```
;;
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```

```
(RPAQQ PASSWORDSCOMS
       ([COMS (FNS LOGIN SETPASSWORD \INTERNAL/GETPASSWORD \INTERNAL/SETPASSWORD \LOGIN.READ
                   PROVIDE.PROMPTING.WINDOW \ADJUST.USERNAME \ENCRYPT.PWD \DECRYPT.PWD)
              [INITVARS (LOGINPASSWORDS (HASHARRAY 8))
                    (\GETPASSWORD.LOCK (CREATE.MONITORLOCK "GetPassword"))
                    (DEFAULTREGISTRY)
                    (\AFTERLOGINFNS)
                    (\PROC.READY T)
                    (UNSCHEDULEDPROMPTREGION '(262 466 500 100]
              (GLOBALVARS LOGINPASSWORDS USERNAME \GETPASSWORD.LOCK DEFAULTREGISTRY \AFTERLOGINFNS
                    UNSCHEDULEDPROMPTREGION \PROC.READY TTYREGIONOFFSETS \TTYREGIONOFFSETSPTR)
              (DECLARE%: EVAL@COMPILE DONTCOPY (EXPORT (PROP DMACRO EMPASSWORDLOC)
                                                       (MACROS \DECRYPT.PWD.CHAR)))
              (P (MOVD? 'NILL 'CLBUFS]
        (COMS (* PROMPTFORWORD)
              (FNS PROMPTFORWORD \PROMPTFORWORDBIN \PROMPTFORWORDERASE \PROMPTFORWORDBS \PROMPTFORWORDRETYPE)
              (INITVARS (\PROMPTFORWORDTTBL NIL)
                    (\PROMPTFORWORD.CURSOR))
              (GLOBALVARS \PROMPTFORWORDTTBL \PROMPTFORWORD.CURSOR))
        (LOCALVARS . T)))

(DEFINEQ
```

(**LOGIN**
```
  [LAMBDA (HOST FLG DIRECTORY MSG)                                     ; Edited  3-May-88 11:54 by bvm

    ;; Forces a login at HOST optionally connecting to DIRECTORY, and returns the name logged in.  MSG is optional message string to print before
    ;; asking

    (CAR (\INTERNAL/GETPASSWORD (SELECTQ HOST
                                     ((NIL |NS::| GV)
                                      HOST)
                                     (OR (CANONICAL.HOSTNAME HOST)
                                         (ERROR "Host not found" HOST)))
                 (NEQ FLG 'QUIET)
                 DIRECTORY MSG NIL (AND (STRPOS ":" HOST)
                                        'NS])
```

(**SETPASSWORD**
```
  [LAMBDA (HOST USER PASSWORD DIRECTORY)                            (* bvm%: "27-Feb-86 14:17")
    (CAR (\INTERNAL/SETPASSWORD (AND HOST (OR (CANONICAL.HOSTNAME HOST)
                                              HOST))
                 (CONS (COND
                         (DIRECTORY                                ; Directories need to be atomic for ASSOC
                             (MKATOM DIRECTORY))
                         (USER (MKSTRING USER)))
                     (MKSTRING PASSWORD))
                 DIRECTORY])
```

(**\INTERNAL/GETPASSWORD**
```
  [LAMBDA (HOST ALWAYSASK DIRECTORY MSG DEFAULTNAME OSTYPE)          (* bvm%: "27-Sep-85 10:45")

    ;; returns (name . password) with which to login (or connect if DIRECTORY given) at HOST, performing an alto-style login if necessary, or if
    ;; ALWAYSASK is true.  MSG is optional message string to print before asking

    [COND
        (HOST [COND
                ((NOT (LITATOM HOST))
                 (SETQ HOST (MKATOM HOST]
              (COND
                ((AND (NOT OSTYPE)
                      (STRPOS ":" HOST))
                 (SETQ OSTYPE 'NS]
    (PROG ((INFO (GETHASH HOST LOGINPASSWORDS))
           NAME/PASS)
          (COND
            ([AND (NOT ALWAYSASK)
                  (SETQ NAME/PASS (COND
                                    (DIRECTORY [COND
                                                 ((STRINGP DIRECTORY)
                                                  (SETQ DIRECTORY (MKATOM (U-CASE DIRECTORY]
```

```
                                       (ASSOC DIRECTORY (CDR INFO)))
                         (T (CAR INFO]                        ; We already have login info
              (RETURN NAME/PASS)))
           (RETURN (\INTERNAL/SETPASSWORD HOST NIL DIRECTORY ALWAYSASK MSG DEFAULTNAME OSTYPE])
```

(**INTERNAL/SETPASSWORD**

```
    [LAMBDA (HOST NEWNAME/PASS DIRECTORY ALWAYSASK MSG DEFAULTNAME OSTYPE)
                                                   (* bvm%: "27-Sep-85 10:42")

