

File created: 3-Jan-86 17:10:20 {ERIS}<LISPCORE>LIBRARY>DIGEST.;3

changes to: (FNS DIGEST.FILE \DIGEST.FILE.FOR.TRANSMISSION \DIGEST.INITIALIZE \DIGEST.SEND.FILE.BYTES
 \digest.send.parameters \digest.write \digest.preamble \digest.send.string
 \digest.send.header \digest.send.packet)
(MACROS \DIGEST.INCREMENT.SEQNO \DIGEST.DEFAULT.CHECKSUM \DIGEST.CTL \DIGEST.CHAR)
(VARS DIGESTCOMS DIGEST.PACKET.TYPES \DIGESTOVLEN \DIGEST.INIT.PARAMETER.OFFSETS)

previous date: 3-Jan-86 16:49:25 {ERIS}<LISPCORE>LIBRARY>DIGEST.;1

Read Table: OLD-INTERLISP-FILE

Package: INTERLISP

Format: XCCS

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```
(RPAQQ DIGESTCOMS ( (MACROS \DIGEST.CHAR \DIGEST.CTL \DIGEST.DEFAULT.CHECKSUM \DIGEST.INCREMENT.SEQNO)
                    (VARS DIGEST.PACKET.TYPES \DIGEST.INIT.PARAMETER.OFFSETS \DIGESTOVLEN)
                    (FNS DIGEST.FILE \DIGEST.FILE.FOR.TRANSMISSION \DIGEST.INITIALIZE \DIGEST.PREAMBLE
                      \DIGEST.SEND.FILE.BYTES \DIGEST.SEND.HEADER \DIGEST.SEND.PACKET \DIGEST.SEND.PARAMETERS
                      \DIGEST.SEND.STRING \DIGEST.WRITE)
                    (RECORDS KERMITSTATE)))
```

(DECLARE: EVAL@COMPILE

```
(DEFMACRO \DIGEST.CHAR (X)
  (BQUOTE (IPLUS (\, X)
             32)))
```

```
(DEFMACRO \DIGEST.CTL (X)
  (BQUOTE (LOGAND (MASK.1'S 0 8)
             (LOGXOR , X 64))))
```

```
(DEFMACRO \DIGEST.DEFAULT.CHECKSUM (S)
  [BQUOTE (\KERMIT.CHAR (LOGAND (IPLUS (\, S)
                                       (FOLDLO (LOGAND (\, S)
                                                         192)
                                                64))
                                (MASK.1'S 0 6]))
```

```
(DEFMACRO \DIGEST.INCREMENT.SEQNO (KERMITSTATE)
  (BQUOTE (change (fetch (KERMITSTATE CURRENTSEQNO) of (\, KERMITSTATE))
            (IMOD (ADD1 DATUM)
                  64))))
```

```
(RPAQQ DIGEST.PACKET.TYPES
  ((DIGEST.DATA.PACKET (CHARCODE D))
   (DIGEST.ACK.PACKET (CHARCODE Y))
   (DIGEST.NAK.PACKET (CHARCODE N))
   (DIGEST.SENDINIT.PACKET (CHARCODE S))
   (DIGEST.BREAK.PACKET (CHARCODE B))
   (DIGEST.FILEHEADER.PACKET (CHARCODE F))
   (DIGEST.EOF.PACKET (CHARCODE Z))
   (DIGEST.ERROR.PACKET (CHARCODE E))
   (DIGEST.ILLEGAL.PACKET (CHARCODE T))
   (DIGEST.GENERIC.SERVER.COMMAND (CHARCODE G))))
```

```
(RPAQQ \DIGEST.INIT.PARAMETER.OFFSETS ((\KPARAM.MAXL 1)
                                       (\KPARAM.TIME 2)
                                       (\KPARAM.NPAD 3)
                                       (\KPARAM.PADC 4)
                                       (\KPARAM.EOL 5)
                                       (\KPARAM.QCTL 6)
                                       (\KPARAM.QBIN 7)))
```

(RPAQQ \DIGESTOVLEN 5)

(DEFINEQ

(DIGEST.FILE

[LAMBDA (INPUTFILE OUTPUTFILE)

(* ejs: " 3-Jan-86 17:01")

(* * Send a file to a remote kermit)

