

ANSI

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	<i>TITLE :</i> ANSI		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

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Chapter 1

ANSI

1.1 ANSI/SkyPix Documentation v1.12 - 01 Sep 1994

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```

SOME USEFUL INFORMATION TO HELP YOU DEAL WITH IT...

Original text file - 03 Jan 1992

Edited and Revised - 11 Jan 1993

First AmigaGuide version - 01 Jan 1994

COMING SOON: C-Net MCI for Morons, the Complete AmigaGuide Dox

OPEN ME !!

enter them the old-fashioned way (or with **SKYPAINT** .) As of version 2.63, the only way to use ANSI/SkyPix while on-line is through the line editor (the visual editor will not respond to ESC sequences for some reason, but this may have been fixed in CNet/3.) Also, you must press ESC twice for the code to register with the editor (the ESC code will show as a tilde ~.)

TO SKYLINE 1.3 USERS: this document contains commands to which SkyLine's built-in editor should (I said SHOULD) respond, and since SkyLine has no equivalent of MCI, these Escape-commands provide the only method of changing colour and adding other various effects from within the BBS.

OK, BUT JUST EXACTLY WHAT IS ANSI?

=====

ANSI is actually an organisation, the American National Standards Institute, which back in the stone ages decided to introduce hardware/software standards to make the job of persons in the computer industry easier. Originally, the ANSI protocol governed printer-to-computer communications since monitors were rare at that time. Eventually, however, someone invented the CRT, and ANSI seemed a logical choice to govern text displays on this new device. When MS-DOS came into being in the 1970's, MicroSoft picked up on the ANSI standard (implemented in ANSI.SYS) to allow non-graphics-capable machines (this was before CGA) to generate pseudo-graphic displays using text and ANSI colour changes. Then came the 80's and the era of the modem, and some clever programmer grabbed the standard once again to use for data terminal emulations, providing SysOps and users with on-line "pictures", colour changes, and cursor movement which made BBS'ing more interesting. The word "ANSI" can refer to a variety of standards (such as ANSI C, for instance), but for now I will refer to only the data terminal implementation.

The ANSI protocol is functionally similar to Commodore's Pet ASCII in that each command is implemented by a series of weird characters that no one in their right mind would ever type by mistake. Also like PetSCII, it is designed so that terminal and host should (ideally) respond identically to the same command (this is rarely the case, however.) Since all 16-colour ANSI terminals (including ones on the Amiga) are designed to emulate the **standard ANSI palette** , it is possible to view the same graphics using vastly different machines.

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1.4 How The Stuff's Put Together

```
####
##
## =====
## O M M A N D S T R U C T U R E
## =====
##
####
```

Standard ANSI Commands are structured as Introducer + Command + Terminator where the Introducer is almost always the ESC [key sequence and the Terminator is generally a letter (ANSI) or an exclamation point (SkyPix.) Confused yet?

The ";" key can also be used within a **complex command** to join 2 command strings together. I know this sounds awfully naughty and complex, but just study the command charts in the following section and I think you'll see where I'm driving. The key sequences are spelled out key-for-key (they must be entered exactly.)

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1.5 The Section You've All Been Waiting For

```
####
## ##
## ## =====
##### N S I C O M M A N D S
## ## =====
## ##
## ##
```

NOTES:

- [] - refers to optional parts of a command.
- '[n]' or '[m]' - always decimal numbers, containing one or more ASCII digits to express their value.
- Where '[n]' occurs in a command and the value of 'n' is not explicitly defined, it usually defaults to 1.
- 'ESC' - an ESCape key press (HEX \$1B or DECIMAL 27) - Use CTRL-[if you don't have an ESCape key (Commodore 64's, for instance) - in some implementations, \$DB also works as a command introducer, but ESC is much

more widely-used

- Commands involving upper or lower-case letters are always case-sensitive.
- Where applicable, the equivalent C-Net MCI commands (version 2.0 and beyond) have been included for reference.
- All sequences should be entered WITHOUT SPACES - the spaces are included for readability only.