      (LET
        (RESULT INFOCHANGED)
        [SETQ RESULT
          (WITH.MONITOR \GETPASSWORD.LOCK

              ;; Don't grab the monitor til now, since we don't really care if what we fetched above was about to change

              [CAR (NLSETQ (PROG ((INFO (GETHASH HOST LOGINPASSWORDS))
                                  PASSWORDADDR NAME/PASS DISKNAME PWD NSINFO NEWNAME)
                                 (COND
                                   (DIRECTORY [COND
                                                ((NOT INFO)
                                                 (SETQ INFO (PUTHASH HOST (CONS)
                                                                     LOGINPASSWORDS]
                                          [COND
                                            ((NOT NEWNAME/PASS)
                                             (SETQ NEWNAME/PASS (COND
                                                                  ((NULL ALWAYSASK)
                                                 ; First time, guess that no password is needed
                                                                   (CONS DIRECTORY ""))
                                                                  (T (\LOGIN.READ HOST DIRECTORY MSG T OSTYPE]
                                          [COND
                                            (NEWNAME/PASS
                                             (COND
                                               [(SETQ NAME/PASS (ASSOC DIRECTORY (CDR INFO)))
                                                (SETQ NEWNAME/PASS (RPLACD NAME/PASS (\ENCRYPT.PWD
                                                                                      (CONCAT (CDR NEWNAME/PASS]
                                               (T (RPLACD INFO (CONS [SETQ NEWNAME/PASS
                                                                       (CONS (CAR NEWNAME/PASS)
                                                                             (\ENCRYPT.PWD (CONCAT (CDR
                                                                                                    NEWNAME/PASS
                                                                                                    ]
                                                                     (CDR INFO]
                                             (RETURN NEWNAME/PASS))
                                   (T [COND
                                        ((EQ (SYSTEMTYPE)
                                             'D)
                                         [OR OSTYPE (SETQ OSTYPE (COND
                                                                   (HOST (GETOSTYPE HOST))
                                                                   (T 'LOCAL]
                                         (COND
                                           ((NEQ (SETQ PASSWORDADDR (EMPASSWORDLOC))
                                                 0)
                                            (SETQ PASSWORDADDR (EMPOINTER PASSWORDADDR]
                                      [COND
                                        ((EQ OSTYPE 'NS)
                                         (SETQ NSINFO (GETHASH '|NS::| LOGINPASSWORDS]
                                      (SETQ DISKNAME (\ADJUST.USERNAME (USERNAME NIL T T)
                                                                      OSTYPE))
                                      (COND
                                        (NEWNAME/PASS [SETQ NAME/PASS (CONS (CAR NEWNAME/PASS)
                                                                            (CONCAT (CDR NEWNAME/PASS]
                                                      (SETQ INFOCHANGED T))
                                        [(AND NSINFO (NULL ALWAYSASK))
                                                 ; For NS hosts, there is a uniform login.  Try that first
                                         (SETQ NAME/PASS (CONS (CAAR NSINFO)
                                                               (\DECRYPT.PWD (CDAR NSINFO]
                                        [(PROGN [SETQ DEFAULTNAME (COND
                                                                    ((NOT DEFAULTNAME)
                                                                     (OR (CAAR (OR NSINFO INFO))
                                                                         DISKNAME))
                                                                    (T (\ADJUST.USERNAME DEFAULTNAME OSTYPE]
                                                (AND (NULL ALWAYSASK)
                                                     DISKNAME PASSWORDADDR (OR (EQ DEFAULTNAME DISKNAME)
                                                                              (EQ (ALPHORDER DEFAULTNAME DISKNAME
                                                                                             UPPERCASEARRAY)
                                                                                  'EQUAL))
                                                     (IGREATERP (NCHARS (SETQ PWD (GetBcplString PASSWORDADDR)))
                                                                0)))
                                         ;; Try using the global password if DEFAULTNAME matches the global name.  Match is
                                         ;; case-insensitive, of course

                                         (SETQ NAME/PASS (CONS DEFAULTNAME (SETQ PWD (SELECTQ OSTYPE
                                                                                      (UNIX (L-CASE PWD))
                                                                                      (TENEX (U-CASE PWD))
                                                                                      PWD]
                                        (T (SETQ NAME/PASS (\LOGIN.READ HOST DEFAULTNAME MSG NIL OSTYPE))
                                           (SETQ INFOCHANGED T)))
                                      (SETQ NEWNAME (CAR NAME/PASS))
```

