)
              (OR (CADR SELPROP)
                  0)
              (OR (CADDR SELPROP)
                  'LEFT))
            (FSETSEL SEL SELKIND 'CHAR)
          elseif (FIXP SELPROP)
            then
              (\TEDIT.UPDATE.SEL SEL SELPROP 0 'LEFT)
          elseif (FGETTOBJ TEXTOBJ TXTAPPENDONLY)
            then
              ;; Default to after the last character
              (\TEDIT.UPDATE.SEL SEL (FGETTOBJ TEXTOBJ TEXTLEN)
                0
                'RIGHT)
          else
            ;; Default to before the first character. UPDATE.SEL screws up the CHLIM=CH#+DCH invariant when DCH=0, it adds
            ;; 1, But UPDATE.SEL adds 1 when DCH=0. That's wrong for the initial caret, so brute-force fix it here. Maybe it's
            ;; wrong in general?
            (\TEDIT.UPDATE.SEL SEL 1 0 'LEFT)
            (FSETSEL SEL CHLIM 1))
      [FSETTOBJ TEXTOBJ CARETLOOKS (if (FGETSEL SEL SET)
        then
          ; An initial selection implies initial caret looks.
          (\TEDIT.GET.INSERT.CHARLOOKS TEXTOBJ SEL)
        else
          (\TEDIT.CARETLOOKS.VERIFY TEXTOBJ (GETTOBJ TEXTOBJ
            DEFAULTCHARLOOKS])

      (CL:WHEN (OR (FGETTOBJ TEXTOBJ TXTREADONLY)
                  (FGETTOBJ TEXTOBJ TXTAPPENDONLY)) ; Don't blink for read-only, but do highlighting
        (FSETSEL SEL HASCARET NIL))
        (\TEDIT.FIXSEL SEL TEXTOBJ)
        (\TEDIT.SHOWSEL SEL T TEXTOBJ)))
  SEL])
```

; Default, maybe reset below

; We came in with an explicit initial selection. Set it up.

(\TEDIT.OPENTEXTSTREAM.WINDOW

[LAMBDA (WINDOW TSTREAM PROPS)

; Edited 21-Nov-2024 00:18 by rmk
; Edited 1-Sep-2024 09:06 by rmk
; Edited 28-Jun-2024 23:06 by rmk
; Edited 16-Jun-2024 15:40 by rmk
; Edited 13-Jun-2024 17:57 by rmk
; Edited 19-May-2024 00:26 by rmk
; Edited 6-May-2024 21:16 by rmk
; Edited 17-Mar-2024 12:06 by rmk
; Edited 15-Mar-2024 14:38 by rmk
; Edited 26-Oct-2023 11:02 by rmk
; Edited 18-Sep-2023 23:22 by rmk
; Edited 17-Sep-2023 11:53 by rmk

:: Associates WINDOW with TSTREAM. Brute force, doesn't let this window stuff change the fileptr. Maybe should unsplit all panes if WINDOW is
:: split.

```
(LET ((TEXTOBJ (fetch (TEXTSTREAM TEXTOBJ) of TSTREAM))
      (FILEPTR (\TEDIT.TEXTGETFILEPTR TSTREAM)))
  [if WINDOW
    then
      (\TEDIT.WINDOW.SETUP WINDOW TSTREAM PROPS)
      (\TEDIT.SHOWSEL (FGETTOBJ TEXTOBJ SEL)
        NIL TEXTOBJ)
      (\TEDIT.FIXSEL (FGETTOBJ TEXTOBJ SEL)
        TEXTOBJ)
      (\TEDIT.SHOWSEL (FGETTOBJ TEXTOBJ SEL)
        T TEXTOBJ)
      (CL:WHEN (FGETTOBJ TEXTOBJ TXTREADONLY)
        (for PANE inpanes TEXTOBJ do (\TEDIT.UPCARET (GETPANEPROP (PANEPROPS PANE)
          PCARET))))
```



```

(\TEDIT.TEXTSETFILEPTR TSTREAM FILEPTR)
elseif (GETTEXTPROP TEXTOBJ 'PROMPTWINDOW)
  then ;; There is no window for the session, but he has passed in a promptwindow to use, install it in the textobj
    (SETTOBJ TEXTOBJ PROMPTWINDOW (GETTEXTPROP TEXTOBJ 'PROMPTWINDOW])
  (SETTOBJ TEXTOBJ \DIRTY NIL)
(WINDOW])

```

(\TEDIT.OPENTEXTSTREAM.DEFAULTLOOKS

```

[LAMBDA (TEXTOBJ)
; Edited 8-Feb-2025 22:04 by rmk
; Edited 29-Dec-2024 20:37 by rmk
; Edited 20-Dec-2024 11:56 by rmk
; Edited 16-Dec-2024 13:14 by rmk
; Edited 21-Nov-2024 14:35 by rmk
; Edited 29-Aug-2024 09:46 by rmk
; Edited 31-Jul-2024 12:09 by rmk
; Edited 29-Apr-2024 11:05 by rmk
; Edited 11-Nov-2023 16:13 by rmk
; Edited 17-Sep-2023 07:43 by rmk
; Edited 3-Aug-2023 23:02 by rmk
; Edited 26-Apr-2023 14:29 by rmk

;; The default looks must be created before the first piece, so that they can provide field-defaults.
(LET (FONT CHARLOOKS PARALOOKS)
  ;; Find the default font for this TEXTOBJ -- either what the guy tells us, the one from TEDIT.DEFAULT.PROPS, or his DEFAULTFONT.
  (SETQ FONT (OR (GETTEXTPROP TEXTOBJ 'FONT)
                 (FONTCREATE DEFAULTFONT)))
  (SETQ CHARLOOKS (GETTEXTPROP TEXTOBJ 'LOOKS))
  (SETQ CHARLOOKS (OR (AND CHARLOOKS (\TEDIT.PARSE.CHARLOOKS.LIST CHARLOOKS NIL TEXTOBJ))
                     (AND (type? CHARLOOKS FONT)
                          FONT)
                     (\TEDIT.CHARLOOKS.FROM.FONT FONT)))
  (SETQ CHARLOOKS (\TEDIT.UNIQUIFY.CHARLOOKS CHARLOOKS TEXTOBJ))
  (SETQ PARALOOKS (\TEDIT.UNIQUIFY.PARALOOKS (\TEDIT.PARSE.PARALOOKS.LIST (OR (GETTEXTPROP TEXTOBJ
                                                                                   'PARALOOKS)
                                                                                   (create PARALOOKS
                                                                                   using
                                                                                   TEDIT.DEFAULT.FMTSPEC
                                                                                   ))
                                                                                   NIL TEXTOBJ))
                TEXTOBJ))
  (SETTOBJ TEXTOBJ DEFAULTCHARLOOKS CHARLOOKS)
  (SETTOBJ TEXTOBJ CARETLOOKS CHARLOOKS)
  (SETTOBJ TEXTOBJ DEFAULTPARALOOKS PARALOOKS])

```

(\TEDIT.OPENTEXTFILE

```

[LAMBDA (TEXT PROPS)
; Edited 21-Nov-2024 11:38 by rmk
; Edited 20-Dec-2023 10:49 by rmk
; Edited 28-Oct-2023 10:33 by rmk
; Edited 26-Sep-2023 18:00 by rmk
; Edited 24-Sep-2023 23:13 by rmk
; Edited 18-Sep-2023 22:40 by rmk
; Edited 17-Sep-2023 21:29 by rmk

(CL:WHEN TEXT
  (if (OR (LITATOM TEXT)
          (STRINGP TEXT)
          (CL:PATHNAMEP TEXT))
    then
      ; String detects empty extension
      [OPENSTREAM (OR (if (OR (CL:PATHNAMEP TEXT)
                             (FILENAMEFIELD.STRING TEXT 'EXTENSION))
                        then (FINDFILE TEXT T)
                        elseif (FINDFILE-WITH-EXTENSIONS TEXT NIL *TEDIT-EXTENSIONS*)
                          TEXT)
                    'INPUT
                    'OLD
                    `((TYPE TEXT)
                     (FORMAT , (LISTGET PROPS 'FORMAT]
                    elseif (\GETSTREAM TEXT 'INPUT T)
                    else ;; Don't know what it is
                      (ERROR TEXT " does not identify a Tedit document")))]))

```

(\TEDIT.CREATE.TEXTSTREAM

```

[LAMBDA (PROPS)
; Edited 7-Feb-2025 08:09 by rmk
; Edited 16-Mar-2024 09:52 by rmk
; Edited 21-Jan-2024 15:16 by rmk
; Edited 17-Sep-2023 00:38 by rmk
; Edited 12-Sep-2023 11:27 by rmk