```
(COND
  ((AND (SETQ INPUTFILE (INFILEP INPUTFILE))
        OUTPUTFILE)
   (LET* ((KERMITSTATE (create KERMITSTATE
                               EOL _ (CHARCODE EOL)
                               EOLCONVENTION _ NIL)))
```

```
(\DIGEST.FILE.FOR.TRANSMISSION INPUTFILE OUTPUTFILE KERMITSTATE)))
(OUTPUTFILE (ERROR "Can't find input file"])
```

(\DIGEST.FILE.FOR.TRANSMISSION

[LAMBDA (LOCALFILE REMOTEFIL KERMITSTATE)

(* ejs: "3-Jan-86 17:04")

(* * Send a file)

```
(LET ([OUTPUTSTREAM (COND
  ((STREAMP REMOTEFIL)
   REMOTEFIL)
  (T (OPENSTREAM REMOTEFIL (QUOTE OUTPUT)
    (QUOTE NEW)
    (QUOTE ((TYPE BINARY)
             (SEQUENTIAL T)
            INPUTSTREAM)
    (\DIGEST.INITIALIZE KERMITSTATE OUTPUTSTREAM (QUOTE STORE))
  (COND
    ((\DIGEST.PREAMBLE KERMITSTATE)
     [SETQ INPUTSTREAM (OPENSTREAM LOCALFILE (QUOTE INPUT)
      (QUOTE OLD)
      (QUOTE ((TYPE BINARY)
               (SEQUENTIAL T)
              (RESETLST
               (RESETSAVE NIL (LIST [FUNCTION (LAMBDA (STREAM)
               (CLOSEP? STREAM]
               INPUTSTREAM))
              (\DIGEST.SEND.HEADER LOCALFILE KERMITSTATE)
              (\DIGEST.SEND.FILE.BYTES INPUTSTREAM KERMITSTATE))
              (replace (KERMITSTATE STATE) of KERMITSTATE with (QUOTE COMPLETE]))
```

(\DIGEST.INITIALIZE

[LAMBDA (KERMITSTATE OUTPUTSTREAM FORWHAT)

(* ejs: "3-Jan-86 17:09")

```
(with KERMITSTATE KERMITSTATE (SETQ CURRENTSEQNO 0)
  (SETQ OUTSTREAM OUTPUTSTREAM)
  (SETQ QBIN (CHARCODE &))
  (SELECTQ FORWHAT
    (RECEIVE (SETQ STATE (QUOTE REC.INIT)))
    (STORE (SETQ STATE (QUOTE SEND.INIT)))
    (ERROR "Illegal Kermit operation" FORWHAT))
  KERMITSTATE])
```

(\DIGEST.PREAMBLE

[LAMBDA (KERMITSTATE)

(* ejs: "3-Jan-86 16:54")