```
                                        [COND
                                           (INFOCHANGED [COND
                                                           [(EQ OSTYPE 'NS)
                                                                       ; Don't touch alto login
                                                             (COND
                                                                ((OR (NULL NSINFO)
                                                                     (EQ (CAAR NSINFO)
                                                                         NEWNAME))
                                                                 (FRPLACA (OR NSINFO (PUTHASH '|NS::| (CONS)
                                                                                     LOGINPASSWORDS))
                                                                          NAME/PASS]
                                                           ((EQ NEWNAME DISKNAME)
                                                            (AND PASSWORDADDR (SetBcplString PASSWORDADDR
                                                                                  (CDR NAME/PASS]
                                              (COND
                                                 ((OR (NULL HOST)
                                                      (NULL DISKNAME)
                                                      (AND (NEQ OSTYPE 'NS)
                                                           PASSWORDADDR
                                                           (EQ (\GETBASE PASSWORDADDR 0)
                                                               0)))
                                                                       ; There was no password before, or user forced login
                                                  (COND
                                                     ((GETD 'SETUSERNAME)
                                                      (SETUSERNAME (COND
                                                                      (NEWNAME (COND
                                                                                  ((EQ OSTYPE 'NS)
                                                                                   (\ADJUST.USERNAME
                                                                                     NEWNAME
                                                                                     'LOCAL))
                                                                                  (T NEWNAME)))
                                                                      (T "")))
                                                      (AND PASSWORDADDR (SetBcplString PASSWORDADDR
                                                                            (COND
                                                                               (NEWNAME (CDR NAME/PASS))
                                                                               (T "")]
                                        (COND
                                           ((NULL HOST)
                                            (CLRHASH LOGINPASSWORDS)
                                            (COND
                                               ((NULL NEWNAME)
                                                (RETURN NIL)))
                                            (SETQ INFO)))
                                        (\ENCRYPT.PWD (CDR NAME/PASS))
                                        (FRPLACA (OR INFO (PUTHASH HOST (CONS)
                                                                LOGINPASSWORDS))
                                                 NAME/PASS)))
                                   (RETURN NAME/PASS]
        [COND
            (INFOCHANGED (for FN in \AFTERLOGINFNS do                          ; Report change to any user packages that cache user info
                                         (APPLY* FN HOST (CAR RESULT]
        RESULT])
```

LOGIN.READ

```
  [LAMBDA (HOST DEFAULTNAME MSG CONNECTFLG OSTYPE)                       (* bvm%: "15-Aug-84 16:02")
    (PROG [(PROMPT (COND
                     ((NEQ OSTYPE 'NS)
                      "Login: ")
                     (HOST                                               ; This would get to be a pretty long line
                         " (terminate input with <return>)
                         Login: ")
                     (T "Login (<return> to terminate): ")))
           (HELPFN "
                 You are being asked for a user name and password for login.
                 Type <return> to accept the given user name, or <BS> to back
                 up over it, or type a new name followed by <return>.
                 ")
           (TERMINATIONS (COND
                            ((EQ OSTYPE 'NS)
                             (CHARCODE (CR LF)))
                            (T                                           ; default
                               NIL]
        (COND
           (CONNECTFLG (SETQ PROMPT (CONCAT "Connect password for " DEFAULTNAME ": "))
                    (SETQ HELPFN "Type <return> followed by the password for the directory.
                       ")))
        [COND
           (HOST (SETQ PROMPT (CONCAT "{" HOST "} " PROMPT]
        [COND
           (MSG (SETQ PROMPT (CONCAT MSG (CONSTANT (CHARACTER (CHARCODE EOL)))
                                     PROMPT]
        (RETURN (RESETLST
                    (PROVIDE.PROMPTING.WINDOW "Password prompter")
                    (FRESHLINE T)
                    (PROG1 [RESETBUFS (COND
                                         (CONNECTFLG (CONS DEFAULTNAME (PROMPTFORWORD PROMPT NIL NIL T
```

```
                                                                        '* T TERMINATIONS)))
                                    (T (PROG ((NAME (PROMPTFORWORD PROMPT DEFAULTNAME HELPFN T NIL T
                                                    TERMINATIONS)))
                                        [COND
                                          ((AND HOST DEFAULTREGISTRY (SELECTQ OSTYPE
                                                                            ((NIL IFS)
                                                                                T)
                                                                            NIL)
                                                (NOT (STRPOS "." NAME)))
                                           (PRIN1 "." T)
                                           (PRIN1 DEFAULTREGISTRY T)
                                           (SETQ NAME (CONCAT NAME "." DEFAULTREGISTRY]
                                        (RETURN (CONS (MKATOM NAME)
                                                      (PROMPTFORWORD " (password) " NIL NIL T
                                                              '*]
                    (TERPRI T))))])
```

(**PROVIDE.PROMPTING.WINDOW**
  [LAMBDA (TITLE REGION)   (* kbr%: "16-Jan-86 17:23")

;;;; Called under RESETLST -- makes sure this process has a tty window; if it doesn't, makes a dramatic one which will be closed on exit.

