File created: 23-Apr-2024 18:08:13 **{WMEDLEY}<sources>WINDOWOBJ.;26**

edit by: rmk

changes to: (FNS ENCAPSULATEDOBJP)
(VARS WINDOWOBJCOMS)

previous date: 5-Dec-2023 21:15:38 {WMEDLEY}<sources>WINDOWOBJ.;23

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

```
(RPAQQ WINDOWOBJCOMS
       [(COMS                                                   ; Image object support - here so that DEDIT can use it without
                                                                ; needing TEDIT to be loaded.
              (RECORDS IMAGEOBJ IMAGEFNS IMAGEBOX)
              (FNS COPYINSERT IMAGEBOX IMAGEFNSCREATE IMAGEFNSP IMAGEOBJCREATE IMAGEOBJP IMAGEOBJPROP
                   \IMAGEUSERPROP HPRINT.IMAGEOBJ COPYIMAGEOBJ READIMAGEOBJ WRITEIMAGEOBJ)
              (ADDVARS (HPRINTMACROS (IMAGEOBJ . WRITEIMAGEOBJ)))
              (GLOBALVARS (IMAGEOBJTYPES NIL)
                     (IMAGEOBJGETFNS NIL)))
        (COMS                                                   ; For encapsulating unknown-type IMAGEOBJs.
              (FNS ENCAPSULATEDOBJ.BUTTONEVENTINFN ENCAPSULATEDOBJ.PUTFN ENCAPSULATEDOBJ.DISPLAYFN
                   ENCAPSULATEDOBJ.IMAGEBOXFN ENCAPSULATEDOBJP ENCAPSULATEDIMAGEFNS)
              (INITVARS ENCAPSULATEDIMAGEFNS)
              (GLOBALVARS ENCAPSULATEDIMAGEFNS))
        (DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS (ADDVARS (NLAMA)
                                                                              (NLAML)
                                                                              (LAMA IMAGEOBJPROP])

;; Image object support - here so that DEDIT can use it without needing TEDIT to be loaded.

(DECLARE%: EVAL@COMPILE

(DATATYPE IMAGEOBJ (OBJECTDATUM IMAGEOBJPLIST IMAGEOBJFNS)
       (SYSTEM))

(DATATYPE IMAGEFNS (DISPLAYFN                                   ; FN called to display the object's image
                         IMAGEBOXFN                             ; To tell how big it is
                         PUTFN                                  ; To write it onto a file
                         GETFN                                  ; To read it back from the file
                         COPYFN                                 ; To make a copy of the object
                         BUTTONEVENTINFN                        ; Called when the mouse goes down over the object
                         COPYBUTTONEVENTINFN                    ; Called when the MIDDLE mouse button goes down over the
                                                                ; object
                         WHENMOVEDFN                            ; Called when the object is moved within a document or other
                                                                ; environment
                         WHENINSERTEDFN                         ; Called when the object is inserted into a context
                         WHENDELETEDFN                          ; Called when the object is removed from a context
                         WHENCOPIEDFN                           ; Called when the object is copied within a context
                         WHENOPERATEDONFN                       ; Called when something interesting happens to the object
                         PREPRINTFN IMAGECLASSNAME              ; LITATOM unique name by which this kind of IMAGEOBJ is to
                                                                ; be known to the world.
                         )
       (SYSTEM))

(RECORD IMAGEBOX (XSIZE YSIZE YDESC XKERN)
       (SYSTEM))
)

(/DECLAREDATATYPE 'IMAGEOBJ '(POINTER POINTER POINTER)
       ;; ---field descriptor list elided by lister---
       '6)

(/DECLAREDATATYPE 'IMAGEFNS '(POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
                                    POINTER POINTER POINTER POINTER)
       ;; ---field descriptor list elided by lister---
       '28)

(DEFINEQ

(COPYINSERT
  [LAMBDA (IMAGEOBJ)
    ;; Edited 20-Dec-2021 23:47 by rmk: IMAGEOBJ can now also be a list of objects in the COPYINSERTFN case

    ;; Edited 17-Sep-90 13:19 by jds

;;; inserts IMAGEOBJ into the window that currently has the tty.  If this window has a COPYINSERTFN property, that is called, otherwise BKSYSBUF is
;;; called.