```
(LET (PARAMETER.PACKET)
  (SELECTQ (fetch (KERMITSTATE STATE) of KERMITSTATE)
    (REC.INIT (SETQ PARAMETER.PACKET (\KERMIT.GET.PACKET KERMITSTATE))
      (SELECTC (NTHCHARCODE PARAMETER.PACKET KERMIT.PACKET.TYPE)
        (KERMIT.SENDINIT.PACKET
         (\KERMIT.PARSE.REMOTE.PARAMETERS PARAMETER.PACKET KERMITSTATE))
        (KERMIT.ERROR.PACKET
         (HELP (\KERMIT.DATASECTION PARAMETER.PACKET)))
        (ERROR "Unexpected packet type: " PARAMETER.PACKET))
      [LET ((QBIN (fetch (KERMITSTATE QBIN) of KERMITSTATE))
        (SELECTC QBIN
          ((CHARCODE N)
           (replace (KERMITSTATE QBIN) of KERMITSTATE with NIL))
          ((CHARCODE Y)
           (replace (KERMITSTATE QBIN) of KERMITSTATE with (CHARCODE &)))
          (COND
            ((OR (AND (GEQ QBIN 33)
                      (LEQ QBIN 62))
                 (AND (GEQ QBIN 96)
                      (LEQ QBIN 126)))
             (replace (KERMITSTATE QBIN) of KERMITSTATE with QBIN]
            (\DIGEST.SEND.PARAMETERS KERMITSTATE)
            (replace (KERMITSTATE STATE) of KERMITSTATE with (QUOTE REC.FILE)))
      (SEND.INIT (\DIGEST.SEND.PARAMETERS KERMITSTATE)
        (replace (KERMITSTATE STATE) of KERMITSTATE with (QUOTE SEND.FILE)))
      (HELP "Illegal Kermit state" (fetch (KERMITSTATE STATE) of KERMITSTATE]))
```

(\DIGEST.SEND.FILE.BYTES

[LAMBDA (FILESTREAM KERMITSTATE)

(* ejs: "3-Jan-86 17:02")

(* * Send all the bytes of file)

```
[replace (STREAM ENDOFSTREAMOP) of FILESTREAM with (FUNCTION (LAMBDA NIL -1]
(bind (PACKET _ (ALLOCSTRING (fetch (KERMITSTATE MAXL) of KERMITSTATE)))
  (QCTL _ (fetch (KERMITSTATE QCTL) of KERMITSTATE))
  (QBIN _ (fetch (KERMITSTATE QBIN) of KERMITSTATE))
  DONE CHAR MASKEDCHAR DATASECTION FILLEDATASECTION MAXCHARS CHARINDEX first (SETQ DATASECTION
    (\KERMIT.DATASECTION PACKET)
  )
```

```
(SETQ MAXCHARS (NCHARS
  DATASECTION
))
```

```
until DONE as I from 1 do (for old CHARINDEX from 1 to MAXCHARS
  do (SETQ CHAR (BIN FILESTREAM))
    (COND
      ((EQ -1 CHAR)
        (SETQ DONE T)
        (RETURN)))
    (COND
      ((AND QBIN (IGREATERP CHAR (MASK.1'S 0 7)))
        (SETQ MASKEDCHAR (LOGAND CHAR (MASK.1'S 0 7)))
        (COND
          ([OR (EQ CHARINDEX MAXCHARS)
            (AND (EQ CHARINDEX (SUB1 MAXCHARS))
              (OR (ILESSP MASKEDCHAR (CHARCODE SPACE))
                (EQ MASKEDCHAR QBIN)
                (EQ MASKEDCHAR QCTL)
                (EQ MASKEDCHAR (CHARCODE DEL)
                  (* No room for possible quoted and controlfied character)
                (SETQ WAITINGCHAR CHAR)
                (RETURN)))
            (RPLCHARCODE DATASECTION CHARINDEX QBIN)
            (SETQ CHAR (LOGAND CHAR (MASK.1'S 0 7)))
            (add CHARINDEX 1)))
          (COND
            ((OR (ILESSP CHAR (CHARCODE SPACE))
              (EQ CHAR QBIN)
              (EQ CHAR QCTL)
              (EQ CHAR (CHARCODE DEL))))
            (COND
              ((EQ CHARINDEX MAXCHARS)
                (* No room for both prefix and controlfied character)
                (SETQ WAITINGCHAR CHAR)
                (RETURN)))
              (RPLCHARCODE DATASECTION CHARINDEX QCTL)
              (COND
                ((OR (EQ CHAR QBIN)
                  (EQ CHAR QCTL)))
                (T (SETQ CHAR (\KERMIT.CTL CHAR)
                  (add CHARINDEX 1)))
                (RPLCHARCODE DATASECTION CHARINDEX CHAR))
              (SETQ FILLEDATASECTION (SUBSTRING DATASECTION 1 (SUB1 CHARINDEX)
                FILLEDATASECTION))
              (COND
                ((NEQ 0 (NCHARS FILLEDATASECTION))
                  (\DIGEST.SEND.PACKET FILLEDATASECTION KERMIT.DATA.PACKET KERMITSTATE))
                ((NOT DONE)
                  (ERROR "No characters to send, but not done either." KERMITSTATE]))
```

(\DIGEST.SEND.HEADER

[LAMBDA (FILENAME KERMITSTATE)

(* ejs: "3-Jan-86 16:41")

(* * Receive the file header, open the file according to TYPE, and return)