Cursor Positioning Making your screen do the tango

Text F/X Italics, Boldface, and international intrigue

Changing Colours Monochrome users may skip this part

Next Section Table of Contents

1.6 Cursor Positioning Commands, or Watch the Bouncing Letters

CURSOR POSITIONING COMMANDS

=====

Backspace Left Arrow Key (CTRL-H)

Tab Tab Key (CTRL-I)

Line Feed (Down One Line) Down Arrow Key (CTRL-J)

Up (Up One Line) Up Arrow Key (CTRL-K)

Clear Screen (Form Feed) [MCI \f1] CTRL-L

Carriage Return (Move To First Column) Return Key (CTRL-M)

Insert n Characters [MCI \n] ESC [[n] @@

Cursor Up n Lines [MCI ^n] ESC [[n] A

Cursor Down n Lines [MCI \n] ESC [[n] B

Cursor Forward n Spaces [MCI \>n] ESC [[n] C

Cursor Backward n Spaces [MCI \<n] ESC [[n] D

Cursor Down n Lines And To Column 1 ESC [[n] E

(Multiple Carriage Return) [MCI \nn]

Cursor Up n Lines And To Column 1 ESC [[n] F

(Opposite Effect Of Above)

Cursor to the beginning of the current line ESC [G

Cursor To Row n, Column m [MCI \f0!\n\>m] ESC [[n] ; [m] H

Erase To End Of Display ESC [J

Erase To End Of Line ESC [K

Insert Line Above Current Line ESC [L

Delete Current Line ESC [M

Delete n Chars From Under Cursor Forward ESC [[n] P

Scroll Display Up n Lines ESC [[n] S

Scroll Display Down n Lines ESC [[n] T

Set Carriage Return Mode (What Is Transmitted
Whenever You Hit RETURN)

RETURN = Line Feed + Carriage Return ESC [20 h

RETURN = Carriage Return Only ESC [20 l

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1.7 Text F/X, or Emphasis Made Easy

TEXT F/X

=====

Normal Display (clear all F/X) ESC [0 m

(turns off reverse, brightness, and boldface; sets text and background to
default colours . In SkyPix, this will also reset the **font** to Topaz-8.)

Activate Bright Colours (STANDARD ANSI ONLY) ESC [1 m

(forces the next **colour change** to use the second 8 colours instead of
the first. This command is ignored in SkyPix mode.)

Activate Italics (STANDARD ANSI ONLY) ESC [3 m

(This only worked on a few terminals I tried.)

Activate Boldface (STANDARD ANSI ONLY) [MCI \o1] ESC [5 m

(This command is also ignored in SkyPix mode.)

Reverse Display [MCI \r1] ESC [7 m

(interchanges the background and foreground colours.)

FLASHING TEXT AND OTHER STUFF

=====

Many of the above commands are dependent upon the terminal used. For instance, on many IBM terminals Boldface text (ESC [5 m) appears instead as flashing (blinking) characters. On other terminals, the (ESC [1 m) command activates flashing text instead of turning on bright colours (TERM, for instance, uses flashing text to represent the second 8 colours on 8-colour (3 bit-plane) screens.) Still others represent the second 8 colours by Boldface text. You will need to experiment to figure out how your terminal implements each of the above commands.

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1.8 Changing Colours, or Chartreuse Your Way to Social Ridicule

CHANGING COLOURS

=====

NOTES:

- If Reverse Display is activated, the foreground colour becomes the background colour
- In SkyPix mode, the first 8 colours can be accessed with standard ANSI commands (to allow compatibility with ANSI screens), however the second 8 SkyPix colours can only be accessed by changing the SkyPix **Pen Colour**, which is discussed later in this text.
- Only the first 8 colours may be used as a background.
- The foreground and background colours can be mixed and matched to achieve 128 total colour combinations.

TEXT (FOREGROUND) COLOUR [MCI \cn]

=====

DARK (ESC [0 m) BRIGHT (ESC [1 m) SKYPIX

- 0 - Black Dark Grey Black ESC [30 m
- 1 - Red Bright Red Bright Red ESC [31 m
- 2 - Green Bright Green Bright Green ESC [32 m
- 3 - Orange Yellow Yellow ESC [33 m
- 4 - Dark Blue Bright Blue Dark Blue ESC [34 m
- 5 - Violet Bright Violet Violet ESC [35 m
- 6 - Cyan Bright Cyan Medium Blue ESC [36 m
- * 7 - Light Grey White White ESC [37 m
- * = default colour

BACKGROUND COLOUR [MCI \zn]