;; Creates and initializes an empty, windowless textstream
(LET (TSTREAM (TEXTOBJ (create TEXTOBJ)))
  (SETQ TSTREAM (create TEXTSTREAM
                        TEXTOBJ _ TEXTOBJ))

```

```
(SETTOBJ TEXTOBJ STREAMHINT TSTREAM)
(\TEDIT.OPENTEXTSTREAM.PROPS TEXTOBJ PROPS)
(\TEDIT.MAKEPCTB TEXTOBJ)
(\TEDIT.INSTALL.PIECE TSTREAM (FGETTOBJ TEXTOBJ SUFFIXPIECE)
0)
TSTREAM])
```

(\TEDIT.REOPEN.STREAM

```
[LAMBDA (TSTREAM PIECESTREAM)
```

```
; Edited 14-May-2024 18:00 by rmk
; Edited 16-Mar-2024 10:03 by rmk
; Edited 23-Jan-2024 00:28 by rmk
; Edited 9-Nov-2023 17:05 by rmk
; Edited 8-Sep-2023 00:23 by rmk
; Edited 15-Sep-2022 22:56 by rmk
; Edited 11-Jun-99 15:12 by rmk:
; Edited 15-Apr-93 15:53 by jds
```

```
:: Re-open a backing file stream, and propogate the change thru the entire piece table. Also, if TXTFILE is set to the closed stream, fill it in as well.
:: If there is a reopen operation that simply smashes the existing stream-datum, we wouldn't have to do the sweep.
```

```
(LET ((TEXTOBJ (TEXTOBJ TSTREAM))
NEWSTREAM)
(CL:UNLESS PIECESTREAM
(SETQ PIECESTREAM (FGETTOBJ TEXTOBJ TXTFILE)))
(if (\GETSTREAM PIECESTREAM 'INPUT T)
then PIECESTREAM
else [SETQ NEWSTREAM (OPENSTREAM PIECESTREAM 'INPUT NIL `( (TYPE TEXT)
(FORMAT , (STREAMPROP PIECESTREAM
:EXTERNAL-FORMAT]
```

```
:: Run thru the pieces, correcting any that used this stream to use the new one:
```

```
(for PC inpieces (\TEDIT.FIRSTPIECE TEXTOBJ) when (EQ (PCONTENTS PC)
PIECESTREAM)
do (FSETPC PC PCONTENTS NEWSTREAM))
```

```
:: Check the TXTFILE, and if it uses the closed stream, fix it as well:
```

```
(CL:WHEN (EQ (FGETTOBJ TEXTOBJ TXTFILE)
PIECESTREAM)
(FSETTOBJ TEXTOBJ TXTFILE NEWSTREAM))
```

```
:: Return the new value for the stream:
```

```
NEWSTREAM])
```

(\TEDIT.TEXTINIT

```
[LAMBDA NIL
```

```
; Edited 4-Sep-2024 22:05 by rmk
; Edited 22-May-2024 14:53 by rmk
; Edited 19-Mar-2024 18:16 by rmk
; Edited 17-Mar-2024 12:25 by rmk
; Edited 10-Mar-2024 13:50 by rmk
; Edited 7-Mar-2023 15:01 by rmk
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; Edited 22-Jul-2022 20:02 by rmk
; Edited 3-Jul-2022 00:34 by rmk
; Edited 5-May-2022 15:12 by rmk
; Edited 7-Oct-2021 08:40 by rmk:
; Create the FDEV and STREAM prototypes for TEXT streams.
```

```
:: TEXT streams make use of the following STREAM fields:
```

- :: (DEVICE (* FDEV of this guy -- The TEXT device)
- :: F1 Number of characters to the end of the current piece
- :: F2 Starting offset for the character in this piece end of underlying file's page
- :: F3 The TEXTOBJ for this stream
- :: F4 LOOKSUPDATEFN
- :: F5 The PIECE we're currently inside
- :: (FW6 WORD) (* CPAGE for the start of the piece, for BACKFILEPTR)
- :: (FW7 WORD) (* COFFSET for the start of the piece, for BACKFILEPTR)
- :: (FW8 WORD)

```
[SETQ \TEXTIMAGEOPS (create IMAGEOPS
IMAGETYPE _ 'TEXT
IMXPOSITION _ (FUNCTION \TEDIT.TEXTDSPXPOSITION)
IMYPOSITION _ (FUNCTION \TEDIT.TEXTDSPYPOSITION)
IMLEFTMARGIN _ (FUNCTION \TEDIT.TEXTLEFTMARGIN)
IMRIGHTMARGIN _ (FUNCTION \TEDIT.TEXTRIGHTMARGIN)
IMFONT _ (FUNCTION \TEDIT.TEXTDSPFONT)
IMCLOSEFN _ (FUNCTION NIL)
IMFONTCREATE _ 'DISPLAY
IMLINEFEED _ (FUNCTION \TEDIT.TEXTDSPLINEFEED)
IMCHARWIDTH _ (FUNCTION \TEDIT.TEXTDSPCHARWIDTH)
IMSTRINGWIDTH _ (FUNCTION \TEDIT.TEXTDSPSTRINGWIDTH)
IMSCALE _ (FUNCTION (LAMBDA NIL 1]
(FONTPROFILE.ADDDEVICE 'TEXT 'DISPLAY)
(ADDTTOVAR IMAGESTREAMTYPES (TEXT (FONTCREATE \CREATEDISPLAYFONT)
```

```
(FONTSAVAILABLE \SEARCHDISPLAYFONTFILES)
(CREATECHARSET \CREATECHARSET.DISPLAY))
```

:: Maybe more functions later. The INCODE and BACK functions possibly need to count. If \TEXTBACKFILEPTR takes a count variable, the extra level wouldn't be needed. But INCODE wants to go through the BIN opcode

```
(MAKE-EXTERNALFORMAT :TEXTSTREAM (FUNCTION \TEDIT.TEXTINCCODEFN)
(FUNCTION \TEDIT.TEXTPEEKBIN)
(FUNCTION \TEDIT.TEXTBACKCCODEFN)
(FUNCTION \TEDIT.TEXTOUTCHARFN)
(FUNCTION \TEDIT.TEXTFORMATBYTESTREAM)
'CR NIL (FUNCTION \TEDIT.TEXTFORMATBYTESTRING))
(SETQ \TEXTFDEV (create FDEV
DEVICENAME _ 'TEXT
RESETABLE _ T
RANDOMACCESSP _ T
PAGEMAPPED _ NIL
GETFILENAME _ (FUNCTION NIL)
BIN _ (FUNCTION \TEDIT.TEXTBIN)
BOUT _ (FUNCTION \TEDIT.TEXTBOUT)
CLOSEFILE _ (FUNCTION \TEDIT.TEXTCLOSEF)
OPENFILE _ (FUNCTION \TEDIT.TEXTOPENF)
DELETEFILE _ (FUNCTION NIL)
DIRECTORYNAMEP _ (FUNCTION NIL)
EVENTFN _ (FUNCTION NIL)
GENERATEFILES _ (FUNCTION \GENERATENOFILES)
GETFILEINFO _ (FUNCTION NIL)
HOSTNAMEP _ (FUNCTION NIL)
READPAGES _ (FUNCTION NIL)
REOPENFILE _ [FUNCTION (LAMBDA (FILE ACCESS RECOG OTHERINFO FDEV STREAM)
(replace (STREAM ACCESS) of STREAM with 'BOTH)
STREAM]
SETFILEINFO _ (FUNCTION \TEDIT.TEXTSETFILEINFO)
BACKFILEPTR _ (FUNCTION \TEDIT.TEXTBACKFILEPTR)
SETFILEPTR _ (FUNCTION \TEDIT.TEXTSETFILEPTR)
PEEKBIN _ (FUNCTION \TEDIT.TEXTPEEKBIN)
GETEOFPTR _ (FUNCTION \TEDIT.TEXTGETEOFPTR)
SETEOFPTR _ (FUNCTION \TEDIT.TEXTSETEOFPTR)
GETFILEPTR _ (FUNCTION \TEDIT.TEXTGETFILEPTR)
EOF _ (FUNCTION \TEDIT.TEXTEOF)
FDBINABLE _ T
FDBOUTABLE _ NIL
FDEXTENDABLE _ NIL
TRUNCATEFILE _ (FUNCTION NIL)
WRITEPAGES _ (FUNCTION NIL)
DEFAULTEXTERNALFORMAT _ :TEXTSTREAM))
```