```
(\DIGEST.SEND.PACKET (PACKFILENAME.STRING (QUOTE NAME)
  (FILENAMEFIELD FILENAME (QUOTE NAME))
  (QUOTE EXTENSION)
  (FILENAMEFIELD FILENAME (QUOTE EXTENSION)))
  DIGEST.FILEHEADER.PACKET KERMITSTATE)
(replace (KERMITSTATE STATE) of KERMITSTATE with (QUOTE SEND.DATA))
```

(\DIGEST.SEND.PACKET

[LAMBDA (CONTENTS TYPE KERMITSTATE SEQNO)

(* ejs: "3-Jan-86 16:40")

(* * Send a packet and wait for the response)

```
(DECLARE (USEDFREE KERMITSTATUSWINDOW))
(LET ((OUTSTREAM (fetch (KERMITSTATE OUTSTREAM) of KERMITSTATE))
  (CURRENTSEQNO (fetch (KERMITSTATE CURRENTSEQNO) of KERMITSTATE))
  ANSWER.PACKET LENGTH SEQ ANSWER.TYPE CHAR (CHECKSUM 0))
  (\DIGEST.SEND.STRING CONTENTS TYPE KERMITSTATE SEQNO)
  (\DIGEST.INCREMENT.SEQNO KERMITSTATE))
```

(\DIGEST.SEND.PARAMETERS

[LAMBDA (KERMITSTATE)

(* ejs: "3-Jan-86 16:51")

```
(LET [(MYPARAMETERS (ALLOCSTRING (CONSTANT (LENGTH \DIGEST.INIT.PARAMETER.OFFSETS)
  (RPLCHARCODE MYPARAMETERS \KPARM.MAXL (\KERMIT.CHAR 72))
  (RPLCHARCODE MYPARAMETERS \KPARM.TIME (\KERMIT.CHAR 10))
  (RPLCHARCODE MYPARAMETERS \KPARM.NPAD (\KERMIT.CHAR 0))
  (RPLCHARCODE MYPARAMETERS \KPARM.PADC (\KERMIT.CHAR 0))
  (RPLCHARCODE MYPARAMETERS \KPARM.EOL (\KERMIT.CHAR 0))
  (RPLCHARCODE MYPARAMETERS \KPARM.QCTL (CHARCODE #))
  (RPLCHARCODE MYPARAMETERS \KPARM.QBIN (CHARCODE &))
```

```
(SELECTQ (fetch (KERMITSTATE STATE) of KERMITSTATE)
  (REC.INIT (\DIGEST.SEND.PACKET MYPARAMETERS KERMIT.ACK.PACKET KERMITSTATE))
  (SEND.INIT (\DIGEST.SEND.PACKET MYPARAMETERS DIGEST.SENDINIT.PACKET KERMITSTATE))
  (ERROR "Illegal Kermit state"))
```

(\DIGEST.SEND.STRING

[LAMBDA (STRING TYPE KERMITSTATE SEQNO)

(* ejs: "3-Jan-86 16:44")

(* * Send a string of data to the remote kermit. The string MUST have been prefixed already)