```
    [COND
      ((AND (NOT (TTY.PROCESSP))
            (NOT \PROC.READY))                                          ; Called before world has woken up, so mouse is not available.
                                                                        ; Use brute force
       (RESETSAVE (TTY.PROCESS (THIS.PROCESS]
    (COND
      ([AND \WINDOWWORLD (DISPLAYSTREAMP (GETSTREAM T 'OUTPUT))
            (OR (NOT (HASTTYWINDOWP))
                (NOT (OPENWP (WFROMDS (TTYDISPLAYSTREAM)
                                      T]                                ; Make a nice tty window and clean up afterwards
       (PROG ((W (CREATEW [OR REGION (PROGN (SETQ \TTYREGIONOFFSETSPTR (OR (CDR \TTYREGIONOFFSETSPTR)
                                                                          TTYREGIONOFFSETS))
                                            (SETQ REGION (CREATEREGION (IPLUS (CAAR \TTYREGIONOFFSETSPTR)
                                                                              (fetch (REGION LEFT) of
                                                                                     UNSCHEDULEDPROMPTREGION
                                                                                     ))
                                                                      (IPLUS (CDAR \TTYREGIONOFFSETSPTR)
                                                                             (fetch (REGION BOTTOM) of
                                                                                    UNSCHEDULEDPROMPTREGION
                                                                                    ))
                                                                      (fetch (REGION WIDTH) of UNSCHEDULEDPROMPTREGION
                                                                             )
                                                                      (fetch (REGION HEIGHT) of
                                                                             UNSCHEDULEDPROMPTREGION
                                                                             ]
                          (OR TITLE "Special input window")
                          12))
              STR)
             (RESETSAVE NIL (LIST 'CLOSEW W))
             (RESETSAVE (TTYDISPLAYSTREAM W))
             (RESETSAVE NIL (LIST 'WINDOWPROP W 'CLOSEFN NIL))
             [WINDOWPROP W 'CLOSEFN (FUNCTION (LAMBDA (WINDOW PROC)
                                                (COND
                                                  ((AND (SETQ PROC (WINDOWPROP WINDOW 'PROCESS))
                                                        (PROCESSP PROC))
                                                   (PROCESS.APPLY PROC (FUNCTION ERROR!)))
                                                  'DON'T]
             [COND
               ((NOT (TTY.PROCESSP))
                (RELMOVETO (LRSH (IDIFFERENCE (fetch (REGION WIDTH) of REGION)
                                              (STRINGWIDTH (SETQ STR "-> Click here, please <-")
                                                      W))
                                 1)
                           0 W)
                (printout T STR T T)
                (SELECTQ (MACHINETYPE)
                    (DANDELION (RINGBELLS))
                    NIL)
                (until (WAIT.FOR.TTY 30000) do (FLASHWINDOW W 1]
             (RETURN W])
```

(**ADJUST.USERNAME**
  [LAMBDA (NAME OSTYPE)   (* bvm%: "17-May-85 19:03")
    (COND
      ((AND NAME (NEQ (NCHARS NAME)
                      0))   ; Don't do this for blank name, as occurs after DLion boot
       (SELECTQ OSTYPE
           ((NIL IFS)
               [COND
                 ((AND DEFAULTREGISTRY (NOT (STRPOS "." NAME)))
                  (SETQ NAME (PACK* NAME "." DEFAULTREGISTRY])
           (PROGN [LET (POS)
                       (COND
```

```
                                    ((AND DEFAULTREGISTRY (SETQ POS (STRPOS "." NAME)))
                                                                      ; For folks who login at the alto exec using a registry, get rid of it
                                         (SETQ NAME (SUBSTRING NAME 1 (SUB1 POS]
                          (SELECTQ OSTYPE
                              (UNIX (SETQ NAME (L-CASE NAME)))
                              (NS [COND
                                      ((AND CH.DEFAULT.DOMAIN CH.DEFAULT.ORGANIZATION (NOT (STRPOS '%: NAME)))
                                        (SETQ NAME (CONCAT NAME '%: CH.DEFAULT.DOMAIN '%: CH.DEFAULT.ORGANIZATION])
                              NIL)))
                NAME])
```

(**ENCRYPT.PWD**
```
  [LAMBDA (STR)                                                       (* bvm%: " 3-NOV-83 22:09")
```

;;; Destructively disguises the characters of STR so that passwords are not stored in clear text anywhere. Decode with \DECRYPT.PWD, or macro
;;; \DECRYPT.PWD.CHAR

```
    (for I from 1 do (RPLCHARCODE STR I (LOGXOR (OR (NTHCHARCODE STR I)
                                                    (RETURN STR))
                                         73])
```


(**DECRYPT.PWD**
```
  [LAMBDA (STR)                                                       (* bvm%: " 3-NOV-83 22:09")
                                                                      ; undoes \ENCRYPT.PWD.  Easy, it being its own inverse
    (\ENCRYPT.PWD (CONCAT STR])
)
```

```
(RPAQ? LOGINPASSWORDS (HASHARRAY 8))
```

```
(RPAQ? \GETPASSWORD.LOCK (CREATE.MONITORLOCK "GetPassword"))
```

```
(RPAQ? DEFAULTREGISTRY )
```

```
(RPAQ? \AFTERLOGINFNS )
```

```
(RPAQ? \PROC.READY T)
```

```
(RPAQ? UNSCHEDULEDPROMPTREGION '(262 466 500 100))
```