    (PROG ([TTYW (\INSUREWINDOW (WFROMDS (PROCESS.TTY (TTY.PROCESS]
           INSERTFN)
```

```
          (COND
             ((SETQ INSERTFN (WINDOWPROP TTYW 'COPYINSERTFN))
              (for IMOBJ inside IMAGEOBJ do (APPLY* INSERTFN IMOBJ TTYW)))
             (T                                                 ; IMAGEOBJ can be a list of things too.
                (for IMOBJ inside IMAGEOBJ do (BKSYSBUF (OR (COND
                                                             [(IMAGEOBJP IMOBJ)
                                                              (COND
                                                                 ((SETQ INSERTFN (IMAGEOBJPROP IMOBJ
                                                                                       'PREPRINTFN))
                                                                  (APPLY* INSERTFN IMOBJ))
                                                                 (T (IMAGEOBJPROP IMOBJ 'OBJECTDATUM]
                                                             (T IMOBJ))
                                                          "")
                                                   T
                                                   (PROCESS.EVAL (TTY.PROCESS)
                                                          '(GETREADTABLE)
                                                          T])

(IMAGEBOX
  [LAMBDA (OBJ STREAM MODE)                                     (* jds " 8-Feb-84 10:48")
    (APPLY* (IMAGEOBJPROP OBJ 'IMAGEBOXFN)
           OBJ STREAM MODE])

(IMAGEFNSCREATE
  [LAMBDA (DISPLAYFN IMAGEBOXFN PUTFN GETFN COPYFN BUTTONEVENTINFN COPYBUTTONEVENTINFN WHENMOVEDFN
                 WHENINSERTEDFN WHENDELETEDFN WHENCOPIEDFN WHENOPERATEDONFN PREPRINTFN CLASSNAME)
                                                                (* jds "19-Feb-85 09:33")

    ;; returns a structure which contains the image functions for a type of image object.

    [COND
       (GETFN ;; If a GETFN was specified, add it to the list of known GETFNs, so that people who verify them will know about it.

              (OR (ASSOC GETFN IMAGEOBJGETFNS)
                  (push IMAGEOBJGETFNS (LIST GETFN]
    (create IMAGEFNS
           DISPLAYFN _ DISPLAYFN
           IMAGEBOXFN _ IMAGEBOXFN
           PUTFN _ PUTFN
           GETFN _ GETFN
           COPYFN _ COPYFN
           BUTTONEVENTINFN _ BUTTONEVENTINFN
           COPYBUTTONEVENTINFN _ COPYBUTTONEVENTINFN
           WHENMOVEDFN _ WHENMOVEDFN
           WHENINSERTEDFN _ WHENINSERTEDFN
           WHENDELETEDFN _ WHENDELETEDFN
           WHENCOPIEDFN _ WHENCOPIEDFN
           WHENOPERATEDONFN _ WHENOPERATEDONFN
           PREPRINTFN _ PREPRINTFN])

(IMAGEFNSP
  [LAMBDA (X)                                                   (* rrb " 1-Feb-84 11:13")
                                                                ; is X an IMAGEFNS?

    (AND (type? IMAGEFNS X)
         X])

(IMAGEOBJCREATE
  [LAMBDA (OBJECTDATUM IMAGEFNS)                                (* jds " 8-Feb-84 10:20")
                                                                ; returns an image object

    (OR (IMAGEFNSP IMAGEFNS)
        (\ILLEGAL.ARG IMAGEFNS))                                ; Make sure he handed us a valid set of fn references
    (create IMAGEOBJ
           OBJECTDATUM _ OBJECTDATUM
           IMAGEOBJPLIST _ NIL
           IMAGEOBJFNS _ IMAGEFNS])

(IMAGEOBJP
  [LAMBDA (X)                                                   (* rrb " 1-Feb-84 16:22")
                                                                ; is X an IMAGEOBJ?