=====

DARK (ESC [0 m) BRIGHT (ESC [1 m) SKYPIX

- * 0 - Black N/A Black ESC [40 m
- 1 - Red N/A Bright Red ESC [41 m
- 2 - Green N/A Bright Green ESC [42 m
- 3 - Orange N/A Yellow ESC [43 m
- 4 - Dark Blue N/A Dark Blue ESC [44 m
- 5 - Violet N/A Violet ESC [45 m
- 6 - Cyan N/A Medium Blue ESC [46 m

7 - Light Grey N/A White ESC [47 m

* = default colour

AMIGA IMPLEMENTATIONS

=====

For Amiga terminals, the accepted standard ANSI palette (which most closely approximates the original CGA text colours) is as follows:

R G B COLOUR | R G B COLOUR

-----+-----

0 = 00 00 00 Black | 8 = 06 06 06 Dark Grey

1 = 10 00 00 Red | 9 = 15 00 00 Bright Red

2 = 00 10 00 Green | 10 = 00 15 00 Bright Green

3 = 10 06 00 Orange | 11 = 15 15 00 Yellow

4 = 00 00 10 Dark Blue | 12 = 00 00 15 Bright Blue

5 = 10 00 10 Violet | 13 = 15 00 15 Bright Violet

6 = 00 10 10 Cyan | 14 = 00 15 00 Bright Cyan

7 = 11 11 11 Light Grey | 15 = 15 15 15 White

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1.9 'Smart' Code and What it Can Do For Your Social Life

####

##

=====

E N E R A T I N G ' S M A R T ' C O D E

=====

##

#####

Often in generating long ANSI screens with many **colour changes**, it is important to consider the time that the screen will take to display over the modem (especially at 2400 baud.) Programmes like **BBS-DRAW** will automatically generate 'smart' ANSI code which transmits in the least amount of time possible, but generating such code by hand takes a little bit of ingenuity on the part of the BBS artist.

The first thing to bear in mind when generating 'smart' code is that any two (or more) ANSI codes which have the same command **terminator** may be combined into a single command.

Example: To set the text to bright cyan and the background to violet on an ANSI screen,

either enter ESC [1 m then ESC [36 m then ESC [45 m

or enter ESC [1; 36 ; 45 m

where the ; is the division character in the combined command, and the "m" is the common terminator of the three combined commands. As you can see, the second, 'optimised,' code contains four fewer characters than the first (those characters can add up after a while.)

Another thing to consider in optimising your code is that colour, background, and text F/X changes remain in effect until they are removed in some way (by another change or by resetting to defaults.) So, if you wanted a whole passage of text to have a bright purple foreground but wanted to change backgrounds in the middle, it would only be necessary to enter something such as:

```
ESC [ 1 ; 35 ; 43 m This is a test of the
```

```
ESC [ 44 m Emergency Broadcast System.
```

instead of entering

```
ESC [ 1 ; 35 ; 43 m This is a test of the
```

```
ESC [ 1 ; 35 ; 44 m Emergency Broadcast System
```

However, if for some reason you wanted the text of "Emergency Broadcast System" to appear in dark purple instead of bright purple, you would need to specify a longer command:

```
ESC [ 1 ; 35 ; 43 m This is a test of the
```

```
ESC [ 0 ; 35 ; 44 m Emergency Broadcast System
```

This is necessary since ESC [0 m not only turns off brightness but resets the colour and background as well.

COMPLEX DICE

=====

OK, let's take a quantum leap here. Let's say you wanted to clear the screen, jump down 14 lines, jump over 43 columns, change the text colour to dark red, change the background colour to yellow, and then make your machine quote Monty Python.

CTRL-L clears the display

```
ESC [ 14 B jumps down 14 lines
```

```
ESC [ 43 C jumps over 43 lines
```

```
ESC [ 7 ; 1 ; 33 ; 41 m the only way to use a bright colour as a background is through Reverse Mode
```

type "I didn't expect a kind of **Spanish Inquisition** !"

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1.10 Extremely Silly Reference

NOBODY expects the Spanish Inquisition! Our chief weapon is surprise... surprise and fear... fear and surprise.... Our two weapons are fear and surprise... and ruthless efficiency... Our THREE weapons are fear, surprise, and ruthless efficiency... and an almost fanatical devotion to the Pope... Our FOUR... no... AMONGST our weapons... Amongst our weaponry... are such elements as fear, surprise... I'll come in again.

Jane! Stop This Crazy Thing!