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

```
(GLOBALVARS LOGINPASSWORDS USERNAME \GETPASSWORD.LOCK DEFAULTREGISTRY \AFTERLOGINFNS UNSCHEDULEDPROMPTREGION
      \PROC.READY TTYREGIONOFFSETS \TTYREGIONOFFSETSPTR)
)
```

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

;; FOLLOWING DEFINITIONS EXPORTED

```
(PUTPROPS EMPASSWORDLOC DMACRO [LAMBDA NIL                          (* lmm "24-MAR-83 06:46")
                                 (fetch (IFPAGE UserPswdAddr) of \InterfacePage])
```

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

```
(PUTPROPS \DECRYPT.PWD.CHAR MACRO ((CHAR)
                                   (LOGXOR CHAR 73)))
)
)
```

;; END EXPORTED DEFINITIONS

```
(MOVD? 'NILL 'CLBUFS)
```


```
           (* * PROMPTFORWORD)
```

```
(DEFINEQ
```

(**PROMPTFORWORD**
```
  [LAMBDA (PROMPT.STR CANDIDATE.STR GENERATE?LIST.FN ECHO.CHANNEL DONTECHOTYPEIN.FLG URGENCY.OPTION
              TERMINCHARS.LST KEYBD.CHANNEL)                          (* lmm "16-Jan-86 18:07")
    (DECLARE (SPECVARS TERMINCHARS.LST ECHO.CHANNEL DONTECHOTYPEIN.FLG))
    [COND
       ((NOT (TERMTABLEP \PROMPTFORWORDTTBL))                          ; Initializes the special readtable on the first time through.
        (SETQ \PROMPTFORWORDTTBL (bind (TTBL _ (COPYTERMTABLE 'ORIG)) for CHAR from 0 to 31
                                    do (SELCHARQ CHAR
                                          ((EOL ESCAPE SPACE LF TAB))
                                          (ECHOCHAR CHAR 'INDICATE TTBL))
                                 finally (PROGN (ECHOMODE NIL TTBL)
                                                (CONTROL T TTBL)
                                                (RETURN TTBL]
    (RESETLST
        (RESETSAVE (SETTERMTABLE \PROMPTFORWORDTTBL))
```

```
              (PROG ([CHARBUFFER (COND
                                   (CANDIDATE.STR (DREVERSE (CHCON CANDIDATE.STR]
                     TTYD X0Y0 TIMELIMITEXPIRED? BELLBEENHEARD? CANDIDATATE.LENGTH CHAR BEGUNTYPING? RUBBING?
                     ?HELPMSGTRIEDP ?HELPMSGLIST TIMER)
                    (DECLARE (SPECVARS TTYD X0Y0 TIMELIMITEXPIRED? BELLBEENHEARD? CHARBUFFER RUBBING?))
                    [COND
                      [(EQMEMB 'TTY URGENCY.OPTION)                                      ; If we're going to switch the TTY process, better do it before
                                                                                        ; looking for TTYDISPLAYSTREAM etc.
                        [OR (TTY.PROCESSP)
                            (RESETSAVE (TTY.PROCESS (THIS.PROCESS]
                        (AND \PROMPTFORWORD.CURSOR (RESETSAVE (CURSOR \PROMPTFORWORD.CURSOR]
                      (T (OR (FIXP URGENCY.OPTION)
                             (SELECTQ URGENCY.OPTION
                                 ((NIL T)
                                      T)
                                 NIL)
                             (\ILLEGAL.ARG URGENCY.OPTION]
                    [RESETSAVE (TTYDISPLAYSTREAM (SETQ ECHO.CHANNEL (GETSTREAM (OR ECHO.CHANNEL T)
                                                                              'OUTPUT]
                                                                              ; Normalize the echo channel.
                    (SETQ TTYD (DISPLAYSTREAMP ECHO.CHANNEL))
                    [COND
                      ((AND DONTECHOTYPEIN.FLG (NEQ DONTECHOTYPEIN.FLG T))
                       (SETQ DONTECHOTYPEIN.FLG (COND
                                                  ((EQ (NCHARS DONTECHOTYPEIN.FLG)
                                                       1)
                                                   (NTHCHARCODE DONTECHOTYPEIN.FLG 1))
                                                  (T T]
                    (COND
                      [(NULL TERMINCHARS.LST)
                       (SETQ TERMINCHARS.LST (CHARCODE (EOL ESCAPE SPACE LF TAB]
                      ((CHARCODEP TERMINCHARS.LST)
                       (SETQ TERMINCHARS.LST (LIST TERMINCHARS.LST)))
                      ([OR (NLISTP TERMINCHARS.LST)
                           (for C in TERMINCHARS.LST bind CONVERTIBLEP unless (CHARCODEP C)
                              do (COND
                                   ((AND (OR (LITATOM C)
                                             (STRINGP C))
                                         (EQ 1 (NCHARS C)))
                                    (SETQ CONVERTIBLEP T))
                                   (T (RETURN T)))
                              finally (COND
                                        (CONVERTIBLEP                            ; List not all charcodes, but all are at least charcode like
                                          (SETQ TERMINCHARS.LST (MAPCAR TERMINCHARS.LST (FUNCTION (LAMBDA (C)
                                                                                                   (OR
                                                                                                    (FIXP C)
                                                                                                    (CHCON1
                                                                                                     C]
