ANSI/VT100 Terminal Control Escape Sequences

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Many computer terminals and terminal emulators support colour and cursor control through a system of escape sequences. One such standard is commonly referred to as ANSI Colour. Several terminal specifications are based on the ANSI colour standard, including VT100.

The following is a partial listing of the VT100 control set.

`<ESC>` represents the ASCII "escape" character, 0x1B. Bracketed tags represent modifiable decimal parameters; eg. `{ROW}` would be replaced by a row number.

Device Status

The following codes are used for reporting terminal/display settings, and vary depending on the implementation:

`Query Device Code`   `<ESC>[c`

- Requests a `Report Device Code` response from the device.

`Report Device Code`   `<ESC>[{code}0c`

- Generated by the device in response to `Query Device Code` request.

`Query Device Status`   `<ESC>[5n`

- Requests a `Report Device Status` response from the device.

`Report Device OK`   `<ESC>[0n`

- Generated by the device in response to a `Query Device Status` request; indicates that device is functioning correctly.

`Report Device Failure`   `<ESC>[3n`

- Generated by the device in response to a `Query Device Status` request; indicates that device is functioning improperly.

`Query Cursor Position`   `<ESC>[6n`

- Requests a `Report Cursor Position` response from the device.

`Report Cursor Position`   `<ESC>[{ROW};{COLUMN}R`

- Generated by the device in response to a `Query Cursor Position` request; reports current cursor position.

Terminal Setup

The `h` and `l` codes are used for setting terminal/display mode, and vary depending on the implementation. Line Wrap is one of the few setup codes that tend to be used consistently:

Reset Device   `<ESC>c`

- Reset all terminal settings to default.

Enable Line Wrap   `<ESC>[7h`

- Text wraps to next line if longer than the length of the display area.

Disable Line Wrap   `<ESC>[7l`

- Disables line wrapping.

Fonts

Some terminals support multiple fonts: normal/bold, swiss/italic, etc. There are a variety of special codes for certain terminals; the following are fairly standard:

Font Set G0   `<ESC>(`

- Set default font.

Font Set G1   `<ESC>)`

- Set alternate font.

Cursor Control

Cursor Home   `<ESC>[{ROW};{COLUMN}H`

- Sets the cursor position where subsequent text will begin. If no row/column parameters are provided (ie. `<ESC>[H`), the cursor will move to the *home* position, at the upper left of the screen.

Cursor Up   `<ESC>[{COUNT}A`

- Moves the cursor up by *COUNT* rows; the default count is 1.

Cursor Down   `<ESC>[{COUNT}B`

- Moves the cursor down by *COUNT* rows; the default count is 1.

Cursor Forward   `<ESC>[{COUNT}C`

- Moves the cursor *forward* by *COUNT* columns; the default count is 1.

Cursor Backward   `<ESC>[{COUNT}D`

- Moves the cursor *backward* by *COUNT* columns; the default count is 1.

Example: following HC12 code will move the cursor to left 8 characters.

```
        ldaa  #$1B        ; esc character
        jsr   putchar
        ldaa  #'['
        jsr   putchar
        ldaa  #'8'        ; $38 in hex
        jsr   putchar
        ldaa  #'D'
        jsr   putchar
```

Force Cursor Position   `<ESC>[{ROW};{COLUMN}f`

- Identical to `Cursor Home`.

Save Cursor   `<ESC>[s`

- Save current cursor position.

Unsave Cursor   `<ESC>[u`

- Restores cursor position after a `Save Cursor`.

Save Cursor & Attrs   `<ESC>7`

- Save current cursor position.

Restore Cursor & Attrs `<ESC>8`

- Restores cursor position after a `Save Cursor`.

Scrolling

Scroll Screen   `<ESC>[r`

- Enable scrolling for entire display.

Scroll Screen   `<ESC>[{start};{end}r`

- Enable scrolling from row `{start}` to row `{end}`.

Scroll Down   `<ESC>D`

- Scroll display down one line.

Scroll Up   `<ESC>M`

- Scroll display up one line.

Tab Control

Set Tab   **<ESC>H**

- Sets a tab at the current position.

Clear Tab   **<ESC>[g**

- Clears tab at the current position.

Clear All Tabs   **<ESC>[3g**

- Clears all tabs.

Erasing Text

Erase End of Line   **<ESC>[K**

- Erases from the current cursor position to the end of the current line.

Erase Start of Line   **<ESC>[1K**

- Erases from the current cursor position to the start of the current line.

Erase Line   **<ESC>[2K**

- Erases the entire current line.

Erase Down   **<ESC>[J**

- Erases the screen from the current line down to the bottom of the screen.

Erase Up   **<ESC>[1J**

- Erases the screen from the current line up to the top of the screen.

Erase Screen   **<ESC>[2J**

- Erases the screen with the background colour and moves the cursor to *home*.

Example: following HC12 code will clear the screen.

```
        ldaa   #$1B
        jsr    putchar
        ldaa   #'['
        jsr    putchar
        ldaa   #'2'
        jsr    putchar
        ldaa   #'J'
        jsr    putchar
```

Printing

Some terminals support local printing:

Print Screen   **<ESC>[i**

- Print the current screen.

Print Line   **<ESC>[1i**

- Print the current line.

Stop Print Log   **<ESC>[4i**

- Disable log.

Start Print Log   **<ESC>[5i**

- Start log; all received text is echoed to a printer.

Define Key

Set Key Definition   **<ESC>[{key};"{string}"p**

- Associates a *string* of text to a keyboard key. **{key}** indicates the key by its ASCII value in decimal.

Set Display Attributes

Set Attribute Mode   **<ESC>[{attr1};...;{attrn}m**

- Sets multiple display attribute settings. The following lists standard attributes:

```
0       Reset all attributes
1       Bright
2       Dim
4       Underscore
5       Blink
7       Reverse
8       Hidden

        Foreground Colours
30      Black
31      Red
32      Green
33      Yellow
34      Blue
35      Magenta
36      Cyan
```

```
37        White

          Background Colours
40        Black
41        Red
42        Green
43        Yellow
44        Blue
45        Magenta
46        Cyan
47        White
```

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