1.11 SkyPix Commands, or Cox's Folly

####

##

=====

K Y P I X C O M M A N D S

=====

##

####

SkyPix is defined as a sub-set of the ANSI standard, and in fact most ANSI commands have the same effect in SkyPix mode. There are however several SkyPix-specific commands (each followed with a characteristic "!" [bang] terminator) which can only be used from a terminal equipped to emulate the SkyPix protocol (all 2 of 'em ;)

NOTES:

- All SkyPix graphics are implemented on a default screen of 640x200 (8 colours) with the **default palette** described below (unless the palette or number of number of **bitplanes** is changed.)
- All sequences should be entered WITHOUT SPACES - the spaces are included for readability only.

Commands:

- 1 - SET PIXEL 9 - PLAY SAMPLE 16 - XMODEM TRANSFER
- 2 - DRAW LINE 10 - SET FONT 17 - SET DISPLAY MODE
- 3 - AREA FILL 11 - NEW PALETTE 18 - SET PEN B COLOUR
- 4 - RECTANGLE FILL 12 - RESET PALETTE 19 - POSITION CURSOR
- 5 - ELLIPSE 13 - FILLED ELLIPSE 20 - (NOT IMPLEMENTED)
- 6 - GRAB BRUSH 14 - DELAY (PAUSE) 21 - CONTROLLER RETURN
- 7 - USE BRUSH (BLIT) 15 - SET PEN A COLOUR 22 - DEFINE GADGET
- 8 - MOVE PEN

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1.12 Command #1

1 - SET PIXEL ESC [1 ; x ; y !

(Sets the pixel at the specified X and Y coordinates to whatever colour is in Pen A)

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1.13 Command #2

2 - DRAW LINE ESC [2 ; x ; y !

(Draws a line in the current A pen colour from the existing pen position to the point X,Y)

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1.14 Command #3

3 - AREA FILL ESC [3 ; m ; x ; y !

(Floods, in mode m, the area beginning at X,Y)

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1.15 Command #4

4 - RECTANGLE FILL ESC [4 ; x1 ; y1 ; x2 ; y2 !

(Draws a filled rectangle in the current colour. Numeric parameters are the top left X and Y coordinates followed by the lower right X and Y coordinates)

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1.16 Command #5

5 - ELLIPSE ESC [5 ; x ; y ; a ; b !

(Draws Ellipse with center at X,Y; major [horizontal] axis A pixels, and minor [vertical] axis B pixels)

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1.17 Command #6

6 - GRAB BRUSH ESC [6 ; x1 ; y1 ; a ; b !

(Stores a piece of the screen as a brush in memory. From there it will behave exactly like a brush that has been received remotely. X1 and Y1 define the starting point, A the width and B the height)

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1.18 Command #7

7 - USE BRUSH (BLIT) ESC [7 ; a ; b ; c ; d ; e ; f ; g ; h !

A = upper-left X coord. of the source bitmap

B = upper-left Y coord. of the source bitmap

The above two will usually be 0. HOWEVER, you can use these to blit parts of a brush to the screen.

C = upper-left X coord. of the destination (the screen X coord.)

D = upper-left Y coord. of the destination (the screen Y coord.)

E = horizontal (X) size of brush

F = vertical (Y) size of brush

G = MINTERM to be supplied to the blitter (commonly 192)

H = MASK to be supplied to the blitter (commonly 255)

The above commands blit what is in the brush buffer (following a **CRC Transfer** or a **GRAB BRUSH** command) - if no brush is found, the command aborts.

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1.19 Command #8

8 - MOVE PEN ESC [8 ; x ; y !

(Move the drawing pen to X,Y - NOT the cursor)

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1.20 Command #9

9 - PLAY SAMPLE ESC [9 ; a ; b ; c ; d !

(Plays a simple sample. A is the "speed" of the sample, B is the starting point in bytes, C is the ending point in bytes, and D is the number of loops to perform)

NOTE: Parameters A-C are not yet implemented.

SPINY'S NOTE: As of C-Net version 2.63, SkySound is not yet implemented. Hopefully it will be added by the developers in the future.

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1.21 Command #10

10- SET FONT ESC [10 ; y ! fontname.font !

(Y is the size of the font, and fontname is the name of the font - the font must be in the fonts: directory of both the BBS and the Remote user for this command to work!)

SPINY'S NOTE: It's wise to stick to just the basic 7 Workbench fonts, since you know everyone will have them available on their system disk.

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1.22 Command #11

11- NEW PALETTE ESC [11 ; c1 ; c2 ; c3 ; ... ; c15 ; c16 !