    (AND (type? IMAGEOBJ X)
         X])

(IMAGEOBJPROP
  [LAMBDA NARGS                                                 (* jds "18-Feb-85 18:22")

    ;; accesses and sets properties of an IMAGEOBJ.

    (SELECTQ NARGS
        ((0 1)
             (\ILLEGAL.ARG NIL))
        (PROG ((IMAGEOBJ (ARG NARGS 1))
               (PROP (ARG NARGS 2))
               (VAL (AND (IGREATERP NARGS 2)
                          (ARG NARGS 3)))
                (SET? (NEQ NARGS 2))
                IMAGEFNS)
               (COND
                  ((NOT (IMAGEOBJP IMAGEOBJ))
                   (\ILLEGAL.ARG IMAGEOBJ)))
               (SETQ IMAGEFNS (fetch (IMAGEOBJ IMAGEOBJFNS) of IMAGEOBJ))
               (RETURN (SELECTQ PROP
                            (OBJECTDATUM (PROG1 (fetch (IMAGEOBJ OBJECTDATUM) of IMAGEOBJ)
                                                 (COND
                                                    (SET? (replace (IMAGEOBJ OBJECTDATUM) of IMAGEOBJ with VAL)))))
                            (DISPLAYFN (PROG1 (fetch (IMAGEFNS DISPLAYFN) of IMAGEFNS)
                                               (COND
                                                  (SET? (replace (IMAGEFNS DISPLAYFN) of IMAGEFNS with VAL)))))
                            (IMAGEBOXFN (PROG1 (fetch (IMAGEFNS IMAGEBOXFN) of IMAGEFNS)
                                                (COND
                                                   (SET? (replace (IMAGEFNS IMAGEBOXFN) of IMAGEFNS with VAL)))))
                            (PUTFN (PROG1 (fetch (IMAGEFNS PUTFN) of IMAGEFNS)
                                           (COND
                                              (SET? (replace (IMAGEFNS PUTFN) of IMAGEFNS with VAL)))))
                            (GETFN (PROG1 (fetch (IMAGEFNS GETFN) of IMAGEFNS)
                                           (COND
                                              (SET? (replace (IMAGEFNS GETFN) of IMAGEFNS with VAL)))))
                            (COPYFN (PROG1 (fetch (IMAGEFNS COPYFN) of IMAGEFNS)
                                            (COND
                                               (SET? (replace (IMAGEFNS COPYFN) of IMAGEFNS with VAL)))))
                            (BUTTONEVENTINFN
                                (PROG1 (fetch (IMAGEFNS BUTTONEVENTINFN) of IMAGEFNS)
                                    (COND
                                       (SET? (replace (IMAGEFNS BUTTONEVENTINFN) of IMAGEFNS with VAL)))))
                            (COPYBUTTONEVENTINFN
                                (PROG1 (fetch (IMAGEFNS COPYBUTTONEVENTINFN) of IMAGEFNS)
                                    (COND
                                       (SET? (replace (IMAGEFNS COPYBUTTONEVENTINFN) of IMAGEFNS with VAL)))))
                            (WHENMOVEDFN (PROG1 (fetch (IMAGEFNS WHENMOVEDFN) of IMAGEFNS)
                                                 (COND
                                                    (SET? (replace (IMAGEFNS WHENMOVEDFN) of IMAGEFNS with VAL)))))
                            (WHENINSERTEDFN
                                (PROG1 (fetch (IMAGEFNS WHENINSERTEDFN) of IMAGEFNS)
                                    (COND
                                       (SET? (replace (IMAGEFNS WHENINSERTEDFN) of IMAGEFNS with VAL)))))
                            (WHENDELETEDFN
                                (PROG1 (fetch (IMAGEFNS WHENDELETEDFN) of IMAGEFNS)
                                    (COND
                                       (SET? (replace (IMAGEFNS WHENDELETEDFN) of IMAGEFNS with VAL)))))
                            (WHENCOPIEDFN (PROG1 (fetch (IMAGEFNS WHENCOPIEDFN) of IMAGEFNS)
                                                  (COND
                                                     (SET? (replace (IMAGEFNS WHENCOPIEDFN) of IMAGEFNS with VAL)))))
                            (WHENOPERATEDONFN
                                (PROG1 (fetch (IMAGEFNS WHENOPERATEDONFN) of IMAGEFNS)
                                    (COND
                                       (SET? (replace (IMAGEFNS WHENOPERATEDONFN) of IMAGEFNS with VAL)))))
                            (PREPRINTFN (PROG1 (fetch (IMAGEFNS PREPRINTFN) of IMAGEFNS)
                                                (COND
                                                   (SET? (replace (IMAGEFNS PREPRINTFN) of IMAGEFNS with VAL)))))
                            (IMAGECLASSNAME
                                (PROG1 (fetch (IMAGEFNS IMAGECLASSNAME) of IMAGEFNS)
                                    (COND
                                       (SET? (replace (IMAGEFNS IMAGECLASSNAME) of IMAGEFNS with VAL)))))
                            (\IMAGEUSERPROP IMAGEOBJ PROP VAL SET?])

