                    TELNET EXTENDED ASCII OPTION

1. Command Name and Code.

EXTEND-ASCII 17

2. Command Meanings.

IAC WILL EXTEND-ASCII

The sender of this command requests Permission to begin
transmitting, or confirms that it may now begin transmitting
extended ASCII, where additional 'control' bits are added to
normal ASCII, which are treated sPecially by certain programs on
the host computer.

IAC WON'T EXTEND-ASCII

If the connection is already being operated in extended ASCII
mode, the sender of this command demands that the receiver begin
transmitting data characters in standard NVT ASCII. If the
connection is not already being operated in extended ASCII mode,
The sender of this command refuses to begin transmitting extended
ASCII.

IAC DO EXTEND-ASCII

The sender of this command requests that the receiver begin
transmitting,or confirms that the receiver of this command is
allowed to begin transmitting extended ASCII.

IAC DON'T EXTEND-ASCII

The sender of this command demands that the receiver of this
command stop or not start transmitting data in extended ASCII
mode.

IAC SB EXTASC

<high order bits (bits 15-8)><low order bits (bits 7-0)> IAC SE

This command transmits an extended ASCII character in the form of
two 8-bit bytes. Each 8-bit byte contains 8 data bits.

                            -1-

3. Default

DON'T EXTEND-ASCII

WON'T EXTEND-ASCII

i.e., only use standard NVT ASCII

4. Motivation.

Several sites on the net, for example, SU-AI and MIT-AI, use
keyboards which use almost all 128 characters as printable
characters, and use one or more additional bits as "control'° bits as
command modifiers or to separate textual input from command input to
programs. Without these additional bits, several characters cannot
be entered as text because they are used for control purposes, such
as the greek letter "beta'° which on a TELNET connection is CONTROL-C
and is used for stopping ones job. In addition there are several
commonly used programs at these sites which require these additional
bits to be run effectively. Hence it is necessary to provide some
means of sending characters larger than 8 bits wide.

5. Description of the option.

This option is to allow the transmission of extended ASCII.

Experience has shown that most of the time, 7-bit ASCII is typed,
with an occasional "control'° character used. Hence, it is expected
normal NVT ASCII would be used for 7-bit ASCII and that
extended-ASCII be sent as an escape character sequence.

The exact meaning of these additional bits depends on the user
program. At SU-AI and at MIT-AI, the first two bits beyond the
normal 7-bit ASCII are passed on to the user program and are denoted
as follows.

Bit 8 (or 200 octal) is the CONTROL bit
Bit 9 (or 400 octal) is the META bit

(NOTE: "CONTROL'° is used in a non-standard way here; that is, it
usually refers to codes 0-37 in NVT ASCII. CONTROL and META are
echoed by prefixing the normal character with 013 (integral symbol)
for CONTROL and 014 (plus-minus) for META. If both are present, it
is known as CONTROL-META and echoed as 013 014 7-bit character.)

TELNET EXTENDED ASCII OPTION
RFC 698, NIC 32964 (July 23, 1975)

6. Description of Stanford Extended ASCII Characters

In this section, the extended graphic character set used at SU-AI is
described for reference, although this specific character set is not
required as part of the extended ASCII Telnet option. Characters
described as "hidden" are alternate graphic interpretations of codes
normally used as format effectors, used by certain typesetting
programs.

```
Code Graphic represented

000 null (hidden vertically centered dot)
001 downward arrow
002 alpha (all Greek letters are lowercase)
003 beta
004 logical and (caret)
005 logical not (dash with downward extension)
006 epsilon
007 pi
010 lambda
011 tab (hidden gamma)
012 linefeed (hidden delta)
013 vertical tab (hidden integral)
014 formfeed (hidden plus-minus)
015 carriage return (hidden circled-plus)
016 infinity
017 del (partial differential)
020 proper subset (right-opening horseshoe)
021 proper superset (left-opening horseshoe)
022 intersection (down-opening horseshoe)
023 union (up-opening horseshoe)
024 universal quantifier (upside-down A)
025 existential quantifier (backwards E)
026 circled-times
027 left-right double headed arrow
030 underbar
031 right pointing arrow
032 tilde
033 not-equal
034 less-than-or-equal
035 greater-than-or-equal
036 equivalence (column of 3 horizontal bars)
037 logical or (V shape)
040-135 as in standard ASCII
```

TELNET EXTENDED ASCII OPTION
RFC 698, NIC 32964 (July 23, 1975)

```
136 upward pointing arrow
137 left pointing arrow
140-174 as in standard ASCII
175 altmode (prints as lozenge)
176 right brace
177 rubout (hidden circumflex)
```