Sets the palette to the sixteen colours C1-C16 [you must enter all 16 colours even if you are just in **8-colour mode** !] The parameters C1-C16 are decimal numbers arrived at in the following way:

Take a grey, for instance, whose R-G-B value is 12-12-12. Then convert that to C-C-C (since 12 is hex \$0C). Now take the hex number CCC and convert back into Decimal, which gives you 3276.

NOTE: Unless you are a massochist, I'd suggest using **SKYPAINT** since it does all of the above automatically. Even if you just need to set the palette, load up SKYPAINT and begin recording, go to the palette screen and set it to what you want, then end recording. You can then look at the tiny file you created and tell what ESC [11 command is needed in your final project.

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1.23 Command #12

12- RESET PALETTE ESC [12 !

Resets to the SkyPix standard palette, which is

R G B | R G B | R G B | R G B

-----+-----+-----+-----

0 = 00 00 00 | 4 = 00 15 01 | 8 = 00 11 06 | 12 = 00 00 15

1 = 01 01 15 | 5 = 03 10 15 | 9 = 00 13 13 | 13 = 07 00 15

2 = 13 13 13 | 6 = 15 15 02 | 10 = 00 10 15 | 14 = 12 00 14

3 = 15 00 00 | 7 = 12 00 14 | 11 = 00 07 12 | 15 = 12 00 08

This would have the same effect as entering:

ESC [11 ; 0 ; 287 ; 3549 ; 3840 ; 241 ; 943 ; 4082 ; 3086 ; 182 ;
221 ; 175 ; 124 ; 15 ; 1807 ; 3086 ; 3080 !

[See also [Command #15](#) for info on the default palette]

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1.24 Command #13

13- FILLED ELLIPSE ESC [13 ; x ; y ; a ; b !

(Same as standard Ellipse [[Command #5](#)], except this one is filled-in)

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1.25 Command #14

14- DELAY (PAUSE) ESC [14 ; a !

(A is a value in jiffies [60ths of a second])

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1.26 Command #15

15- SET COLOUR OF PEN A ESC [15 ; a !

Sets Pen A to colour a, where a is one of the following (assumes [default palette](#))

0 = black 4 = bright green 8 = dark green 12 = dark blue 2

1 = dark blue 1 5 = med. blue 1 9 = cyan 13 = indigo

2 = white 6 = yellow 10 = med. blue 2 14 = violet 2

3 = bright red 7 = violet 1 11 = grey-blue 15 = magenta

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1.27 Command #16

16- CRC XMODEM TRANSFER ESC [16 ; m ; a ; b ! filename !

Files will be sent to whichever directory BRU: is assigned.

M (MODE) 1 = IFF Brush

2 = IFF Sound Sample

3 = FutureSound Sample

20 = General Purpose (saves to default dir.)

A & B are the X and Y size of the IFF brush, if that is what is being transmitted.

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1.28 Command #17

17- SELECT DISPLAY MODE ESC [17 ; m !

M is 1 for a 3-bitplane display (first 8 colours) or 2 for a 4-bitplane display (all 16 colours allowed). Note that if M is 1, then the second 8 colours (see [Command #15](#)) are disabled.

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1.29 Command #18

18- SET B PEN ESC [18 ; b !

(Sets background pen to colour B [see [Command #15](#)] - this is useful for allowing ANSI commands to access more colours)

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1.30 Command #19

19- POSITION CURSOR ESC [19 ; x ; y !

(Moves text cursor to X,Y. Does NOT affect the position of the drawing pen)

NOTE: This is not the same as [ESC \[\[n\] ; \[m\] H](#) . In this case x and y refer to pixels on the screen and not to rows and columns of text.

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1.31 Command #21

21- CONTROLLER RETURN ESC [21 ; c ; x ; y !

(This is SENT from the terminal every time a controller is activated -

c=1 for left button mouse click at coord. x,y ;

c=2 for menu selection [x is the menu item #, y is ignored])

SPINY'S NOTE: Due to a bug in JR-COMM 1.02 (which was fixed in 1.02a), the ESC code is not sent with this command. This should be taken into consideration when adding mouse control to your own applications.

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1.32 Command #22

22- DEFINE A SKYPIX GADGET ESC [22 ; n ; c ; x1 ; y1 ; x2 ; y2 !