                       (\ILLEGAL.ARG TERMINCHARS.LST)))
                    [COND
                      (KEYBD.CHANNEL (SETQ KEYBD.CHANNEL (\INSTREAMARG KEYBD.CHANNEL]
                    [COND
                      (URGENCY.OPTION (SETQ TIMER (SETUPTIMER (OR (FIXP URGENCY.OPTION)
                                                                  0)
                                                              NIL
                                                              'SECONDS]
               ;; Now ready to begin.  Print the prompt, gather input
                 PROMPTAGAIN
                    (COND
                      (PROMPT.STR (PRIN3 PROMPT.STR ECHO.CHANNEL)
                                  (PRIN3 " " ECHO.CHANNEL)))
                    [COND
                      (TTYD (SETQ X0Y0 (create POSITION
                                               XCOORD _ (DSPXPOSITION NIL TTYD)
                                               YCOORD _ (DSPYPOSITION NIL TTYD]
                    (COND
                      (CHARBUFFER
                        ;; If there is input, e.g. the candidate string, echo it.  This is the one place calling \PROMPTFORWORDRETYPE that
                        ;; doesn't want the line erased first.
                        (\PROMPTFORWORDRETYPE)))
                    [until (OR (NULL (SETQ CHAR (\PROMPTFORWORDBIN KEYBD.CHANNEL TTYD URGENCY.OPTION TIMER)))
                               (FMEMB CHAR TERMINCHARS.LST))
                       do (COND
                            ((SELECTQ (GETSYNTAX CHAR \PROMPTFORWORDTTBL)
                                 (CHARDELETE (COND
                                               (CHARBUFFER (SETQ BEGUNTYPING? T)
                                                           (\PROMPTFORWORDBS))
                                               (T (SETQ RUBBING?)))
                                           NIL)
                                 (LINEDELETE (COND
                                               (CHARBUFFER (COND
                                                             ((NEQ DONTECHOTYPEIN.FLG T)
                                                              (\PROMPTFORWORDERASE)))
                                                           (SETQ BEGUNTYPING? T)
                                                           (SETQ CHARBUFFER))
```

```
                                                       (T (SETQ RUBBING?)))
                                 NIL)
                         (RETYPE (COND
                                   (CHARBUFFER (COND
                                                 ((NEQ DONTECHOTYPEIN.FLG T)
                                                  (\PROMPTFORWORDERASE)))
                                               (\PROMPTFORWORDRETYPE))
                                   (T (SETQ RUBBING?)))
                                 NIL)
                         (WORDDELETE (COND
                                       [CHARBUFFER (SETQ BEGUNTYPING? T)
                                               (bind (SPACEP _ (SYNTAXP (CAR CHARBUFFER)
                                                                        'WORDSEPR \PROMPTFORWORDTTBL))
                                                  do (\PROMPTFORWORDBS)
                                                     (COND
                                                        ((NULL CHARBUFFER)
                                                         (RETURN)))
                                                     (SETQ CHAR (CAR CHARBUFFER))
                                                     (COND
                                                        [(NOT SPACEP)
                                                         (COND
                                                            ((SYNTAXP CHAR 'WORDSEPR \PROMPTFORWORDTTBL)
                                                             (RETURN]
                                                        ((NOT (SYNTAXP CHAR 'WORDSEPR \PROMPTFORWORDTTBL))
                                                         (SETQ SPACEP NIL]
                                       (T (SETQ RUBBING?)))
                                 NIL)
                         (CNTRLV (COND
                                   ((NOT DONTECHOTYPEIN.FLG)
```

;; Well, so echo the ^V SO THAT THE LOSER CAN SEE THAT HE'S IN THE STATE OF
;; WAITING FOR THE NEXT CHARACTER AFTER A ^V

```
                                    (COND
                                       ((AND RUBBING? (NOT TTYD))
                                        (BOUT ECHO.CHANNEL (CHARCODE \))
                                        (SETQ RUBBING?)))
                                    (PRIN3 (CHARACTER CHAR)
                                           ECHO.CHANNEL)))
                                 (COND
                                    ((NULL (SETQ CHAR (\PROMPTFORWORDBIN KEYBD.CHANNEL TTYD URGENCY.OPTION
                                                                 TIMER T)))
                                     (RETURN T)))
                                 (COND
                                    ((AND TTYD (NOT DONTECHOTYPEIN.FLG)
                                          (NULL (DSPRUBOUTCHAR TTYD CHAR)))
```

