Corrections to RFC 560
Remote Controlled Transmission & Echoing TELNET Option

                                                               1a

[This RFC contains corrections to RFC 560 (NIC -- 18492,) which
described the Remote Controlled Transmission and Echoing TELNET
Option. A completely updated version of 18492 has been journalized
and will be included in the Protocols Notebook. These new
specifications for RCTE are in NIC document (19859,).]   2

Section 1 of the RCTE Option specification (18492,2a:gy) was supposed
to include the name and code for the option. The code was
accidentally left out. That statement should read:
                                                               3

    RCTE   7   3a

Section 2 should include the End of Subnegotiation Parameter, at the
end of the subnegotiation parameter specification (18492,2b5:gy).
All examples in the option specifications, showing RCTE SB commands,
should also show the IAC SE parameter. (The revised RCTE
specifications have been so changed.) Section 2 should be changed so
that it reads: 4

    IAC SB RCTE <cmd> [BC1 BC2] [TC1 TC2] IAC SE   4a

The sample scenario, in Section 5.D (18492,2e4:gy), should be
modified to reflect the kind of asynchrony of events that can occur
with the RCTE protocol. The updated RCTE specifications (in --
19859,1e4:gy) now reflects this.   5

In RFC 563 (18755,) John Davidson criticizes RCTE's apparent failure
to allow Net I/O and server computation to overlap.   6

I agree with John's criticisms and feel that the following should fix
the problem: 7

Crocker & Postel   [Page 1]

    1. Change 5.A (18492,2e1)   7a

       from: 7a1

          Overview of Interaction   7a1a

       to: 7a2

          Overview of User Terminal Printing Action & Control   7a2a

    2. Change 5.B.5.a (18492,2e2e1)   7b

       from: 7b1

          A Transmission character is one which REQUIRES the User Host to
          transmit all text accumulated up to and including its
          occurrence. (For Net efficiency, User hosts are DISCOURAGED
          from sending before the occurrence of a Transmission
          character).   7b1a

       to: 7b2

          A Transmission character is one which RECOMMENDS that the Using
          Host transmit all text accumulated up to and including its
          occurrence. (For Net efficiency, Using hosts are DISCOURAGED
          from sending before the occurrence of a Transmission character,
          as defined at the moment the character is typed).
          7b2a

    3. Change 5.B.5.b (18492,2e2e2)   7c

       from: 7c1

          A Break character has the effect of a Transmission character,
          but also causes the Using host to stop its print/discard action
          upon the User's input text, until directed to do otherwise by
          another IAC SB RCTE <cmd> IAC SE command from the Serving host.
          Break characters therefore define printing units. "Break
          character" as used in this document does NOT mean Telnet Break
          character.   7c1a

       to: 7c2

          A Break character REQUIRES that the Using host transmit all
          text accumulated up to and including its occurrence and also
          causes the Using host to stop its print/discard action upon the
          User's input text, until directed to do otherwise by another
          IAC SB RCTE <cmd> IAC SE command from the Serving host. Break

        characters therefore define printing units. "Break character"
        as used in this document does NOT mean Telnet Break character.
        7c2a

   4. Change 5.B.6 (18492,2e2f)   7d

      from: 7d1

        Input from the terminal is (hopefully) buffered up to the
        occurrence of a Transmission or Break character; and the input
        text is echoed or not echoed, up to the occurrence of a Break
        Character. The most recent RCTE command determines the echo,
        Transmission and Break actions.   7d1a

      to: 7d2

        Input from the terminal is (hopefully) buffered into units
        ending with a Transmission or Break character; and echoing of
        input text is suspended after the occurrence of a Break
        Character and until receipt of a Break Reset command from the
        Serving host. The most recent RCTE Break reset command
        determines the Break actions.   7d2a

   5. Change 5.C.4 (18492,2e3d)   7e

      FROM: 7e1

        A severe (User) site-dependent problem will be buffering type-
        ahead input from the terminal. It is possible, especially in
        the case of TIPS, that the input buffer will overflow often.
        If the receiving (serving) host will permit, the accumulated
        text should be transmitted at this point. If the text cannot
        be transmitted and further typing by the user will result in
        lost text, the user should be notified.   7e1a

      to: 7e2

        Buffering Problems and Transmission vs. Printing Constraints:
        7e2a

           There are NO mandatory transmission constraints. The Using
           host is allowed to send a character a time, though this
           would be a waste of RCTE. The Transmission Classes commands
           are GUIDELINES, so deviating from them, as when the User's
           buffer gets full, is allowed.   7e2a1

Additionally, the Using host may send a Break Class
character, without knowing that it is one (as with type-
ahead).   7e2a2

The problem with buffering occurs when printing on the
user's terminal must be suspended, after the user has typed
a currently valid Break Character and until a Break Reset
command is received from the serving host. During this
time, the user may be typing merrily along. The text being
typed may be SENT, but may not yet be PRINTED.   7e2a3

The more standard problem of filling the transmission
buffer, while awaiting an ALLOC from the Serving host, may
also occur, but this problem is well known to implementors
and in no way special to RCTE.   7e2a4

In any case, when the buffer does fill and further text
typed by the user will be lost, the user should be notified.
7e2a5

6. And add 5.C.5, 5.C.6, 5.C.7, 5.C.8, and 5.C.9 as follows: 7f

(5) The Serving and Using hosts must carefully synchronize Break
    Class Reset commands with the transmission of Break
    characters. Except at the beginning of an interaction, the
    Serving host MAY ONLY send a Break Reset command in response
    to the User host's having sent a Break character as defined at
    that time. This should establish a one-to-one correspondence
    between them. (A <cmd> value of zero, in this context, is
    interpreted as a Break Classes reset to the same class(es) as
    before.) The Reset command may be preceded by terminal output.
    7f1

(6) Text should be buffered by the User host until the user types
    a character which belongs to the transmission class in force
    at THE MOMENT THE CHARACTER IS TYPED.   7f2

(7) Transmission Class Reset commands may be sent by the Serving
    host at ANY TIME. If they are frequently sent separate from
    Break Class Reset commands, it will probably be better to exit
    from RCTE and enter regular character at a time transmission.
    7f3

8) It is not immediately clear what the Using host should do with
    currently buffered text, when a Transmission Classes Reset
    command is received. The buffering is according to the
    previous Transmission Classes scheme.   7f4

The Using host clearly should NOT simply wait until a
Transmission character (according to the new scheme) is typed.
7f4a

Either the buffered text should be rescanned, under the new
scheme;   7f4b

Or the buffered text should simply be sent as a group.   This
is the simpler approach, and probably quite adequate.   7f4c

9) It is possible to define NO BREAK CHARACTERS except TELNET
   commands (IAC ...). This might actually be useful, as in the
   case of transmitting on carriage-return, with the Using host
   echoing (a controlled half-duplex).   7f5

   Having the using host send a Telnet Command will allow the
   serving host to know when he may reset the Break classes, but
   the mechanism is awkward and probably should be avoided.
   b 7e2