(N is the gadget # (1-20), C is the command # associated with it; X1,Y1 defines the top left corner and X2,Y2 the lower right. The gadget appears in the colour of Pen A [see [Command #15](#)])

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1.33 IBM Graphics, or IBM ASCII's Better Half

```
####
##
## =====
## B M G R A P H I C S
## =====
##
####
```

What is IBM Graphics? Well, it's yet another throwback to the early IBM days (as the name indicates.) All IBM's and compatibles have a special set of graphic characters built into the upper half of their ASCII table (128-255) as a way for text-only programmes to make boxes, windows, lines, and such. Use of IBM Graphics found its way into terminals and BBS programmes much like ANSI did.

Of course, the Amiga with its ROM-based windows environment had no need for such primitive methods of generating graphics, but once Amiga terms started emulating IBM ANSI the need for emulating the IBM ASCII table arose as well. Fortunately, all that was required was a special font containing all of the necessary characters.

THE BBS END

=====

IBM Graphic characters can be generated easily in most [ANSI editors](#) using point-and-click gadgets, but they can also be generated the old-fashioned way by using special key sequences entered in a text editor or terminal which has an IBM Graphic font selected as its default. An IFF-ILBM screen showing the most commonly-used IBM Graphic characters and their associated key sequences (assumes keymap 'usa0') has been included in this archive for your viewing pleasure. You can display it either by clicking below or by using a viewer of your own devising.

[Click Here to View!](#)

THE TERMINAL END

=====

USING IBM GRAPHICS WITH ANSI: To enable IBM Graphics on any Amiga terminal, simply select an IBM Graphic font as the terminal's default text font.

(a good IBM font has been included in this archive for those who don't have one.) This information is generally entered in a requester somewhere in the terminal's configuration.

USING IBM GRAPHICS WITH SKYPIX: This requires a bit more work, but believe

it or not, it's possible. JR-COMM uses Pearl rather than Topaz-8 as its default font in SkyPix mode, so all you need to do is replace Pearl with an IBM Graphic font (such as the included CleanIBM.) This is accomplished simply by copying the '8' file from the FONTS:CleanIBM/ subdirectory into the FONTS:Pearl/ subdirectory and running FixFonts (for good measure.)

NOTE: If your terminal has an option for 'High-Bit Stripping' or '8th-Bit Stripping', it must be turned off for IBM Graphics to function.

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1.34 Keeping Up With the Joneses

##

##

=====

O W T O G E T S T A R T E D

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You don't need an intricate understanding of the ANSI protocol to start making pretty pictures. All you really need is a good ANSI editor. An ANSI editor is something of a cross between a paint programme and a text editor. A good one is designed to provide the user with an easy-to-use, intuition-based, DPaint-like format for 'drawing' ANSI screens and to do most of the nuts-and-bolts ANSI code generation automatically. For instance, the user would simply click on a gadget to change text colours rather than entering the full ANSI code.

For non-animated ANSI screens, I would highly recommend using [BBS-DRAW](#) .

It is extremely easy to use and is available through most Public Domain/ Shareware archives. I have used this programme for close to a year and have found that it generates code very nearly as 'smart' as my own with only a very few exceptions (plus working with it is considerably easier than pounding out ESC codes blindly in a text editor.)

I'd also highly recommend getting a copy of [SKYPAINT](#) . SKYPAINT has the virtue of being the only ANSI editor equipped to interpret and generate standard SkyPix code. It is also relatively versatile and easy to use and it implements most of the [SkyPix commands](#) automatically using a point-and-click gadget box. At any rate, it's a GREAT DEAL faster than trying to enter them by hand and you can see the immediate results of each command as you create your file.

For ANSI animations (ANSI-Mations), I generally use **DIANE** (Digital Intelligence Animation Editor.) This programme also uses an intuition-based interface, but it employs a clever device which treats each character placed on the screen as a separate 'frame' in the animation, allowing the user to move between 'frames,' add, and edit 'frames' much like a real animation program. Backdrops for the entire animation can also be loaded. The only drawback of DIANE is that it is limited to 8 colours, but it is still my first choice.

For the other end of the line, I would recommend getting **TERMINUS** v2 or **TERM** v4 (Workbench 2 and above) for emulating IBM ANSI. If you use TERM, I would also recommend using the (included) xemibm.library, since it seems to provide better ANSI compliance than TERM's built-in ANSI/VT-102 routines. For SkyPix, **JR-COMM** is still your best bet. SKYTERM is another option, although (surprisingly enough, since Michael Cox wrote it) it does not conform as well to the SkyPix standard as JR-COMM. Most SkyPix-supporting BBS's (mine included) are designed to work with JR-COMM rather than SKYTERM.