```
(CL:SETF (CONDITION-HANDLER 'XCL:STREAM-NOT-OPEN)
(FUNCTION (LAMBDA (CONDITION)
(LET ((STREAM (STREAM-ERROR-STREAM CONDITION)))
(COND
[ (AND (BOUNDP 'ERRORPOS)
(TEXTSTREAMP STREAM)) ; This happened in the error handler, and it happened to a Tedit
; stream, so try the fix:
(LET ((XCL::RESULT (\TEDIT.REOPENTEXTSTREAM STREAM)))
(CL:WHEN XCL::RESULT
(ENVAPPLY (STKNAME ERRORPOS)
(SUBST XCL::RESULT STREAM (STKARGS ERRORPOS))
(STKNTH -1 ERRORPOS ERRORPOS)
ERRORPOS T T)))
(*TEDIT-OLD-STREAM-ERROR-HANDLER*
; Some other kind of stream, so punt to the old handler (if there is
; one):
(APPLY* *TEDIT-OLD-STREAM-ERROR-HANDLER* CONDITION]))
))
)
```

:: Is this being used:

```
(DEFINEQ
```

(\TEDIT.TTYBOUT

```
[LAMBDA (TSTREAM BYTE)
```

; Edited 26-Nov-2024 21:18 by rmk
; Edited 24-Jun-2024 00:05 by rmk
; Edited 17-Mar-2024 11:39 by rmk
; Edited 18-Mar-2023 20:08 by rmk
; Edited 31-May-91 14:18 by jds

:: Do BOUT to a text stream, which is an insertion at the caret.

:: IS THIS BEING USED ?? INSTEAD, SPECIAL CASES IN \TEDIT.TEXTOUTCHARFN

```
(LET ((TEXTOBJ (GETTSTR TSTREAM TEXTOBJ)))
(if (EQ BYTE ERASECHARCODE)
then (\TEDIT.CHARDELETE TSTREAM)
elseif (EQ IGNORE.CCE (fetch CCECHO of (\SYNCODE (OR (GETTOBJ TEXTOBJ TXTERMSA)
\PRIMTERMSA)
BYTE)))
else (\TEDIT.TEXTOUTCHARFN TSTREAM BYTE]))
```

)

(RPAQ? *TEDIT-EXTENSIONS* '(TEDIT TED TXT TEXT BRAVO NIL))

:: Low-level generic stream operations

(DEFINEQ

(\TEDIT.TEXTCLOSEF

[LAMBDA (TSTREAM)

; Edited 16-Mar-2024 10:03 by rmk
; Edited 28-Aug-2023 13:12 by rmk
; Edited 26-Oct-2022 11:17 by rmk
; Edited 22-Aug-2022 14:18 by rmk
; Edited 8-Aug-2022 14:56 by rmk
; Edited 15-Apr-93 16:43 by jds
; Close the files underlying a stream

(LET ((TEXTOBJ (TEXTOBJ TSTREAM)))

(for PC inpieces (\TEDIT.FIRSTPIECE TEXTOBJ) when (AND (MEMB (PTYPE PC)
FILE.PTYPES)
(PCONTENTS PC))

do (CLOSEF? (PCONTENTS PC)))

:: And close the REAL file as well, in case we'd made a local cache.

(CLOSEF? (GETTOBJ TEXTOBJ TXTFILE])

(\TEDIT.TEXTDSPFONT

[LAMBDA (TSTREAM NEWFONT)

; Edited 17-Mar-2024 11:49 by rmk
; Edited 15-Oct-2023 17:13 by rmk
; Edited 8-Sep-2022 14:16 by rmk
; Edited 31-May-91 14:02 by jds

:: Set the font for a TEdit window. Need change the caret looks, for character insertion, and the WINDOW's looks, so that TEXEC type-out to the
:: window does the right thing.

(LET ((TEXTOBJ (TEXTOBJ TSTREAM)))

(PROG1 (fetch (CHARLOOKS CLFONT) of (FGETTOBJ TEXTOBJ CARETLOOKS))
(CL:WHEN NEWFONT
(TEDIT.CARETLOOKS TSTREAM (\GETFONTDESC NEWFONT 'DISPLAY))
(for PANE inpanes (PROGN TEXTOBJ) do (DSPFONT NEWFONT PANE))))])

(\TEDIT.TEXTEOFP

[LAMBDA (TSTREAM)

; Edited 18-Mar-2024 22:43 by rmk
; Edited 23-Dec-2023 11:53 by rmk
; Edited 1-Jun-2023 17:07 by rmk
; Edited 10-Aug-2022 12:41 by rmk
; Edited 5-Aug-2022 16:37 by rmk
; Edited 31-May-91 14:18 by jds

:: Test for EOF on a text stream: At end of a piece, and there are no more pieces (visible or not). This assumes that there are no zero-length
:: pieces.

(OR (ZEROP (FGETTOBJ (TEXTOBJ TSTREAM)
TEXTLEN))

(CL:WHEN (\ENDOFBUFFERP TSTREAM)

[LET ((PCCHARSLEFT (ffetch (TEXTSTREAM PCCHARSLEFT) of TSTREAM)))

(CL:WHEN (ffetch (STREAM BINABLE) of TSTREAM)

[SETQ PCCHARSLEFT (IDIFFERENCE PCCHARSLEFT (IDIFFERENCE (ffetch (STREAM COFFSET)
of TSTREAM)
(ffetch (TEXTSTREAM STARTINGCOFFSET)
of TSTREAM)])

(AND (\ENDOFPIECEP PCCHARSLEFT)

(NULL (NEXTPIECE (fetch (TEXTSTREAM PIECE) of TSTREAM))])

(\TEDIT.TEXTGETEOFPTR

[LAMBDA (TSTREAM)

; Edited 17-Mar-2024 12:27 by rmk
; Edited 31-May-91 13:58 by jds

(GETTOBJ (fetch (TEXTSTREAM TEXTOBJ) of TSTREAM)
TEXTLEN])

(\TEDIT.TEXTSETEOFPTR

[LAMBDA (TSTREAM LEN)

; Edited 25-Nov-2024 20:13 by rmk
; Edited 7-Jul-2024 11:43 by rmk
; Edited 23-May-2024 08:33 by rmk

:: Eliminate all trailing bytes so the file contains the first LEN characters

(LET* ((TEXTOBJ (GETTSTR TSTREAM TEXTOBJ))

(TEXTLEN (FGETTOBJ TEXTOBJ TEXTLEN))

(SEL (FGETTOBJ TEXTOBJ SEL))

(TAILSEL (\TEDIT.COPYSEL SEL)))

(CL:UNLESS (IGEQ LEN TEXTLEN)

(RESETLST

[RESETSAVE (FGETTOBJ TEXTOBJ TXTAPPENDONLY)

\(PROGN (PUTTEXTPROP ,TEXTOBJ 'APPEND OLDVALUE]

(FSETTOBJ TEXTOBJ TXTAPPENDONLY NIL)

(\TEDIT.UPDATE.SEL TAILSEL (ADD1 LEN)

```
(IDIFFERENCE TEXTLEN LEN))
(\TEDIT.FIXSEL SEL TEXTOBJ)
(\TEDIT.DELETE TEXTOBJ TAILSEL)))]
```

(\TEDIT.TEXTGETFILEPTR

```
[LAMBDA (TSTREAM)
```

```
; Edited 7-Feb-2025 08:12 by rmk
; Edited 7-May-2024 21:14 by rmk
; Edited 19-Mar-2024 14:19 by rmk
; Edited 17-Mar-2024 00:25 by rmk
; Edited 21-Oct-2023 20:57 by rmk
; Edited 2-Sep-2022 17:45 by rmk
; Edited 30-Jul-2022 00:07 by rmk
; Edited 28-Mar-94 15:32 by jds
```

;; GETFILEPTR fn for text streams. Measured in characters (and objects), not 8-bit bytes.