(\IMAGEUSERPROP
  [LAMBDA (IMAGEOBJ PROP VAL SET?)                               (* rrb " 1-Feb-84 11:44")
    ;; reads and sets the values of properties on an IMAGEOBJ
    (PROG ((PLIST (fetch (IMAGEOBJ IMAGEOBJPLIST) of IMAGEOBJ)))
          (RETURN (PROG1 (LISTGET PLIST PROP)
                       [COND
                          (SET? (COND
                                   (PLIST (LISTPUT PLIST PROP VAL))
                                   (T (replace (IMAGEOBJ IMAGEOBJPLIST) of IMAGEOBJ with (LIST PROP VAL])])

(HPRINT.IMAGEOBJ
  [LAMBDA (IMAGEOBJ STREAM)                                      (* rrb "19-Dec-84 16:22")
    ;; HPRINT function for writing out IMAGE OBJECTS
    ;; write out the name of the function to read things back in with.
    (PRIN2 (LIST (fetch (IMAGEFNS GETFN) of (fetch (IMAGEOBJ IMAGEOBJFNS) of IMAGEOBJ)))
           STREAM HPRINTRDTBL)
    (APPLY* (fetch (IMAGEFNS PUTFN) of (fetch (IMAGEOBJ IMAGEOBJFNS) of IMAGEOBJ))
           IMAGEOBJ STREAM)
    T])

(COPYIMAGEOBJ
  [LAMBDA (FROM TO)                                                    (* jds "19-Feb-85 09:59")
    ;; Copis the contents of one IMAGEOBJ nto another, effectively making TO be the same object as FROM.

    (replace (IMAGEOBJ OBJECTDATUM) of TO with (fetch (IMAGEOBJ OBJECTDATUM) of FROM))
    (replace (IMAGEOBJ IMAGEOBJPLIST) of TO with (fetch (IMAGEOBJ IMAGEOBJPLIST) of FROM))
    (replace (IMAGEOBJ IMAGEOBJFNS) of TO with (fetch (IMAGEOBJ IMAGEOBJFNS) of FROM])

(READIMAGEOBJ
  [LAMBDA (STREAM GETFN NOERROR DATANBYTES)
    ;; Edited  5-Dec-2023 21:07 by rmk

    ;; Edited 29-Nov-2023 14:51 by rmk

    ;; Edited 18-Mar-2022 21:45 by rmk: Added WHEREIS as a last resort.

    ;; Reads an IMAGEOBJ, using GETFN.  Verifies that the GETFN is legitimate

    ;; the variable UNDERREADIMAGEOBJ is used in HVBAKREAD to determine if it should do a validity check on the function which is read from the
    ;; file.

    ;; rmk:  I'm not sure that it makes sense for GETFN to be NIL, as 86 code allowed.  Presumably an image object without a GETFN should never
    ;; have been written.