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1.35 Where to find TERM

TERM v4.0

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Copyright ©1990-93 by Olaf 'Olsen' Barthel, All Rights Reserved.

TERM can be downloaded from most Public Domain/Shareware archives including wuarchive.wustl.edu

It is freely-redistributable ShareWare with a suggested fee of whatever the user feels is appropriate (it's a great programme, so don't be stingy!)

Its author can be reached through E-Mail at

olsen@sourcery.han.de

or through Snail-Mail at

Brabeckstrasse 35

D-30559 Hannover

Federal Republic of Germany

1.36 Where to find TERMINUS and JR-COMM

TERMINUS v2.0d, JR-COMM 1.02a

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Copyright ©1993 by John P. Radigan, All Rights Reserved.

The unregistered version of TERMINUS (with auto-dialer disabled) is freely-redistributable and can be found in most PD/ShareWare archives (including wuarchive.wustl.edu.) The registered version can be ordered through the author for a ShareWare fee of \$40 or for a \$10 upgrade fee if you are a registered JR-COMM user.

The author can be contacted through E-Mail at the following addresses:

GENIE: JRADIGAN

COMPUSERVE: 76545,201

BIX: JRADIGAN

INTERNET: jprad@faatcr1.faa.gov

or bang path ...!rutgers!faatcr1!jprad

or through Snail-Mail at

Dynalogic

P.O. Box 444

Ocean City, NJ 08226

TERMINUS and JR-COMM are also supported on

Dynalogic Product Support BBS - FidoNet: 1:266/61

(609) 398-7453 (24hrs/7days)

3/12/24/96/14.4/16.8kbps HST/v.32bis

For SkyPix fans, I'm not sure whether Radigan still supports JR-COMM 1.02a or even if it is still available from his BBS. However, the unregistered version of JR-COMM 1.02 or 1.02a (with the delay screen) is freely-redistributable and can be found in many Amiga archives such as wuarchive.wustl.edu and on most Amiga-supporting BBS's.

JR-COMM 1.02a (unregistered) can also be found on the [A]miga [U]ser [I]nternational Userdisk #6 (11/91) Magazine Disk, and my BBS carries the original archive as a free download.

1.37 Well, Now Comes the Bad News...

SKYPAIN

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SKYPAIN might be a little difficult to obtain. Unfortunately, Michael Cox limited its legal release to Registered SkyLine SysOps only (which is how I

acquired the programme.) The legalities are a bit vague since he abandoned the protocol, but I would assume that distributing SKYPAIN is still technically a no-no.

Perhaps someone more proficient in programming than I could design a freely-redistributable SkyPix editor and win my life-long friendship (hint hint.)

1.38 Where to find BBS-DRAW

BBS-DRAW v4.01

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Copyright ©1991-92 Henrik Lindqvist, All Rights Reserved.

BBS-DRAW is freely-redistributable ShareWare with a fee of \$10.

Its author can be reached through Snail-Mail at

Henrik Lindqvist

Ullångergatan 19

16228 Vällingby

Stockholm, Sweden

1.39 Where to find DIANE

DIGITAL INTELLIGENCE ANIMATION EDITOR

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Written by PER of Digital Intelligence

Copyright ©1991 Digital Intelligence, All Rights Reserved.

DIANE is freely-redistributable ShareWare with a suggested fee of \$15.

Its author can be reached through Snail-Mail at

P-E Raue

Bieslook 92

1422 RS Uithoorn

The Netherlands

1.40 Whereabouts I Can Be Found (On Odd Thursdays)

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HERE I CAN BE REACHED

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I can be reached through E-Mail at the following addresses:

drc76795@jetson.uh.edu

or drc76795@tree.egr.uh.edu

I can also be reached through Snail-Mail at

The Flaming Hedgehog

P.O. Box 73

Port Neches, TX 77651

Alternately, you can reach me on my BBS (The Flaming Hedgehog),

Bartertown (1-409-898-4969), or Leisure World (1-713-859-0902).

If you'd like to see first-hand the capabilities of SkyPix and C-Net (including full mouse-control), boot up JR-COMM 1.02 or 1.02a and dial 1-713-661-1930

I hope this whole mess has been helpful in some tiny way.

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