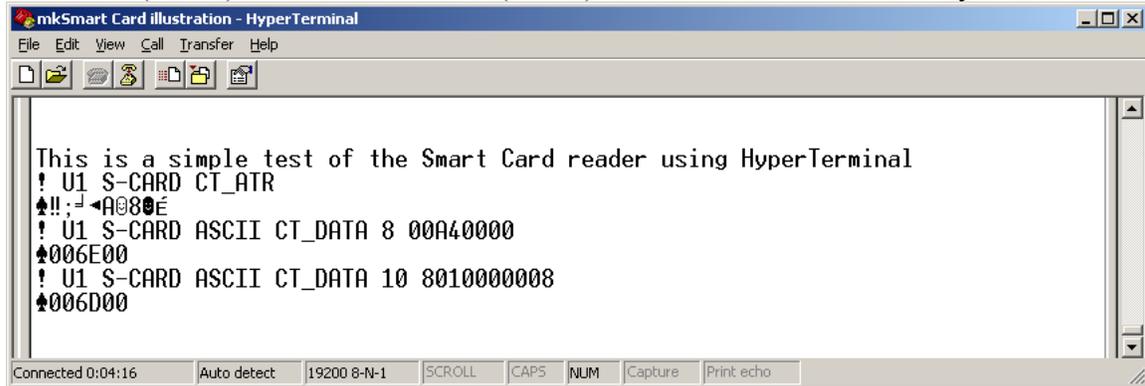


Printers equipped with smart card readers can be sent commands to verify functionality.

In this simple example the illustration is showing commands being sent to the printers smart card reader and the printer replying back to the host.

The printer responds back with an ACK and related data.

The ACK (Hex 6) is shown The ACK (Hex 6) is shown below with the ♠ symbol



```
mkSmart Card illustration - HyperTerminal
File Edit View Call Transfer Help
This is a simple test of the Smart Card reader using HyperTerminal
! U1 S-CARD CT_ATR
♠!!;~<A@80E
! U1 S-CARD ASCII CT_DATA 8 00A40000
♠006E00
! U1 S-CARD ASCII CT_DATA 10 8010000008
♠006D00
Connected 0:04:16 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

S-CARD command format:

S-CARD {Options} {Operation}

The S-CARD command must be terminated by both a Carriage return (0D hex) AND Line feed (0A hex).

Typical commands:

CT_ATR – Each type of smart card has a unique ‘answer to reset’, or ATR. This ATR contains information relevant to data transmission and the card itself. The command/expected response has the following form:

Command:

! U1 S-CARD CT_ATR

Response:

<ACK><Length><ATR data>

CT_DATA – This command is used to send a command to the smart card. The response from the card is returned. A command of this type has the following form:

<CT_DATA> <Length of command> <card command in ASCII form>

Example:

! U1 S-CARD CT_DATA 10 8010000008

Description:

CT_DATA: indicates the command is to go to the smart card
10: length of command (hexadecimal format)
8010000008: Command to go to the card in ASCII form. This command is converted to binary and sent to the card.

Response for successful command:

<ACK><Length><Data><SW1><SW2>

Explanation of response:

<ACK> -- Successfully send command to the card and received a response
<Response length> -- The response length (binary). This length is for data only (i.e. SW1 and SW2 are not included in response length).
<Data> -- This is the response from the card (binary).
<SW1> -- Status byte from card (binary)
<SW2> -- Status byte from card (binary)

Note: See ISO-7816-3 for an explanation of SW1 and SW2

CT_CLOSE – This command is used to power down the reader.

Options:

Note: {Options} must precede the {Operation}
ASCII - **ASCII** – Data returned from the card will be converted to ASCII.
Normally, data returned is in binary form. With the ASCII option, returned data will be in ASCII form.

Example:

```
! U1 S-CARD CT_DATA 10 8010000008
```

Normally, the response to this command would appear as follows:

```
<0x06><0x10><0x01><0x02><0x03><0x04><0x05><0x06>...
```

Where <0x06> represents <ACK>

<0x10> indicates there are 16 bytes (0x10 = 16 decimal) of data in the response

```
! U1 S-CARD ASCII CT_DATA 10 8010000008
```

The response would read:

```
<0x06><10><010203040506...>
```

Where, other than the 0x06 (ACK), each byte represents a nibble and each pair of ASCII bytes corresponds to a binary byte.

DEBUG-ON

Enables debug on the printer. This will cause some debug messages to print out during communication with the printer/card reader.

An error condition will result in a NAK which will be represented by a hex value of 15 followed by the Error code.

The following are possible error codes:

0x02 Protocol not supported (card is not using T = 0 or T= 1 protocol)

0x03 Unable to read card's ATR

0x10 No card detected

0x11 Invalid drive type

0x12 Invalid operation

0x16 Invalid command length in S-Card command