    (LET (OBJ GETFNFILE GETFNFILENAME HYPHENPOS MAINFILE FAILEDMSG (UNDERREADIMAGEOBJ T))
         (DECLARE (SPECVARS UNDERREADIMAGEOBJ))

         ;; Typically,the file containing the GETFN has already been loaded.  If not, it could be the case that the GETFN and its file were pushed on
         ;; the list for future reference (now), but the file wasn't loaded then. We need to download it.  We use the WHEREIS database to identify the
         ;; file containing the GETFN.  If it has a hyphenated name FOO-FIE and it has a sister file that named with just the prefix of the hyphen FOO,
         ;; then we assume that the GETFN is in an internal file of a larger application FOO application, and we load FOO instead. Presumably that
         ;; provides the GETFN.

         ;; Note:  the Prompt message only shows the NAME of the file, not the full path.

         ;; Clean this up if we decide to nuke the MOUSECONFIRM

         (CL:WHEN (AND GETFN (NOT (GETD GETFN)))
                       [SETQ GETFNFILENAME (OR (LISTGET (CDR (ASSOC GETFN IMAGEOBJGETFNS))
                                                       'FILE)
                                               (CAR (WHEREIS GETFN 'FNS T))
                                               (CAR (WHEREIS GETFN 'FUNCTIONS T]
                       [SETQ GETFNFILE (FINDFILE-WITH-EXTENSIONS GETFNFILENAME NIL (APPEND *COMPILED-EXTENSIONS*
                                                                                            (CONS NIL]
                       (PROG1 T

                           ;; Is FOO a sister of FOO-FIE ?

                           (CL:WHEN (SETQ HYPHENPOS (STRPOS "-" GETFNFILENAME))
                               [SETQ MAINFILE (FINDFILE-WITH-EXTENSIONS (PACKFILENAME 'NAME (SUBSTRING
                                                                                              GETFNFILENAME 1
                                                                                              (SUB1 HYPHENPOS))
                                                                                 'VERSION NIL 'EXTENSION NIL
                                                                                 'BODY GETFNFILE)
                                                      NIL
                                                      (APPEND *COMPILED-EXTENSIONS* (CONS NIL]))
                       (if T
                           then ;; This makes for an automatic attempt.  If we fail, well...

                                (PROMPTPRINT "Getting GETFN " GETFN " by loading " (OR MAINFILE GETFNFILE))
                                T
                         else (MOUSECONFIRM (CONCAT "Trying to read an IMAGEOBJ with GETFN " GETFN ". Shall I
                                                   load the support file, " MAINFILE "?")
                                     NIL NIL NIL)))
             ;; Hopefully we found the latest compiled versions

             (CL:WHEN MAINFILE
                 (DOFILESLOAD (LIST '(SYSLOAD)
                                     MAINFILE)))
             (CL:UNLESS (GETD GETFN)                                  ; Didn't find the GETFN: try the original GETFNFILE.
                 (DOFILESLOAD (LIST '(SYSLOAD)
                                     GETFNFILE))))
         (if (NULL (GETD GETFN))
             then (SETQ FAILEDMSG "Unknown")
           elseif [SETQ OBJ (CAR (NLSETQ (APPLY* GETFN STREAM]
           else (SETQ FAILEDMSG "Error in"))
         (CL:UNLESS (OR OBJ NOERROR)                                  ; Still no support for this kind of IMAGEOBJ.  Encapsulate it in
                                                                      ; something safe.
             (SETQ OBJ (IMAGEOBJCREATE NIL (ENCAPSULATEDIMAGEFNS GETFN)))
             (IMAGEOBJPROP OBJ 'FILE (FULLNAME STREAM)
                    STREAM)                                           ; Remember which file it came from so that it could be written
                                                                      ; back out.