```
(LET ((TEXTOBJ (ffetch (TEXTSTREAM TEXTOBJ) of TSTREAM))
      (PC (ffetch (TEXTSTREAM PIECE) of TSTREAM))
      PCCHARSLEFT)
  (if (OR (NULL PC)
          (\SUFFIXPIECEP PC TEXTOBJ))
      then ;; Not set or off the end
        (FGETTOBJ TEXTOBJ TEXTLEN)
      elseif (ZEROP (FGETTOBJ TEXTOBJ TEXTLEN))
      then ;; Replace a lingering piece from a delete-everything?
        (freplace (TEXTSTREAM PIECE) of TSTREAM with (FGETTOBJ TEXTOBJ SUFFIXPIECE))
        0
      else
        ; Somewhere inside the document
        (SETQ PCCHARSLEFT (ffetch (TEXTSTREAM PCCHARSLEFT) of TSTREAM))
        (CL:WHEN (ffetch (STREAM BINABLE) of TSTREAM)
          ;; PCCHARSLEFT may lag. If binable, everything is thin, no need to multiply. We don't change anything in TSTREAM
          [SETQ PCCHARSLEFT (IDIFFERENCE PCCHARSLEFT (IDIFFERENCE (ffetch (STREAM COFFSET) of TSTREAM)
                                                                    (ffetch (TEXTSTREAM STARTINGCOFFSET)
                                                                    of TSTREAM)])
          ;; -1 to go from TEDIT-selection character-indexing back to nominal "byte" positions. SETFILEPTR goes the other way.
          (IPLUS -1 (\TEDIT.PCTOCH PC TEXTOBJ)
                (IDIFFERENCE (PLEN PC)
                              PCCHARSLEFT]))
```

(\TEDIT.TEXTSETFILEINFO

```
[LAMBDA (TSTREAM ATTRIBUTE VALUE DEVICE)
```

```
; Edited 22-May-2024 14:58 by rmk
```

```
(LET ((TEXTOBJ (ffetch (TEXTSTREAM TEXTOBJ) of TSTREAM))
      SEL)
  (SELECTQ ATTRIBUTE
    (LENGTH
      (\TEDIT.TEXTSETEOFPTR TSTREAM VALUE))
    NIL])
```

```
; Delete the tail if LENGTH is shrinking
```

(\TEDIT.TEXTOPENF

```
[LAMBDA (TSTREAM ACCESS)
```

```
; Edited 16-Mar-2024 10:03 by rmk
; Edited 7-Dec-2023 21:01 by rmk
; Edited 22-Aug-2022 15:16 by rmk
; Edited 31-May-91 13:58 by jds
```

```
(for PC inpieces (\TEDIT.FIRSTPIECE (TEXTOBJ TSTREAM)) when
  DO (\TEDIT.REOPEN.STREAM TSTREAM (PCONTENTS PC))
  TSTREAM])
```

```
; Return the stream, opened for input
[AND (MEMB (PTYPE PC)
          FILE.PTYPES)
      (EQ NoBits (ffetch (STREAM ACCESSBITS)
                          of (PCONTENTS PC))
```

(\TEDIT.TEXTSETEOF

```
[LAMBDA (TSTREAM EOFPTR)
```

```
; Edited 17-Mar-2024 12:28 by rmk
; Edited 31-May-91 14:19 by jds
; Set the EPAGE/EOFFSET of the stream to be (SUB1 of
; EOFPTR)
```

```
(replace (STREAM EPAGE) of TSTREAM with (fetch (BYTEPTR PAGE) of EOFPTR))
(replace (STREAM EOFFSET) of TSTREAM with (fetch (BYTEPTR OFFSET) of EOFPTR))
```

(\TEDIT.TEXTSETFILEPTR

```
[LAMBDA (TSTREAM FILEPOS)
```

```
; Edited 20-Mar-2024 10:58 by rmk
; Edited 17-Mar-2024 00:27 by rmk
; Edited 23-Dec-2023 12:14 by rmk
; Edited 22-Oct-2023 16:14 by rmk
; Edited 2-Sep-2022 11:34 by rmk
; Edited 8-Aug-2022 23:55 by rmk
; Edited 22-Apr-93 13:44 by jds
; Sets the file ptr for a text stream.
```

;; FILEPOS is known to be a positive number. For other filedevices there is no error if the ptr is set beyond the EOF, and GETFILEPTR will return


```

                                TSTREAM))
                                RIGHTMAR)
elseif XPOSITION
  then ;; Even
      (LINELENGTH (IQUOTIENT XPOSITION (CHARWIDTH (CHARCODE A)
                                                TSTREAM))
                  TSTREAM)
else (TIMES (CHARWIDTH (CHARCODE A)
                      TSTREAM)
      (LINELENGTH NIL TSTREAM))

```

```

(\TEDIT.TEXTDSPCHARWIDTH
 [LAMBDA (TSTREAM CHARCODE) ; Edited 17-Mar-2024 12:23 by rmk
                                ; Edited 9-Feb-99 12:59 by kaplan
  (CHARWIDTH CHARCODE (\TEDIT.TEXTDSPFONT TSTREAM))
)

```

```

(\TEDIT.TEXTDSPSTRINGWIDTH
 [LAMBDA (TSTREAM STRING) ; Edited 17-Mar-2024 12:32 by rmk
                                ; Edited 9-Feb-99 13:00 by kaplan
  (STRINGWIDTH STRING (\TEDIT.TEXTDSPFONT TSTREAM))
)

```

```

(\TEDIT.TEXTDSPLINEFEED
 [LAMBDA (TSTREAM VALUE) ; Edited 17-Mar-2024 12:25 by rmk
  ;; Read only
  (FONTPROP (\TEDIT.TEXTDSPFONT TSTREAM)
            'HEIGHT])
)

```

;; Editing support

```
(DECLARE%: EVAL@COMPILE DONTCOPY
```

```
(DECLARE%: EVAL@COMPILE
```

```
(RPAQQ INSERTSTRINGLENGTH 512)
```

```
(CONSTANTS (INSERTSTRINGLENGTH 512))
```

```
(DECLARE%: EVAL@COMPILE
```

```

(PUTPROPS \INSERTCH.EXTENDABLE MACRO [(PREVPC INSERTION INSERTPTYPE)
  ;; Is INSERTION physically adjacent to the PCONTENTS of PREVPC ?
  (AND (EQ INSERTPTYPE (PTYPE PREVPC))
        (EQ (ffetch (STRINGP BASE) of INSERTION)
            (ffetch (STRINGP BASE) of (PCONTENTS PREVPC))))
        (IEQP (IPLUS (PLEN PREVPC)
                    (ffetch (STRINGP OFFST) of (PCONTENTS PREVPC)))
              (ffetch (STRINGP OFFST) of INSERTION]))
)
)

```

```
(DEFINEQ
```

```

(\TEDIT.DELETE.SELPIECES
 [LAMBDA (TEXTOBJ FIRSTCHAR LEN DONTCHECK) ; Edited 5-Feb-2025 23:33 by rmk
                                                ; Edited 26-Nov-2024 22:31 by rmk
                                                ; Edited 22-Sep-2024 18:34 by rmk
                                                ; Edited 7-Jul-2024 09:09 by rmk
                                                ; Edited 7-May-2024 21:14 by rmk
                                                ; Edited 17-Mar-2024 00:22 by rmk
                                                ; Edited 13-Feb-2024 00:13 by rmk
                                                ; Edited 11-Dec-2023 09:51 by rmk
                                                ; Edited 21-Oct-2023 23:50 by rmk
                                                ; Edited 3-Jun-2023 22:31 by rmk
                                                ; Edited 29-Jan-99 17:28 by kaplan
)

```

;; Delete LEN characters starting at FIRSTCHAR in TEXTOBJ. If any of the pieces contains an objecting object, nothing is done.

```

(CL:WHEN (type? SELECTION FIRSTCHAR)
  (CL:UNLESS LEN
    (SETQ LEN (FGETSEL FIRSTCHAR DCH)))
    (SETQ FIRSTCHAR (FGETSEL FIRSTCHAR CH#)))
(CL:UNLESS (GETTOBJ TEXTOBJ TXTREADONLY)
  (\TEDIT.BTVALIDATE '\TEDIT.DELETE.SELPIECES 'START TEXTOBJ)
  (LET (SELPIECES PREVPC)
    (CL:WHEN [AND (SETQ SELPIECES (\TEDIT.SELPIECES FIRSTCHAR (IPLUS FIRSTCHAR LEN -1)
                                                                    TEXTOBJ))
                  (OR DONTCHECK (for PC inselpieces (PROGN SELPIECES) always (OBJECT.ALLOWS PC
                                                                    'DELETE TEXTOBJ))
                    (SETQ PREVPC (PREVPIECE (FGETSPC SELPIECES SPFIRST)))

```

```
(\TEDIT.DELETEPIECES SELPIECES TEXTOBJ)
;; If the the effect of the deletion is to concatenate a (non-empty) prefix of one paragraph with a (non-empty) suffix of another,
;; propagate the prefix PARALOOKS all the way through to the end of the newly combined paragraph. All the pieces of a
;; paragraph must have the same PARALOOKS.
(CL:WHEN (AND PREVPC (NOT (PPARALAST PREVPC))) ; Retained a non-empty prefix
  (for PC (PARALOOKS _ (PPARALOOKS PREVPC))
    inpieces
      (NEXTPIECE PREVPC) do ;; (NEXTPIECE PREVPC) is the first retained piece linked in after the deletion
        (FSETPC PC PPARALOOKS PARALOOKS)
      repeatuntil (PPARALAST PC)))
(\TEDIT.BTVALIDATE '\TEDIT.DELETE.SELPIECES 'END TEXTOBJ)
;;
;; The pieces are now properly linked with the proper looks. SELPIECE holds the deleted pieces needed for undoing.
(\TEDIT.HISTORYADD TEXTOBJ (\TEDIT.HISTORY.EVENT TEXTOBJ :Delete FIRSTCHAR (FGETSPC SELPIECES
  SPLLEN)
  NIL NIL NIL SELPIECES))
T)))))
```

(\TEDIT.INSERTCH

[LAMBDA (CH CH# TEXTOBJ PARALAST)