```
(LET* ((STREAM (fetch (KERMITSTATE OUTSTREAM) of KERMITSTATE))
  (LENGTH (NCHARS STRING))
  (PACKET (ALLOCSTRING (IPLUS LENGTH \DIGESTOVLEN)))
  (CHECKSUM 0)
  TEMP)
  (RPLCHARCODE PACKET KERMIT.PACKET.MARK (fetch (KERMITSTATE MARKCHAR) of KERMITSTATE))
  [RPLCHARCODE PACKET KERMIT.PACKET.LEN (SETQ CHECKSUM (\DIGEST.CHAR (IPLUS LENGTH
  (CONSTANT (IDIFFERENCE
    \DIGESTOVLEN
    KERMIT.PACKET.LEN
  ]
  (SETQ TEMP (\DIGEST.CHAR (OR SEQNO (fetch (KERMITSTATE CURRENTSEQNO) of KERMITSTATE]
  (add CHECKSUM TEMP)
  (RPLCHARCODE PACKET KERMIT.PACKET.SEQ TEMP)
  (add CHECKSUM TYPE)
  (RPLCHARCODE PACKET KERMIT.PACKET.TYPE TYPE)
  [COND
    ((NEQ 0 LENGTH)
    (bind CHAR for I from \DIGESTOVLEN to (IPLUS LENGTH (CONSTANT (SUB1 \DIGESTOVLEN))) as J
      from 1 to LENGTH do (SETQ CHAR (NTHCHARCODE STRING J))
      (COND
        ((ILESSP CHAR (CHARCODE SPACE))
        (ERROR "Call to \KERMIT.SEND.STRING with unprefix characters: " STRING
        )))
      (add CHECKSUM CHAR)
      (RPLCHARCODE PACKET I CHAR]
  (RPLCHARCODE PACKET (NCHARS PACKET)
    (\DIGEST.DEFAULT.CHECKSUM CHECKSUM))
  (\DIGEST.WRITE PACKET KERMITSTATE)
  (replace (KERMITSTATE LASTPACKETOUT) of KERMITSTATE with PACKET)
  PACKET])
```

(\DIGEST.WRITE

[LAMBDA (STRING KERMITSTATE)

(* ejs: "3-Jan-86 17:07")

(* * Sends STRING out on STREAM with FORCEOUTPUT)

```
(LET ((STREAM (fetch (KERMITSTATE OUTSTREAM) of KERMITSTATE))
  PADC)
  (PRIN3 STRING STREAM)
  (TERPRI STREAM])
```

)

(DECLARE: EVAL@COMPILE

```
(DATATYPE KERMITSTATE ((LASTPACKETIN POINTER)
  (LASTPACKETOUT POINTER)
  (STATE POINTER)
  (INSTREAM POINTER)
  (OUTSTREAM POINTER)
  (EOLCONVENTION POINTER)
  (EOL POINTER)
  (QBIN POINTER)
  (TIME FIXP)
  (CURRENTSEQNO BYTE)
  (MARKCHAR BYTE)
  (MAXL BYTE)
  (NPAD BYTE)
  (PADC BYTE)
  (QCTL BYTE)
  (CHKT BYTE)
  (REPT BYTE))
  CURRENTSEQNO _ 0 MARKCHAR _ KERMIT.DEFAULT.MARK.CHARACTER MAXL _ KERMIT.DEFAULT.RECV.PACKET.SIZE TIME _
  KERMIT.DEFAULT.TIMEOUT.TIME NPAD _ KERMIT.DEFAULT.PAD.CHARS PADC _ KERMIT.DEFAULT.PAD.CHARACTER QCTL _
  KERMIT.DEFAULT.PREFIX.CHARACTER EOL _ KERMIT.DEFAULT.EOL.CHARACTER)
```

)

(/DECLAREDATATYPE (QUOTE KERMITSTATE)

```
(QUOTE (POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER FIXP BYTE BYTE BYTE BYTE BYTE
  BYTE BYTE BYTE))
```

;; ---field descriptor list elided by lister---

(QUOTE 18))

{MEDLEY}<lispusers>DIGEST.;1

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(PUTPROPS **DIGEST COPYRIGHT** ("Xerox Corporation" 1986))

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