             (IMAGEOBJPROP OBJ 'FILEPTR (GETFILEPTR STREAM))          ; And where on the file
             (IMAGEOBJPROP OBJ 'OBJSIZE DATANBYTES)
             (IMAGEOBJPROP OBJ 'UNKNOWNGETFN GETFN)                   ; And the name of its GETFN
             (IMAGEOBJPROP OBJ 'FAILEDMSG FAILEDMSG)                  ; And why it failed
             (CL:WHEN DATANBYTES
                 (SETFILEPTR STREAM (PLUS (GETFILEPTR STREAM)
                                          DATANBYTES))))
         OBJ])

(WRITEIMAGEOBJ
  [LAMBDA (IMAGEOBJ STREAM)                                         (* jds "19-Feb-85 09:36")
    ;; HPRINT function for writing out IMAGE OBJECTS
    ;; write out the name of the function to read things back in with.
    (COND
       ((NOT (fetch (IMAGEFNS GETFN) of (fetch (IMAGEOBJ IMAGEOBJFNS) of IMAGEOBJ)))
                                                                    ; This IMAGEOBJ has no GETFN.  Complain!
        (HELP "No GETFN for IMAGEOBJ " IMAGEOBJ)))
    (PRIN2 [LIST ’READIMAGEOBJ NIL (KWOTE (fetch (IMAGEFNS GETFN) of (fetch (IMAGEOBJ IMAGEOBJFNS) of IMAGEOBJ]
           STREAM HPRINTRDTBL)                                      ; Write out a call to READIMAGEOBJ, which takes the input
                                                                    ; stream and a GETFN name as arguments.
    (APPLY* (fetch (IMAGEFNS PUTFN) of (fetch (IMAGEOBJ IMAGEOBJFNS) of IMAGEOBJ))
           IMAGEOBJ STREAM)                                         ; Then write out the guts of the IMAGEOBJ itself.
    T])

)

(ADDTOVAR HPRINTMACROS (IMAGEOBJ . WRITEIMAGEOBJ))

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS (IMAGEOBJTYPES NIL)
       (IMAGEOBJGETFNS NIL))
)

;; For encapsulating unknown-type IMAGEOBJs.

(DEFINEQ

(ENCAPSULATEDOBJ.BUTTONEVENTINFN
  [LAMBDA (IMAGEOBJ WINDOW)                                         ; Edited 26-Nov-2023 08:15 by rmk
                                                                    ; Edited  2-Apr-87 15:33 by bvm:

;;; The user hit a button inside this object.  Try loading it now.

    (CL:WITH-OPEN-FILE (STREAM (IMAGEOBJPROP IMAGEOBJ ’FILE))
           (SETFILEPTR STREAM (IMAGEOBJPROP IMAGEOBJ ’FILEPTR))
                                                                    ; Move to where the IMAGEOBJ’s description started in the file
                                                                    ; we read it from
           (LET ([OBJ (READIMAGEOBJ STREAM (IMAGEOBJPROP IMAGEOBJ ’UNKNOWNGETFN)
                              T
                              (IMAGEOBJPROP IMAGEOBJ ’ENDOFOBJFILEPTR]
                 PROMPT)
                (COND
                   (OBJ                                             ; We succeeded in reading the object this time.  Copy its guts
                                                                    ; over the placeholder.
                        (COPYIMAGEOBJ OBJ IMAGEOBJ)
                        ’CHANGED)
                   ((GETD (IMAGEOBJPROP IMAGEOBJ ’UNKNOWNGETFN))
                    (SETQ PROMPT (GETPROMPTWINDOW WINDOW))
                    (FRESHLINE PROMPT)
                    (PRIN1 (CONCAT "Error in executing " (IMAGEOBJPROP IMAGEOBJ ’UNKNOWNGETFN))
                           PROMPT)
                    NIL)
                   (T (SETQ PROMPT (GETPROMPTWINDOW WINDOW))
                      (FRESHLINE PROMPT)
                      (PRIN1 (CONCAT (IMAGEOBJPROP IMAGEOBJ ’UNKNOWNGETFN)
                                     " is still unknown")
                             PROMPT)
                      NIL])

(ENCAPSULATEDOBJ.PUTFN
  [LAMBDA (IMAGEOBJ STREAM)                                         ; Edited 24-Aug-91 14:57 by jds

;;; image object put function for unknown image objects.  It copies the bytes from the source file to the output file if the range of the object is known.  If
;;; not, it errors because nothing else I could think of makes sense.  Since the name of the GETFN has already been written out and we don’t know what
;;; format it is expecting we can’t write out anything that wouldn’t cause an error when read in so erroring now is better.