```
; Edited 22-Nov-2024 13:48 by rmk
; Edited 22-Sep-2024 12:32 by rmk
; Edited 13-Aug-2024 08:30 by rmk
; Edited 18-May-2024 19:04 by rmk
; Edited 6-May-2024 10:28 by rmk
; Edited 17-Mar-2024 12:41 by rmk
; Edited 21-Jan-2024 14:06 by rmk
; Edited 9-Dec-2023 13:14 by rmk
; Edited 18-Oct-2023 21:16 by rmk
; Edited 15-Oct-2023 15:59 by rmk
; Edited 18-Aug-2023 14:36 by rmk
; Edited 2-Aug-2023 13:12 by rmk
; Edited 25-May-2023 09:14 by rmk
; Edited 23-May-2023 22:44 by rmk
; Edited 25-Oct-2022 12:48 by rmk
```

;; This inserts CH (a character code or string) into the text just in front of character CH#. After execution the first character of CH will be CH# in the text, the previous CH# char is at CH#+ (NCHARS CH). If PARALAST, PARALAST will be set for the piece that ends in CH.

;; This is optimized for the common case that the next character to be inserted is at the position one beyond the position of the previously inserted character.

;; 1. \INSERTCH.INSERTION allocates a string to contain the new character, by chopping the next character from the TEXTOBJ's INSERTSTRING resource.

;; 2. The insertion will go into a piece at position CH#, and this stores that piece in the HINTPC field of the TEXTOBJ, together with its starting position. If the next insertion comes immediately have that piece, \CHTOPC can find that piece without searching the BTREE.

;; 3. If the piece just before the target is a string piece whose string ends at the position in the same string just before the insertion, then the insertion can be accomplished by extending the string of the previous piece, by adjusting the string offset and length of that piece's string and compensating by shrinking the INSERTIONSTRING resource.

;; The net effect is that typically the target piece is found quickly, and that a sequence of characters that are inserted individually end up in a single string in a single piece (until a paragraph break, or some jumping around that eliminates the string contiguity).

;; In the nonoptimal, atypical case, the next insertion point is unrelated to the last one, a jump to a new place in the stream. In which case it might be between 2 existing pieces, or it might come in the middle of an existing piece that has to be split. At that point a new string piece can be introduced to hold the insertion, maybe still sucking from the existing insertion string.

```
(\TEDIT.BTVALIDATE '\TEDIT.INSERTCH 'BEGIN TEXTOBJ)
```

```
[SETQ CH# (MIN CH# (ADD1 (FGETTOBJ TEXTOBJ TEXTLEN)
  (PROG (PREVPC INSERTPTYPE INSERTPC INSERTION (ILEN (CL:IF (type? STRINGP CH)
    (NCHARS CH)
    1)))
  (CL:WHEN (ZEROP ILEN) ; Nothing to insert, really!
    (RETURN))
  )
```

;; Step 1: Construct the insertion string, presumably chopping the TEXTOBJ resource. May or may not be contiguous with last insertion.

```
(SETQ INSERTION (\TEDIT.INSERTCH.INSERTION CH TEXTOBJ))
(SETQ INSERTPTYPE (CL:IF (fetch (STRINGP FATSTRINGP) of INSERTION)
  FATSTRING.PTYPE
  THINSTRING.PTYPE))
```

;; Step 2: Find or create a piece with CH#at offset 0. This may involve splitting off an initial substring into a separate previous piece.

```
(SETQ INSERTPC (\TEDIT.ALIGNEDPIECE CH# TEXTOBJ))
```

;; Step 3: Insert the insertion, with luck, just by extending the previous piece, otherwise the insertion goes into its own new previous piece.

(FSETTOBJ TEXTOBJ HINTPC NIL) ; The hint has been used, but becomes invalid until the updates ; are complete.

(SETQ PREVPC (PREVPIECE INSERTPC))
(if (AND PREVPC (\INSERTCH.EXTENDABLE PREVPC INSERTION INSERTPTYPE)
(EQ (PCHARLOOKS PREVPC)
(FGETTOBJ TEXTOBJ CARETLOOKS))
(NOT (PPARALAST PREVPC))))

then ; Heuristic optimization: avoid a new piece if it is clear that won't get us into trouble. We can't append to a paralast candidate ; piece, because the new material would become part of a new paragraph that may or may not eventually end a different ; paragraph.

(\TEDIT.INSERTCH.EXTEND PREVPC ILEN TEXTOBJ)
else (SETQ PREVPC (create PIECE
PTYPE _ INSERTPTYPE
PCONTENTS _ INSERTION
PLEN _ ILEN
PCHARLOOKS _ (FGETTOBJ TEXTOBJ CARETLOOKS)
PPARALOOKS _ (PPARALOOKS (OR PREVPC INSERTPC))
PNEW _ T))

(SELECTC INSERTPTYPE
(THINSTRING.PTYPE
(FSETPC PREVPC PBYTESPERCHAR 1)
(FSETPC PREVPC PBYTELEN ILEN)
(FSETPC PREVPC PBINABLE T)
(FSETPC PREVPC PCHARSET 0))
(FATSTRING.PTYPE
(FSETPC PREVPC PBYTESPERCHAR 2)
(FSETPC PREVPC PBYTELEN (UNFOLD ILEN 2))
(FSETPC PREVPC PBINABLE NIL)
(FSETPC PREVPC PCHARSET \NORUNCODE))
NIL)
(\TEDIT.INSERTPIECE PREVPC INSERTPC TEXTOBJ))

:: The insertion is done and the pieces are properly integrated into the stream.

:: Register this event in the TEDIT history.

(\TEDIT.INSERTCH.HISTORY TEXTOBJ PREVPC CH# ILEN)

:: Finally, as a heuristic for continuous typing, set up the TEXTOBJ hint to speed up the \CHTOPC piece search if the next insertion comes just ; after this one (and this one is not PARALAST). This really doesn't matter for typing, but may make it noticeably faster for programmatic ; insertions..

(if PARALAST
then (FSETPC PREVPC PPARALAST T)
else (FSETTOBJ TEXTOBJ HINTPCSTARTCH# (IPLUS ILEN CH#))
(FSETTOBJ TEXTOBJ HINTPC INSERTPC))
(\TEDIT.BTVALIDATE '\TEDIT.INSERTCH 'END TEXTOBJ)
(RETURN INSERTPC))

(\TEDIT.INSERTCH.HISTORY

[LAMBDA (TEXTOBJ PREVPC CH# ILEN) ; Edited 22-Sep-2024 18:36 by rmk
; Edited 8-Jun-2023 08:39 by rmk
; Edited 28-May-2023 00:01 by rmk
; Edited 25-May-2023 09:13 by rmk

:: Fix the history to reflect the character/string insertion by extending the event for previous characters in an insertion run. Backspace removes ; individual characters, Undo removes the whole sequence.

(if (FGETTOBJ TEXTOBJ TXTHISTORYINACTIVE)
then ; Maybe the first event after setting the textprop--now's the time to flush
(FSETTOBJ TEXTOBJ TXTHISTORY NIL)
(FSETTOBJ TEXTOBJ TXTHISTORYUNDONE NIL)
else (LET ((EVENT (\TEDIT.LASTEVENT TEXTOBJ))) ; Immediately prior edit event.
(CL:UNLESS (type? TEDITHISTORYEVENT EVENT) ; Don't do composites, fall thru to add.
(SETQ EVENT NIL))
(if [AND EVENT (EQ PREVPC (GETTH EVENT THFIRSTPIECE))
(FMEMB (GETTH EVENT THACTION)
' (:Insert :Replace)
then ; We're continuing a prior insertion, just continue the old history event too. Critical that insertions and replacements ; save PREVPC as THFIRSTPIECE
(add (GETTH EVENT THLEN)
ILEN)
else ; A new insertion/replacement requires a new history event.
(if (AND EVENT (EQ (GETTH EVENT THACTION)
:Delete)
(IEQP CH# (GETTH EVENT THCH#)))
then (SETTH EVENT THACTION :Replace) ; Upgrade the deletion to a replacement
(SETTH EVENT THCH# CH#)
(SETTH EVENT THLEN (PLEN PREVPC))
(SETTH EVENT THPOINT 'RIGHT)
(SETTH EVENT THFIRSTPIECE PREVPC)
else ; This insertion is unrelated to the previous user action, we push a new event to support undo sequences.
; A deletion followed by a first insertion got converted to a replace above. We are now adding a character to the ; end. We want to start where it started before, and end one beyond where it ended before. Why aren't we in the ; above :Replace case?

:: In the replace case above, maybe the PREVPC test isn't right?

