File created: 22-Jul-88 14:16:28 **{MCS:MCS:STANFORD}<LANE>IPTALK.;1**

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

```
(RPAQQ IPTALKCOMS
       ((* TALK (Interim)
           IP Interface)
        (LOCALVARS . T)
        (FNS TALK.IP.SERVER)
        (FNS TALK.IP.USERNAME TALK.IP.CONNECT TALK.IP.EVENT TALK.START.IP.SERVER)
        (INITVARS (TALK.UDP.PORT 517))
        (GLOBALVARS TALK.UDP.PORT TALK.IP.CONSTANTS)
        (DECLARE%: DONTCOPY (RECORDS TALK.IP.PACKET)
               (CONSTANTS * TALK.IP.CONSTANTS))
        (* etc)
        (FILES TALK TCP TCPUDP)
        (APPENDVARS (TALK.PROTOCOLTYPES (IP DODIP.HOSTP TALK.IP.USERNAME TALK.IP.CONNECT TALK.IP.EVENT
                                            TALK.START.IP.SERVER)))
        (DECLARE%: DONTCOPY DONTEVAL@LOAD EVAL@COMPILE (FILES ETHERRECORDS TCPEXPORTS))
        (P (TALK.START.IP.SERVER))))



          (* * TALK (Interim) IP Interface)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(LOCALVARS . T)
)

(DEFINEQ

(TALK.IP.SERVER
  [LAMBDA NIL                                                      ; Edited 17-Jun-88 13:45 by cdl
    (DECLARE (GLOBALVARS \IP.READY))
    (LET (SOCKET)
         (DECLARE (SPECVARS SOCKET))
         (RESETLST
             [RESETSAVE NIL `(UDP.CLOSE.SOCKET ,(SETQ SOCKET (UDP.OPEN.SOCKET TALK.UDP.PORT]
             [bind PACKET RESPONSE SERVICE GAP.SERVICETYPE TALK.SERVICETYPE INPUTSTREAM OUTPUTSTREAM PORT USER
                while \IP.READY
                do (SETQ PACKET (UDP.GET SOCKET T))
                   (UDP.SETUP (SETQ RESPONSE (\ALLOCATE.ETHERPACKET))
                          (with IP PACKET IPSOURCEADDRESS)
                          (with UDP PACKET UDPSOURCEPORT)
                          0 SOCKET 'FREE)
                   (UDP.APPEND.BYTE RESPONSE (with TALK.IP.PACKET PACKET TALK.SERVICE.BYTE))
                   (if [OR [NULL (if (SETQ GAP.SERVICETYPE (ASSOC (with TALK.IP.PACKET PACKET TALK.SERVICE.BYTE)
                                                                GAP.SERVICETYPES))
                                    then (SETQ SERVICE (with GAP.SERVICETYPE GAP.SERVICETYPE GAP.SERVICENAME]
                          (NULL (SETQ TALK.SERVICETYPE (ASSOC SERVICE TALK.SERVICETYPES]
                       then (UDP.APPEND.BYTE RESPONSE \IPTALK.NOSERVICE)
                            (UDP.SEND SOCKET RESPONSE)
                     elseif [OR TALK.GAG (NOT (TALK.ANSWER (SETQ USER (with TALK.IP.PACKET PACKET TALK.IP.USERNAME
                                                                          ))
                                                    SERVICE
                                                    'IP
                                                    (with IP PACKET IPSOURCEADDRESS]
                       then (UDP.APPEND.BYTE RESPONSE \IPTALK.NOANSWER)
                            (UDP.SEND SOCKET RESPONSE)
                     else (UDP.APPEND.BYTE RESPONSE \IPTALK.SUCCESS)
                          (UDP.APPEND.WORD RESPONSE (SETQ PORT (\TCP.SELECT.PORT)))
                          (UDP.SEND SOCKET RESPONSE)
                          (if (SETQ INPUTSTREAM (TCP.OPEN (with IP PACKET IPSOURCEADDRESS)
                                                          NIL PORT 'PASSIVE 'INPUT))
                              then (TALK.PROCESS INPUTSTREAM (TCP.OTHER.STREAM INPUTSTREAM)
                                          TALK.SERVICETYPE
                                          'IP
                                          'SERVER USER T])])
)

(DEFINEQ

(TALK.IP.USERNAME
  [LAMBDA (INPUTSTREAM OUTPUTSTREAM SERVICETYPE MODE USER)         ; Edited  8-Jun-88 15:45 by cdl
    (SELECTQ (with TALK.SERVICETYPE SERVICETYPE TALK.SERVICENAME)
        ((TTY Sketch)                                              (* For (backward) compatibility)
             USER)
        (LET ((NAME (USERNAME)))
             (PRINTOUT OUTPUTSTREAM (if (NOT (STREQUAL NAME (CONSTANT null)))
                                        then NAME)
                    T)
             (FORCEOUTPUT OUTPUTSTREAM)
             (SETQ NAME (RATOM INPUTSTREAM TALK.READTABLE))        (* Eat EOL)
```

```
              (BIN INPUTSTREAM)
              (OR NAME USER])

(TALK.IP.CONNECT
  [LAMBDA (HOST SERVICETYPES)                                     ; Edited 13-Jun-88 17:54 by cdl
    (DECLARE (SPECVARS HOST SERVICETYPES))
    (LET
     (SOCKET)
     (DECLARE (SPECVARS SOCKET))
     (RESETLST
         [RESETSAVE NIL `(UDP.CLOSE.SOCKET ,(SETQ SOCKET (UDP.OPEN.SOCKET]
         [PROG (NAME REQUEST RESPONSE INPUTSTREAM RESULT)
               (while (STREQUAL (SETQ NAME (USERNAME))
                             (CONSTANT null))
                  do (LOGIN))
               (if [LITATOM (SETQ RESULT
                             (for SERVICETYPE in SERVICETYPES
                               thereis (PROGN (UDP.SETUP (SETQ REQUEST (\ALLOCATE.ETHERPACKET))
                                                     HOST TALK.UDP.PORT 0 SOCKET 'FREE)
                                              (UDP.APPEND.BYTE REQUEST
                                                     (with GAP.SERVICETYPE
                                                          [for GAP.SERVICETYPE in GAP.SERVICETYPES