    (PROG ((DATANBYTES (IMAGEOBJPROP IMAGEOBJ ’OBJSIZE))
           (FILE (IMAGEOBJPROP IMAGEOBJ ’FILE))
           (BEGOFOBJ (IMAGEOBJPROP IMAGEOBJ ’FILEPTR))
           INSTREAM)
          (OR (NUMBERP DATANBYTES)
              (ERROR "No length information for this image object.
                     Either delete this image object or load its support files." IMAGEOBJ)
              (RETURN))
          (CL:WITH-OPEN-STREAM (INSTREAM (OPENSTREAM FILE ’INPUT))
                 (COPYBYTES INSTREAM STREAM BEGOFOBJ (PLUS BEGOFOBJ DATANBYTES)))
      T])

(ENCAPSULATEDOBJ.DISPLAYFN
  [LAMBDA (OBJ STREAM)                                              ; Edited  5-Dec-2023 12:12 by rmk
                                                                    (* jds "19-Feb-85 10:37")

    ;; Display function for an IMAGEOBJ that has been encapsulated for safety
    ;; Displays as a box containing text saying 'Unknown IMAGEOBJ type' , and naming the unknown GETFN.

    (LET* ((CURX (DSPXPOSITION NIL STREAM))
           (CURY (DSPYPOSITION NIL STREAM))
           (FONT (FONTCREATE 'HELVETICA 8 'BOLD NIL STREAM))
           (OLDFONT (DSPFONT FONT STREAM))
           (GETFN (IMAGEOBJPROP OBJ 'UNKNOWNGETFN))
           (TYPE (IMAGEOBJPROP OBJ 'TYPE))
           (OBJBOX (IMAGEOBJPROP OBJ 'BOUNDBOX))
           (XSIZE (IDIFFERENCE (fetch XSIZE of OBJBOX)
                         4))
           (YSIZE (IDIFFERENCE (fetch YSIZE of OBJBOX)
                         4)))
          (RELMOVETO 3 (IPLUS (FONTPROP FONT 'HEIGHT)
                              3)
                 STREAM)
          (PRIN1 (OR (IMAGEOBJPROP OBJ 'FAILEDMSG "Unknown"))
                 STREAM)
          (PRIN1 " IMAGEOBJ" STREAM)
          (MOVETO (IPLUS CURX 3)
                 (IPLUS CURY 3)
                 STREAM)
          (printout STREAM "GETFN:  " GETFN)
          (MOVETO CURX (IDIFFERENCE CURY (fetch YDESC of OBJBOX))
                 STREAM)
          (RELDRAWTO XSIZE 0 2 'PAINT STREAM NIL '(16 8 8 8))
          (RELDRAWTO 0 YSIZE 2 'PAINT STREAM NIL '(16 8 8 8))
          (RELDRAWTO (IMINUS XSIZE)
                 0 2 'PAINT STREAM NIL '(16 8 8 8))
          (RELDRAWTO 0 (IMINUS YSIZE)
                 2
                 'PAINT STREAM NIL '(16 8 8 8))
          (DSPFONT OLDFONT STREAM])

(ENCAPSULATEDOBJ.IMAGEBOXFN
  [LAMBDA (IMAGEOBJ STREAM)                                      ; Edited  5-Dec-2023 11:25 by rmk
                                                                 ; Edited 29-Nov-2023 12:49 by rmk
                                                                 (* jds "19-Feb-85 10:05")

    ;; IMAGEOBXFN for an encapsulated IMAGEOBJ.  If the GETFN now exists, another attempt is made to retrieve the underlying object and to use
    ;; its boxfn.