```
(\TEDIT.HISTORYADD TEXTOBJ (\TEDIT.HISTORY.EVENT TEXTOBJ :Insert CH# (PLEN PREVPC)
'RIGHT PREVPC])
```

(\TEDIT.INSERTEOL

```
[LAMBDA (CH CH# TSTREAM)
```

; Edited 29-Apr-2024 10:46 by rmk
; Edited 17-Mar-2024 11:41 by rmk
; Edited 11-Aug-2023 15:49 by rmk
; Edited 5-May-2023 17:00 by rmk
; Edited 31-May-91 14:00 by jds

:: Handle insertion of EOL and meta-EOL. The former causes a paragraph break, while the latter doesn't. Note that inserting a meta-EOL causes
:: the document to become formatted. \INSERTEOL might add this on to an extendable insertion piece, but a subsequent extension is foreclosed
:: by setting PPARALAST.

```
(PROG [INPC (TEXTOBJ (TEXTOBJ! (fetch (TEXTSTREAM TEXTOBJ) of TSTREAM]
(CL:WHEN (FGETTOBJ TEXTOBJ TXTREADONLY)
(RETURN NIL))
(CL:UNLESS (OR (FGETTOBJ TEXTOBJ FORMATTEDP)
(EQ (CHARCODE EOL)))
; Inserting a meta-EOL into an unformatted document. Start by
; setting up para breaks.
(\TEDIT.CONVERT.TO.FORMATTED TSTREAM))
(SETQ INPC (\TEDIT.INSERTCH (CHARCODE EOL)
CH# TEXTOBJ))
; Put the EOL in
(CL:WHEN (AND (EQ CH (CHARCODE EOL))
(PREVPiece INPC))
; It's really an EOL, rather than a meta-EOL so do para breaking.
(FSETPC (PREVPiece INPC)
PPARALAST T))
(RETURN INPC])
```

(\TEDIT.INSERTCH.INSERTION

```
[LAMBDA (CH TEXTOBJ)
```

; Edited 20-Oct-2023 23:57 by rmk
; Edited 15-Oct-2023 14:45 by rmk
; Edited 12-Apr-2023 16:55 by rmk
; Edited 13-Aug-2022 12:48 by rmk

:: Find string-storage that can hold the insertion, and stick it in. Try to chomp from the current INSERTSTRING resource held in the TEXTOBJ, if
:: any.

```
(LET ((INSERTSTRING (FGETTOBJ TEXTOBJ INSERTSTRING))
LEN FATP INSERTION)
(if (type? STRINGP CH)
then (SETQ LEN (ffetch (STRINGP LENGTH) of CH))
[SETQ FATP (AND (ffetch (STRINGP FATSTRINGP) of CH)
(for C instring CH never (IGREATERP C \MAXTHINCHAR)
else (SETQ LEN 1)
(SETQ FATP (IGREATERP CH \MAXTHINCHAR))
[if (AND INSERTSTRING (EQ FATP (ffetch (STRINGP FATSTRINGP) of INSERTSTRING))
(ILEQ LEN (ffetch (STRINGP LENGTH) of INSERTSTRING))
then (SETQ INSERTION (SUBSTRING INSERTSTRING 1 LEN))
; Chunk it off, keep whatever might be left
(FSETTOBJ TEXTOBJ INSERTSTRING (SUBSTRING INSERTSTRING (ADD1 LEN)
-1 INSERTSTRING))
else ; Allocate a string of the right type, to avoid an extra fattening pass
(if (IGREATERP LEN INSERTSTRINGLENGTH)
then ; Don't throw out the current cached resource if our new one is already full
(SETQ INSERTION (ALLOCSTRING LEN NIL NIL FATP))
else (SETQ INSERTSTRING (ALLOCSTRING INSERTSTRINGLENGTH NIL NIL FATP))
(SETQ INSERTION (SUBSTRING INSERTSTRING 1 LEN))
; Let the old one go--we may be starting a new sequential run
(FSETTOBJ TEXTOBJ INSERTSTRING (SUBSTRING INSERTSTRING (ADD1 LEN)
-1 INSERTSTRING])
; INSERTION can now hold the insertion, smash it in
(CL:IF (type? STRINGP CH)
(RPLSTRING INSERTION 1 CH)
(RPLCHARCODE INSERTION 1 CH))
INSERTION])
```

(\TEDIT.INSERTCH.EXTEND

```
[LAMBDA (PC ILEN TEXTOBJ)
```

; Edited 16-Mar-2024 09:56 by rmk
; Edited 21-Jan-2024 14:09 by rmk
; Edited 12-Apr-2023 09:37 by rmk
; Edited 1-Sep-2022 08:26 by rmk
; Edited 30-Aug-2022 11:13 by rmk
; Edited 21-Aug-2022 08:50 by rmk

:: Since INSERTION is physically adjacent to the PCONTENTS of PC, we can smash it on and adjust the lengths above. We also have to adjust
:: the DLEN for PC in its node.

```
(add (PLEN PC)
ILEN)
(FSETPC PC PBYTELEN (ITIMES (PLEN PC)
```

```

(PBYTESPERCHAR PC)))
(add (ffetch (STRINGP LENGTH) of (PCONTENTS PC))
 ILEN)
(add (ffetch (BTSLOT DLEN) of (\FINDSLOT (ffetch (PIECE PTREENODE) of PC)
 PC))
 ILEN)
(\TEDIT.UPDATEPCNODES PC ILEN TEXTOBJ])
)

```

(DEFINEQ

(\TEDIT.NEXTCHANGEABLE.CHNO

[LAMBDA (CHNO TEXTOBJ) ; Edited 25-Nov-2024 23:54 by rmk

;; Returns the number of the first visible character at or after CHNO, NIL if the first visible character is protected. Almost always CHNO--PCTOCH is the unusual case.

```

(LET ((FIRSTPIECE (\TEDIT.CHTOPC CHNO TEXTOBJ)))
 (find PC inpieces FIRSTPIECE until (GETCLOOKS (PCHARLOOKS PC)
 CLPROTECTED)
 when (VISIBLEPIECEP PC) do (RETURN (if (EQ PC FIRSTPIECE)
 then CHNO
 else (SUB1 (\TEDIT.PCTOCH PC TEXTOBJ]))))

```

(\TEDIT.LASTCHANGEABLE.CHNO

[LAMBDA (CHNO TEXTOBJ) ; Edited 26-Nov-2024 00:00 by rmk

;; Returns the number of the first visible character at or before CHNO, NIL if the first visible character is protected. Almost always CHNO--PCTOCH is the unusual case.

```

(LET ((FIRSTPIECE (\TEDIT.CHTOPC CHNO TEXTOBJ)))
 (find PC backpieces FIRSTPIECE until (GETCLOOKS (PCHARLOOKS PC)
 CLPROTECTED)
 when (VISIBLEPIECEP PC) do (RETURN (if (EQ PC FIRSTPIECE)
 then CHNO
 else (IPLUS (SUB1 (PLEN PC))
 (\TEDIT.PCTOCH PC TEXTOBJ))))

```

(DEFINEQ

(\SETUPGETCH

[LAMBDA (CH# TEXTOBJ) ; Edited 21-Oct-2024 00:26 by rmk
; Edited 29-Apr-2024 12:14 by rmk
; Edited 17-Mar-2024 00:27 by rmk
; Edited 23-Dec-2023 12:14 by rmk
; Edited 22-Aug-2022 13:04 by rmk
; Edited 10-Aug-2022 17:20 by rmk
; Edited 8-Aug-2022 15:07 by rmk
; Edited 31-Jul-2022 21:27 by rmk
; Edited 14-Apr-93 17:14 by jds

;;; Set up TEXTOBJ so that the next \GETCH will retrieve character # CH#
;; NB that 1st char in the textobj is #1.
;; NOBODY CALLS IT WITH A PIECE. CALLS |INSTALL.PIECE INSTEAD