;; Well, we tried to erase the ^V so that the typed-in charcter could be echoed, but apparently the
;; ^V was split between lines.

```
                                     (\PROMPTFORWORDERASE)
                                     (\PROMPTFORWORDRETYPE)))
                                 T)
                         (COND
                            ((EQ CHAR (CHARCODE ?))
                             (FRESHLINE ECHO.CHANNEL)
                             [COND
                                ((AND GENERATE?LIST.FN (NOT ?HELPMSGTRIEDP))
                                 (SETQ ?HELPMSGLIST (OR (STRINGP GENERATE?LIST.FN)
                                                        (APPLY* GENERATE?LIST.FN PROMPT.STR CANDIDATE.STR)))
                                 (SETQ ?HELPMSGTRIEDP T))
                                ((NOT ?HELPMSGTRIEDP)
                                 (SETQ ?HELPMSGLIST '??]
                             (COND
                                ((LISTP ?HELPMSGLIST)
                                 (PRIN3 '{ ECHO.CHANNEL)
                                 (PRIN3 (CONSTANT (CHARACTER (CHARCODE SPACE)))
                                        ECHO.CHANNEL)
                                 [MAPC ?HELPMSGLIST (FUNCTION (LAMBDA (X)
                                                                (PRIN1 X ECHO.CHANNEL)
                                                                (PRIN3 (CONSTANT (CHARACTER (CHARCODE SPACE)
                                                                                 ))
                                                                       ECHO.CHANNEL]
                                 (PRIN3 '} ECHO.CHANNEL))
                                (T (PRIN1 ?HELPMSGLIST ECHO.CHANNEL)
```
                                                                 ; FOO we'd really like this FRESHLINE to be just a MOVETO
                                                                 ; some initial position.
```
                                   ))
                             (FRESHLINE ECHO.CHANNEL)
                             (GO PROMPTAGAIN))
                            (T T)))                              ; If the SELCHARQ does't select out any of its 'special'
                                                                 ; characters, then just fall through here
                  (COND
                     ((AND (NOT BEGUNTYPING?)
                           CHARBUFFER)
```

;; This is the case of the CANDIDATE.STR having been proffered, but the user starts typing something else.

```
                      (COND
```

```
                                    ((EQ CHAR (CHARCODE SPACE))

                                    ;; Special kludge for benefit of those with old space-terminating habits: If there is a candidate string, and the
                                    ;; first thing you do is type a space, then the space terminates even if it isn't a member of
                                    ;; TERMINCHARS.LST

                                    (RETURN)))
                                (COND
                                    ((NOT DONTECHOTYPEIN.FLG)                          ; Don't need to do anything if type-in isn't being echoed
                                     (\PROMPTFORWORDERASE)))
                                (SETQ CHARBUFFER)))
                            (push CHARBUFFER CHAR)
                            (SETQ BEGUNTYPING? T)
                            (COND
                                ((NEQ DONTECHOTYPEIN.FLG T)                          ; Well, so echo the typed-in character already!
                                 (COND
                                    ((AND RUBBING? (NOT TTYD))
                                     (PRIN3 '\ ECHO.CHANNEL)
                                     (SETQ RUBBING?)))
                                 (BOUT ECHO.CHANNEL (OR DONTECHOTYPEIN.FLG CHAR]
                        [SETQ CHARBUFFER (COND
                                            [TIMELIMITEXPIRED?                          ; Ha, we overflowed the time limit.
                                                (COND
                                                    (CANDIDATE.STR (CONCAT CANDIDATE.STR]
                                            (CHARBUFFER (CONCATCODES (DREVERSE CHARBUFFER]
                        (\CARET.DOWN ECHO.CHANNEL)
                        (RETURN CHARBUFFER)))])
```