    (LET ((GETFN (IMAGEOBJPROP IMAGEOBJ 'UNKNOWNGETFN))
          NEWOBJ WIDTH HEIGHT FONT)
         (if [AND GETFN (CL:WITH-OPEN-FILE (STREAM (IMAGEOBJPROP IMAGEOBJ 'FILE))
                              (SETFILEPTR STREAM (IMAGEOBJPROP IMAGEOBJ 'FILEPTR))
                                                                 ; Move to where the IMAGEOBJ's description started in the file
                                                                 ; we read it from
                              (SETQ NEWOBJ (READIMAGEOBJ STREAM GETFN T (IMAGEOBJPROP IMAGEOBJ
                                                                                 'ENDOFOBJFILEPTR]
             then (COPYIMAGEOBJ NEWOBJ IMAGEOBJ)                 ; ENCAPSULATEDOBJ.BUTTONEVENTINFN also returns
                                                                 ; CHANGED to tell the caller what happened.  But we have to
                                                                 ; return the box.  Fingers crossed.
                  (APPLY* (IMAGEOBJPROP IMAGEOBJ 'IMAGEBOXFN)
                         IMAGEOBJ STREAM)
           else (SETQ FONT (FONTCREATE 'HELVETICA 8 'BOLD NIL STREAM))
                [SETQ HEIGHT (ITIMES 2 (FONTPROP FONT 'HEIGHT]
                (SETQ WIDTH (IMAX (STRINGWIDTH (CONCAT (OR (IMAGEOBJPROP IMAGEOBJ 'FAILEDMSG)
                                                           "Unknown" " IMAGEOBJ"))
                                         FONT)
                                  (STRINGWIDTH (CONCAT "GETFN:  " GETFN)
                                         FONT)))
                (create IMAGEBOX
                       XSIZE _ (IPLUS WIDTH 6)
                       YSIZE _ (IPLUS HEIGHT 6)
                       YDESC _ 0
                       XKERN _ 0])

(ENCAPSULATEDOBJP
  [LAMBDA (OBJ)                                                  ; Edited 23-Apr-2024 18:03 by rmk
    (AND (IMAGEOBJP OBJ)
         (EQ (FUNCTION ENCAPSULATEDOBJ.DISPLAYFN)
             (fetch (IMAGEFNS DISPLAYFN) of (fetch (IMAGEOBJ IMAGEOBJFNS) of OBJ])

(ENCAPSULATEDIMAGEFNS
  [LAMBDA (GETFN)                                                (* rrb " 3-Feb-86 18:31")

;;; Set up the IMAGEFNS for the encapsulated-IMAGEOBJ type: The way to protect TEdit and friends from unfriendly IMAGEOBJs.  The GETFN is used
;;; as the GETFN for the imagefns so that is can be written out.  The imagefns are cached so that a new set doesn't have to be created for each instance
;;; of an unknown image object type.

    (OR (CDR (ASSOC GETFN ENCAPSULATEDIMAGEFNS))
        (PROG [(IMAGEFNS (IMAGEFNSCREATE (FUNCTION ENCAPSULATEDOBJ.DISPLAYFN)
                                (FUNCTION ENCAPSULATEDOBJ.IMAGEBOXFN)
                                (FUNCTION ENCAPSULATEDOBJ.PUTFN)
                                GETFN
                                (FUNCTION NIL)
                                (FUNCTION ENCAPSULATEDOBJ.BUTTONEVENTINFN)
                                (FUNCTION NILL)
                                (FUNCTION NILL)
                                (FUNCTION NILL)
                                (FUNCTION NILL)
                                (FUNCTION NILL)
                                (FUNCTION NILL)
                                (FUNCTION NILL)
                                (FUNCTION NILL]
              (SETQ ENCAPSULATEDIMAGEFNS (CONS (CONS GETFN IMAGEFNS)
                                               ENCAPSULATEDIMAGEFNS))
              (RETURN IMAGEFNS])

)

(RPAQ? ENCAPSULATEDIMAGEFNS NIL)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS ENCAPSULATEDIMAGEFNS)
)

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

(ADDTOVAR NLAMA )

(ADDTOVAR NLAML )

(ADDTOVAR LAMA IMAGEOBJPROP)
)
```

FUNCTION INDEX

RECORD INDEX

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