```

(SETQ TEXTOBJ (TEXTOBJ))
(LET ((TSTREAM (TEXTSTREAM TEXTOBJ)))
 (COND
 ((TYPE? PIECE CH#)
 (\TEDIT.THELP "\SETUPGETCH CALLED WITH PIECE")
 (\TEDIT.INSTALL.PIECE TSTREAM CH# 0))
 (T (LET (START-OF-PIECE PC)
 (DECLARE (SPECVARS START-OF-PIECE))
 (SETQ PC (\TEDIT.CHTOPC CH# TEXTOBJ T))
 (\TEDIT.INSTALL.PIECE TSTREAM PC (- CH# START-OF-PIECE]))

```

;; Deprecated, maybe still external callers

(DEFINEQ

(\TEDIT.INSTALL.PIECE

[LAMBDA (TSTREAM PC CHOFFSET) ; Edited 21-Oct-2024 00:26 by rmk
; Edited 18-May-2024 22:39 by rmk
; Edited 9-May-2024 22:34 by rmk
; Edited 18-Mar-2024 22:26 by rmk
; Edited 1-Feb-2024 00:23 by rmk
; Edited 21-Jan-2024 13:00 by rmk
; Edited 5-Jan-2024 10:30 by rmk
; Edited 28-Dec-2023 10:59 by rmk
; Edited 23-Dec-2023 12:16 by rmk
; Edited 7-Dec-2023 15:46 by rmk
; Edited 26-Nov-2023 20:47 by rmk

; Edited 3-May-2023 15:10 by rmk
; Edited 11-Oct-2022 18:14 by rmk
; Edited 8-Sep-2022 20:46 by rmk

;; Makes PC be the current piece in TSTREAM. set up so that the next character is at CHOFFSET relative to the start of the piece.
;; SHOULD PARTS OF THIS BE UNINTERRUPTABLE?

```
(CL:WHEN PC
  (PROG (PCCHARSLEFT (PCONTENTS (PCONTENTS PC))
        (PLEN (PLEN PC))))
```

;; Install PC in TSTREAM.

```
(freplace (TEXTSTREAM PIECE) of TSTREAM with PC)
(CL:WHEN (ffetch (TEXTSTREAM APPLYLOOKSUPDATEFN) of TSTREAM)
```

;; Called from \TEDIT.FORMATLINE to update formatting variables at piece boundaries. Otherwise, the call is from one of the
;; external-format functions. Early versions of the code set CARETLOOKS as pieces were encountered, but it makes more
;; sense for CARETLOOKS to change only by explicit movement of the caret.

```
(SETQ PC (\TEDIT.FORMATLINE.UPDATELOOKS TSTREAM PC))
(CL:UNLESS PC ; Invisible to the end?
  (RETURN NIL)))
```

;;

;; Now set up for binning.

```
(SETQ PCCHARSLEFT (IDIFFERENCE PLEN CHOFFSET))
(freplace (STREAM COFFSET) of TSTREAM with 0)
(SELECTC (PTYPE PC)
```

(FILE.PTYPES ;; Sets up the buffers and positions the underlying stream. Unless thinfile, the BIN opcode punts everything.

```
(\TEDIT.INSTALL.FILEBUFFER TSTREAM PCCHARSLEFT))
```

```
(STRING.PTYPES
```

```
(freplace (STREAM CPPTR) of TSTREAM with (ffetch (STRINGP BASE) of PCONTENTS))
(freplace (STREAM COFFSET) of TSTREAM with (IPLUS (ffetch (STRINGP OFFST) of PCONTENTS)
                                                CHOFFSET))
```

```
(freplace (STREAM CBUFSIZE) of TSTREAM with (IPLUS (ffetch (STRINGP OFFST) of PCONTENTS)
                                                  PLEN)))
```

```
(OBJECT.PTYPE (freplace (STREAM CBUFSIZE) of TSTREAM with 1))
NIL)
```

```
(freplace (STREAM BINABLE) of TSTREAM with (PBINABLE PC))
(freplace (TEXTSTREAM STARTINGCOFFSET) of TSTREAM with (ffetch (STREAM COFFSET) of TSTREAM))
(freplace (TEXTSTREAM PCCHARSLEFT) of TSTREAM with PCCHARSLEFT)
(CL:WHEN (ILESSP PCCHARSLEFT 0)
  (\TEDIT.THELP "INSTALL.PIECE PCCHARSLEFT LESS THAN 0"))
(RETURN PC)))]]
```

)

;; Support for TEXTPROP

(DEFINEQ

(TEXTPROP

```
[LAMBDA NARGS
  (CL:UNLESS (IGEQ NARGS 2)
    (\ILLEGAL.ARG NARGS))
  (\TEDIT.TEXTPROP (TEXTOBJ (ARG NARGS 1))
    (ARG NARGS 2)
    (IGEQ NARGS 3)
    (AND (IGEQ NARGS 3)
      (ARG NARGS 3))
```

; Edited 30-Jul-2024 12:48 by rmk

(GETTEXTPROP

```
[LAMBDA (TSTREAM PROP)
  ;; Gets values for document properties.
  (\TEDIT.TEXTPROP (TEXTOBJ TSTREAM)
    PROP)]
```

; Edited 30-Jul-2024 12:40 by rmk

(PUTTEXTPROP

```
[LAMBDA (TSTREAM PROP VALUE)
  ;; Stores VALUE as the PROP value of TSTREAM
  (\TEDIT.TEXTPROP (TEXTOBJ TSTREAM)
    PROP T VALUE)]
```

; Edited 30-Jul-2024 12:41 by rmk

(GETTEXTPROPS

```
[LAMBDA (TSTREAM PROPNames)
  (for PROP (TEXTOBJ _ (TEXTOBJ TSTREAM)) inside PROPNames join (LIST PROP (\TEDIT.TEXTPROP TEXTOBJ PROP))
```

; Edited 30-Jul-2024 12:37 by rmk
; Edited 11-Jul-2024 12:14 by rmk

(PUTTEXTPROPS

```
[LAMBDA (TSTREAM PROPS)
```

; Edited 30-Jul-2024 12:44 by rmk
; Edited 14-Jul-2024 10:27 by rmk

; Edited 11-Jul-2024 12:14 by rmk

:: The "when" is to only do the first if there are multiple instances of the same property, so that the first ones take effect, later ones can act as defaults.

:: E.g (FOO T FOO NIL) => T.

```
(for PTAIL (TEXTOBJ _ (TEXTOBJ TSTREAM)) on PROPS by (CDDR PTAIL) when (EQ (CADR PTAIL)
                                                                    (LISTGET PROPS (CAR PTAIL))))
  do (\TEDIT.TEXTPROP TEXTOBJ (CAR PTAIL)
      T
      (CADR PTAIL))
```

(TEDIT.TEXTPROP

```
[LAMBDA (TEXTOBJ PROP SETNEWVALUE NEWVALUE)
```

```
; Edited 16-Feb-2025 23:27 by rmk
; Edited 15-Feb-2025 14:02 by rmk
; Edited 22-Dec-2024 00:23 by rmk
; Edited 23-Nov-2024 09:47 by rmk
; Edited 21-Nov-2024 11:53 by rmk
; Edited 18-Nov-2024 16:37 by rmk
; Edited 15-Nov-2024 18:07 by rmk
; Edited 22-Sep-2024 08:41 by rmk
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; Edited 29-Aug-2024 12:28 by rmk
; Edited 26-Aug-2024 15:50 by rmk
; Edited 13-Aug-2024 08:27 by rmk
; Edited 5-Aug-2024 16:01 by rmk
; Edited 30-Jul-2024 12:40 by rmk
; Edited 25-Apr-2024 00:00 by rmk
; Edited 21-Sep-2023 09:54 by rmk
; Edited 9-Feb-89 11:20 by jds
```

:: Internal function for getting/setting properties. Called by TEXTPROP, GETTEXTPROP, PUTTEXTPROP. Puts the special code for built-in properties in once place.