⟨**PROMPTFORWORDBIN**
```
  [LAMBDA (INSTREAM DISPLAYECHOSTREAM URGENCY.OPTION TIMER)          (* lmm "16-Jan-86 18:06")

    ;; Takes in one character from the KEYBD.CHANNEL

    (DECLARE (USEDFREE TERMINCHARS.LST TIMELIMITEXPIRED? BELLBEENHEARD?))
    (PROG ((WAITINTERVAL.secs 15)
            (TTYWAITLIMIT (if URGENCY.OPTION
                                then (if BELLBEENHEARD?
                                            then 30000
                                            else 0)))
            [BROADURGENCY? (AND URGENCY.OPTION (NOT (FIXP URGENCY.OPTION]
            CHAR READABLE (KEYSTREAM (fetch (LINEBUFFER KEYBOARDSTREAM) of \LINEBUF.OFD)))
        NEXTROUND
            [if BROADURGENCY?
                then (SETQ TIMER (SETUPTIMER WAITINTERVAL.secs TIMER 'SECONDS]
        LP    (if (SETQ READABLE (OR INSTREAM (NEQ KEYSTREAM \KEYBOARD.STREAM)
                                        (WAIT.FOR.TTY TTYWAITLIMIT)))
                then                                                          ; Ready to read
                    (if (SETQ CHAR (if (NULL INSTREAM)
                                        then (if (READP KEYSTREAM T)
                                                    then (BIN KEYSTREAM))
                                        elseif (READP INSTREAM T)
                                            then (BIN INSTREAM)
                                        elseif (\EOFP INSTREAM)
                                            then (CAR TERMINCHARS.LST)))
                        then (RETURN CHAR))
                    (if DISPLAYECHOSTREAM
                        then                                                  ; \TTYBACKGROUND so that a caret will flash
                            (\TTYBACKGROUND)
                        else (BLOCK)))
            (if (AND TIMER (TIMEREXPIRED? TIMER 'SECONDS))
                then (if (AND URGENCY.OPTION (NOT BROADURGENCY?))
                            then (SETQ TIMELIMITEXPIRED? T)
                        (RETURN))
                else (SETQ TTYWAITLIMIT 30000)
                    (AND READABLE (GO LP)))
            (if (NULL BELLBEENHEARD?)
                then (SETQ BELLBEENHEARD? T)
                    (SELECTQ (MACHINETYPE)
                        (DANDELION (RINGBELLS))
                        NIL))
            (FLASHWINDOW DISPLAYECHOSTREAM NIL 350)
            [if (AND BROADURGENCY? (TTY.PROCESSP))
                then (SETQ WAITINTERVAL.secs (IMIN (LLSH WAITINTERVAL.secs 1)
                                                (TIMES 2 60]             ; Double the wait interval time (the time between 'flashings') up
                                                                        ; to about 2 minutes, so that it doesn't become obnoxious

            (GO NEXTROUND])
```

⟨**PROMPTFORWORDERASE**
```
  [LAMBDA NIL                                                      (* JonL "29-Jul-84 21:45")
    (DECLARE (USEDFREE TTYD X0Y0 ECHO.CHANNEL))

    ;; Called whenever the CHARBUFFER is being cleared out, or when it is necessary to retype the whole series of input characters

    ;; If TTYD is non-null, then it is guaranteed to be a display stream.  X0Y0 is a POSITION where the user started typing in (or where the default
    ;; CANDIDATE was started) Erase that portion of the screen.

    (if TTYD
        then [PROG ((Y (DSPYPOSITION NIL TTYD))
                    (0X (fetch XCOORD of X0Y0))
```

```
                              (0Y (fetch YCOORD of X0Y0)))
                         (MOVETO 0X 0Y TTYD)
                         (DSPCLEOL TTYD 0X)
                         (if (NOT (IEQP 0Y Y))
                             then                                             ; Foobar, how can you tell if the stupid window has been
                                                                             ; scrolling?
                                  (DSPCLEOL TTYD (DSPLEFTMARGIN NIL TTYD)
                                          (IDIFFERENCE Y (FONTDESCENT TTYD))
                                          (IDIFFERENCE 0Y Y]
                 else (TERPRI ECHO.CHANNEL])
```

(**PROMPTFORWORDBS**
```
  [LAMBDA NIL                                                    (* bvm%: " 4-Jan-85 14:51")
    (DECLARE (USEDFREE TTYD DONTECHOTYPEIN.FLG RUBBING? ECHO.CHANNEL CHARBUFFER))
    (PROG (C (CH (pop CHARBUFFER)))
          [COND
            ((NEQ DONTECHOTYPEIN.FLG T)
             (SETQ C (OR DONTECHOTYPEIN.FLG CH))
             (COND
               [TTYD (COND
                       ((NULL (DSPRUBOUTCHAR TTYD C))
                        (\PROMPTFORWORDERASE)
                        (\PROMPTFORWORDRETYPE]
               (T (COND
                    ((NOT RUBBING?)
                     (PRIN3 '\ ECHO.CHANNEL)
                     (SETQ RUBBING? T)))
                  (BOUT ECHO.CHANNEL C]
          (RETURN C])
```

(**PROMPTFORWORDRETYPE**
```
  [LAMBDA NIL                                                    (* lmm "10-Jan-86 01:54")
    (DECLARE (USEDFREE DONTECHOTYPEIN.FLG ECHO.CHANNEL CHARBUFFER))
```
    ;; Retypes input as seen so far. All callers except one have already done a \PROMPTFORWORDERASE so the ECHO.CHANNEL will be
    ;; positioned correctly.
```
    (if (NEQ DONTECHOTYPEIN.FLG T)
        then (for CHAR in (REVERSE CHARBUFFER) do (\OUTCHAR ECHO.CHANNEL (OR DONTECHOTYPEIN.FLG CHAR])
```

)

(RPAQ? **PROMPTFORWORDTTBL** NIL)

(RPAQ? **PROMPTFORWORD.CURSOR**)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS \PROMPTFORWORDTTBL \PROMPTFORWORD.CURSOR)
)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(LOCALVARS . T)
)

FUNCTION INDEX

VARIABLE INDEX

MACRO INDEX