                                                             thereis (with GAP.SERVICETYPE GAP.SERVICETYPE
                                                                            (with TALK.SERVICETYPE SERVICETYPE
                                                                                  (EQ GAP.SERVICENAME
                                                                                      TALK.SERVICENAME]
                                                          GAP.UNSPECIFIED))
                                              (UDP.APPEND.BYTE REQUEST 0)
                                              (UDP.APPEND.WORD REQUEST 0)
                                              (UDP.APPEND.WORD REQUEST (NCHARS NAME))
                                              (UDP.APPEND.STRING REQUEST NAME)
                                              (if [SETQ RESPONSE (UDP.EXCHANGE SOCKET REQUEST
                                                                       (TIMES TALK.ANSWER.WAIT
                                                                              (CONSTANT (PROGN
                                                                  (* Convert to milliseconds and double in case they are idle)
                                                                                              (TIMES 2 1000]
                                                 then (SELECT (with TALK.IP.PACKET RESPONSE TALK.STATUS)
                                                              (\IPTALK.SUCCESS T)
                                                              (\IPTALK.NOSERVICE NIL)
                                                              (\IPTALK.NOANSWER (RETURN 'ANSWER))
                                                              (RETURN 'CONNECT))
                                               else                (* Can't connect)
                                                    (RETURN 'CONNECT]
                   then (RETURN RESULT)
                 else (if (STREAMP (SETQ INPUTSTREAM (TCP.OPEN HOST (with TALK.IP.PACKET RESPONSE TALK.TEDIT.PORT)
                                                           NIL
                                                           'ACTIVE
                                                           'INPUT T)))
                          then [RETURN (CONS RESULT (CONS INPUTSTREAM (TCP.OTHER.STREAM INPUTSTREAM]
                        else (RETURN 'CONNECT])])

(TALK.IP.EVENT
  [LAMBDA (INPUTSTREAM OUTPUTSTREAM)                              (* cdl "18-May-87 16:29")
    (while (AND (OPENP INPUTSTREAM)
                (OPENP OUTPUTSTREAM)
                (NOT (READP INPUTSTREAM)))
       do (if (EOFP INPUTSTREAM)
              then (CLOSEF? INPUTSTREAM))
          (BLOCK])

(TALK.START.IP.SERVER
  [LAMBDA (RESTART)                                               ; Edited 17-Jun-88 12:20 by cdl
    [LET [(DEVICE (\GETDEVICEFROMNAME 'TCP 'NOERROR 'DONTCREATE]
         (if DEVICE
             then                                                 (* (Temporary) patch to make TCP streams handle NS
                                                                  character codes)
                  (with FDEV DEVICE (if (NULL READCHARCODE)
                                        then (SETQ READCHARCODE (FUNCTION \GENERIC.READCCODE]
    (bind PROCESS while (AND (SETQ PROCESS (FIND.PROCESS 'TALK.IP.SERVER))
                             RESTART)
       do (DEL.PROCESS PROCESS)
          (BLOCK)
          yield
          (if PROCESS
              then PROCESS
            elseif \IP.READY
              then (ADD.PROCESS '(TALK.IP.SERVER)
                          'RESTARTABLE
                          'SYSTEM])
)

(RPAQ? TALK.UDP.PORT 517)
```

```
(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS TALK.UDP.PORT TALK.IP.CONSTANTS)
)

(DECLARE%: DONTCOPY

(DECLARE%: EVAL@COMPILE

[ACCESSFNS TALK.IP.PACKET [(TALK.PACKET.BASE (with UDP DATUM UDPCONTENTS))
                           (TALK.IP.USERNAME (\GETBASESTRING (with UDP DATUM UDPCONTENTS)
                                                    6
                                                    (with TALK.IP.PACKET DATUM TALK.USERNAME.LENGTH]
       (BLOCKRECORD TALK.PACKET.BASE ((TALK.SERVICE.BYTE BYTE)
                                      (TALK.STATUS BYTE)
                                      (TALK.TEDIT.PORT WORD)
                                      (TALK.USERNAME.LENGTH WORD]
)

(RPAQQ TALK.IP.CONSTANTS ((\IPTALK.SUCCESS 0)
                          (\IPTALK.NOSERVICE 1)
                          (\IPTALK.NOANSWER 2)))

(DECLARE%: EVAL@COMPILE

(RPAQQ \IPTALK.SUCCESS 0)

(RPAQQ \IPTALK.NOSERVICE 1)

(RPAQQ \IPTALK.NOANSWER 2)

(CONSTANTS (\IPTALK.SUCCESS 0)
       (\IPTALK.NOSERVICE 1)
       (\IPTALK.NOANSWER 2))
)
)


          (* * etc)

(FILESLOAD TALK TCP TCPUDP)

(APPENDTOVAR TALK.PROTOCOLTYPES (IP DODIP.HOSTP TALK.IP.USERNAME TALK.IP.CONNECT TALK.IP.EVENT
                                    TALK.START.IP.SERVER))

(DECLARE%: DONTCOPY DONTEVAL@LOAD EVAL@COMPILE

(FILESLOAD ETHERRECORDS TCPEXPORTS)
)

(TALK.START.IP.SERVER)
```

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