```
(TEXTOBJ! TEXTOBJ)
(SELECTQ PROP
  ((READONLY READ-ONLY)
   (PROG1 (CL:WHEN (FGETTOBJ TEXTOBJ TXTREADONLY)
                 (CL:IF (FGETTOBJ TEXTOBJ TXTREADONLYQUIET)
                        'QUIET
                        T)))
   (CL:WHEN SETNEWVALUE
             (FSETTOBJ TEXTOBJ TXTREADONLY NEWVALUE)
             (FSETTOBJ TEXTOBJ TXTREADONLYQUIET (EQ 'QUIET NEWVALUE))
             (\TEDIT.HISTORY.PROP TEXTOBJ T 'OFF))))
  ((BEING-EDITED ACTIVE)
   (PROG1 (FGETTOBJ TEXTOBJ TXTEDITING)
         (CL:IF SETNEWVALUE (FSETTOBJ TEXTOBJ TXTEDITING NEWVALUE))))
  (READTABLE (PROG1 (FGETTOBJ TEXTOBJ TXTRTBL)
                   (CL:IF SETNEWVALUE (FSETTOBJ TEXTOBJ TXTRTBL NEWVALUE))))
  (TERMTABLE (PROG1 (FSETTOBJ TEXTOBJ TXTTERMSA (fetch (TERMTABLEP TERMSA) of NEWVALUE))
                   (CL:IF SETNEWVALUE
                       (FSETTOBJ TEXTOBJ TXTTERMSA (fetch (TERMTABLEP TERMSA) of NEWVALUE))))))
  (BOUNDTABLE (PROG1 (FGETTOBJ TEXTOBJ TXTWTBL)
                    (CL:IF SETNEWVALUE (FSETTOBJ TEXTOBJ TXTWTBL NEWVALUE))))
  (DON'TUPDATE (PROG1 (FGETTOBJ TEXTOBJ TXTDON'TUPDATE)
                     (CL:IF SETNEWVALUE (FSETTOBJ TEXTOBJ TXTDON'TUPDATE NEWVALUE))))
  (NOTSPLITTABLE
   (PROG1 (FGETTOBJ TEXTOBJ TXTNOTSPLITTABLE)
         (CL:IF SETNEWVALUE (FSETTOBJ TEXTOBJ TXTNOTSPLITTABLE NEWVALUE))))
  (DIRTY (PROG1 (FGETTOBJ TEXTOBJ \XDIRTY)
               (CL:IF SETNEWVALUE (FSETTOBJ TEXTOBJ \DIRTY NEWVALUE))))
  (LENGTH (PROG1 (FGETTOBJ TEXTOBJ TEXTLEN)
                 (CL:IF SETNEWVALUE (ERROR "TEXT property LENGTH is read-only"))))
  (APPEND (PROG1 (CL:WHEN (FGETTOBJ TEXTOBJ TXTAPPENDONLY)
                      (CL:IF (FGETTOBJ TEXTOBJ TXTREADONLYQUIET)
                              'QUIET
                              T))
           (CL:WHEN SETNEWVALUE
                 (FSETTOBJ TEXTOBJ TXTAPPENDONLY NEWVALUE)
                 (FSETTOBJ TEXTOBJ TXTREADONLYQUIET (EQ 'QUIET NEWVALUE))
                 (\TEDIT.HISTORY.PROP TEXTOBJ T 'OFF))))
  (HISTORY (\TEDIT.HISTORY.PROP TEXTOBJ SETNEWVALUE NEWVALUE))
  (PARABREAKCHARS
   (PROG1 (for C in (FGETTOBJ TEXTOBJ PARABREAKCHARS) collect (SELCHARQ C
                                                                (EOL 'EOL)
                                                                (LF 'LF)
                                                                (CR 'CR)
                                                                (FORM 'FORM)
                                                                (CHARACTER C))))
   (CL:WHEN SETNEWVALUE
         (FSETTOBJ TEXTOBJ PARABREAKCHARS (MKLIST (CHARCODE.DECODE NEWVALUE))))))
  (FILENAME (PROG1 (CL:IF (FGETTOBJ TEXTOBJ TXTFILE)
                        (fetch FULLFILENAME of (FGETTOBJ TEXTOBJ TXTFILE)))
                  (CL:WHEN (AND SETNEWVALUE (NEQ NEWVALUE NIL))
                          (ERROR "FILENAME cannot be changed"))))
  (FILESTREAM (PROG1 (FGETTOBJ TEXTOBJ TXTFILE)
                    (CL:WHEN SETNEWVALUE
```

```

      (CL:WHEN (AND NEWVALUE (NOT (type? STREAM NEWVALUE)))
        (\ILLEGAL.ARG NEWVALUE))
      (FSETTOBJ TEXTOBJ TXTFILE NEWVALUE)))
(PAGEFORMAT (PROG1 (FGETTOBJ TEXTOBJ TXTPAGEFRAMES)
  (CL:WHEN SETNEWVALUE
    (CL:UNLESS (type? PAGEREGION NEWVALUE)
      (\ILLEGAL.ARG NEWVALUE))
    (FSETTOBJ TEXTOBJ TXTPAGEFRAMES NEWVALUE))))
(LOOPFN (PROG1 (FGETTOBJ TEXTOBJ LOOPFN)
  (CL:WHEN SETNEWVALUE (FSETTOBJ TEXTOBJ LOOPFN NEWVALUE))))
(CHARFN (PROG1 (FGETTOBJ TEXTOBJ CHARFN)
  (CL:WHEN SETNEWVALUE (FSETTOBJ TEXTOBJ CHARFN NEWVALUE))))
(PROG1 (LISTGET (FGETTOBJ TEXTOBJ EDITPROPS)
  PROP)
  (CL:WHEN SETNEWVALUE
    (CL:UNLESS (LISTP (FGETTOBJ TEXTOBJ EDITPROPS)) ; Make sure we have a list to smash, no matter what.
      (FSETTOBJ TEXTOBJ EDITPROPS (LIST PROP NIL)))
    (LISTPUT (FGETTOBJ TEXTOBJ EDITPROPS)
      PROP NEWVALUE))))])

```

)

(DEFINEQ

(\TEDIT.TEXTOBJ.PROPNAMES

[LAMBDA (TEXTOBJ)

; Edited 4-Jul-2024 11:08 by rmk
; Edited 30-Jun-2024 09:04 by rmk

:: Stick the user properties at the end with --USERPROPS-- separator. INSPECTABLEFIELDNAMES does the sort for defined field names, the
:: UFIELDS have to be sorted here.

```

(LET ([FIELDS (REMOVE 'EDITPROPS (INSPECTABLEFIELDNAMES (OR (RECLOOK 'TEXTOBJ)
  (SYSRELOOK1 'TEXTOBJ))
  (UFIELDS (for X in (fetch (TEXTOBJ EDITPROPS) of TEXTOBJ) by (CDDR X) collect X)))
  (CL:UNLESS (OR (EQ T INSPECTDONTSORTFIELDS)
    (MEMB 'TEXTOBJ INSPECTDONTSORTFIELDS))
    (SETQ UFIELDS (SORT UFIELDS)))
  (APPEND FIELDS (CONS '--USERPROPS--
    UFIELDS]))

```

(\TEDIT.TEXTOBJ.PROPFETCHFN

[LAMBDA (TEXTOBJ PROPNAME)

; Edited 4-Jul-2024 11:53 by rmk

```

  (if (EQ PROPNAME '--USERPROPS--
    then '-----
    elseif (MEMB PROPNAME (RECORDFIELDNAMES 'TEXTOBJ))
    then (RECORDACCESS PROPNAME TEXTOBJ (OR (RECLOOK 'TEXTOBJ)
      (SYRELOOK1 'TEXTOBJ)
      'FETCH))
    else (GETTEXTPROP TEXTOBJ PROPNAME))

```

(\TEDIT.TEXTOBJ.PROPSTOREFN

[LAMBDA (TEXTOBJ PROPNAME VALUE)

; Edited 4-Jul-2024 11:49 by rmk
; Edited 30-Jun-2024 08:52 by rmk

```

  (if (EQ PROPNAME '--USERPROPS--
    elseif (MEMB PROPNAME (RECORDFIELDNAMES 'TEXTOBJ))
    then (RECORDACCESS PROPNAME TEXTOBJ (OR (RECLOOK 'TEXTOBJ)
      (SYRELOOK1 'TEXTOBJ))
      'REPLACE VALUE)
    else (PUTTEXTPROP TEXTOBJ PROPNAME VALUE))

```

)

:: For TEXTOBJ inspection

(DECLARE%: DONTCOPY

(ADDTOVAR **INSPECTMACROS** (TEXTOBJ \TEDIT.TEXTOBJ.PROPNAMES \TEDIT.TEXTOBJ.PROPFETCHFN
\TEDIT.TEXTOBJ.PROPSTOREFN))

)

:: Support for error handling: The old error handler for the stream-not-open error. This is here, because you only want to do this ONCE, even if you load
:: TEXT-STREAM multiple times (as, e.g., in development)

(RPAQ? ***TEDIT-OLD-STREAM-ERROR-HANDLER*** (CONDITION-HANDLER 'XCL:STREAM-NOT-OPEN))

(DECLARE%: DONTEVAL@LOAD DOCOPY

(\TEDIT.TEXTINIT)

)

(DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVERS

(ADDTOVAR **NLAMA**)

(ADDTOVAR **NLAML**)

{MEDLEY}<library>tedit>TEDIT-STREAM.;1

(ADDTOVAR **LAMA** TEXTPROP)
)

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