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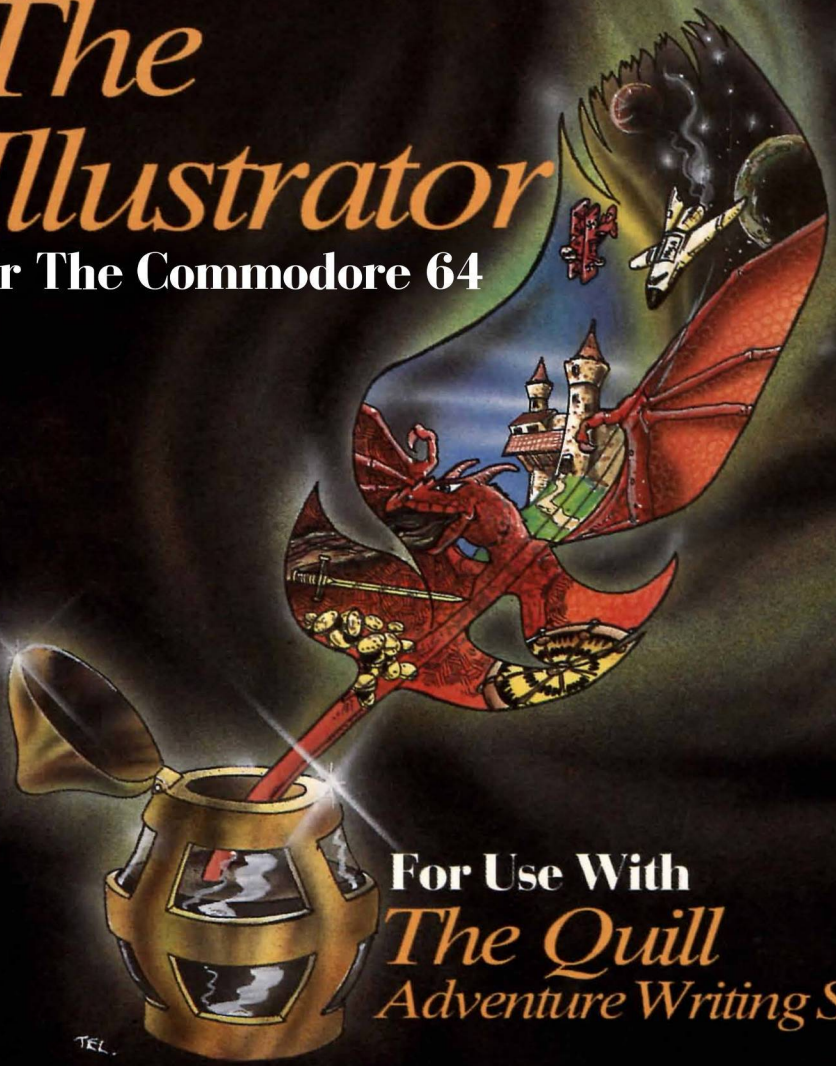
The Illustrator

For The Commodore 64



For Use With
The Quill
Adventure Writing System

The Illustrator

A Graphics package for The Quill Adventure Writing System
on the Commodore 64 by Tim Gilberts

Serial A

:-) 2017 V1 remastered by Crispin. Diffs & info before backcover.

Acknowledgements

Many thanks to Huw and Terry for their work on the graphic design and Pete for his corrections. Also Graeme for the use of his Quill routines.

Contents

Getting Started

The Illustrator consists of five parts:-

a) A database which contains a string of drawing commands for each picture created.

b) A Menu system which allows the database to be saved or loaded plus a number of other options.

c) A Graphics Editor which allows commands to be inserted, deleted and tested within drawstrings.

d) An Interpreter which interfaces with the Quill and decodes the commands in a drawstring to produce a picture at the required location.

e) A Pattern editor for modifying the present shade patterns.

To load The Illustrator from disc use LOAD"I",8,1

To load The Illustrator from tape press SHIFT/RUN STOP

Part 1 of this manual will introduce you gently to The Illustrator, from creating a graphic database to creating a final graphic adventure. Part 2 contains a concise description of each section of The Illustrator for reference.

Please note any references to a printer mean the Commodore MPS 801 only.

Part 1

The Main Menu

When The Illustrator has loaded you will be presented with the Editor's Main Menu. Some of the options, e.g., **Bytes Spare**, will perform a function and return to the Main Menu while others, e.g., **Graphics** will give you a sub-menu. **RETURN TO BASIC** is an exception to this as it executes the BASIC **NEW** command which destroys The Illustrator. **SAVE Adventure** does present you with a sub-menu but it does not allow you to return to the Main Menu, this is explained later so be careful!

The Input Routine

This is similar to that used in The Quill and you should already be familiar with its operation.

Save, Verify & Load Graphics

These options on the Main Menu allow the graphic database to be saved, verified or reloaded and in each case you will be prompted "Disc or Tape?" reply D or T as required and "Type in name of file". When loading, the computer will search for a file of bytes with the name specified and then load it. The RUN STOP key may be used to interrupt a SAVE, VERIFY or LOAD but if it is used to interrupt a LOAD, or an error is detected during a LOAD, then the graphic database will be cleared. Result: one blank location!

Creating a Graphic Adventure

The first step in creating a graphic adventure is to write the main adventure with The Quill. For an example we will use the adventure described in The Quill manual. In case you haven't kept a copy of the database we have provided one (after The Illustrator on cassette) called "DEMO".

The Illustrator needs to know how many locations are contained in your adventure and also where the first free memory location is. This information is entered using **LOAD database** (Option I on the Main Menu). Use this option to load the Quill database called "DEMO". **LOAD database** only needs to load the first few bytes of a Quill database no matter how big that database is, as these few bytes contain the necessary information.

When the Illustrator is initially loaded it has only one blank location contained within the graphic database. This is not enough for our sample adventure and so **LOAD database** will give you the option of Initialising (i.e. setting up) a suitable number of graphic locations. Reply "Y" to the prompt and The Illustrator will create the required number of locations then return you to the Main Menu. (if you reply "N" then no change will be made to the graphic database - see the reference section for a detailed account of the **LOAD database** options).

Now your Illustrator should contain six blank (or 'null') locations. You can see if this is so by using **Graphics Start Table** (Option B on the Main Menu) and then using 'P' to PRINT the start options.

Due to the nature of The Illustrator it is very difficult to describe a picture in words so, in the greatest traditions of fast demonstrations, we have provided a file called "GRAPHICS" (after "DEMO" on cassette) - which is a part completed graphics database!

Using **LOAD Graphics** (Option H) and the filename "GRAPHICS" load the graphics database into The Illustrator.

Just to get a feel for the kind of pictures which can be created with The Illustrator select **Graphics** (Option A) and try 'P'rinting locations 1 to 5 in turn. Then use 'Z' to return to the Main Menu.

Now it's your turn to become an artist. You may have found that location 0 is blank. In The Quill manual this is meant to be the hall so let's create a picture of a hall:-

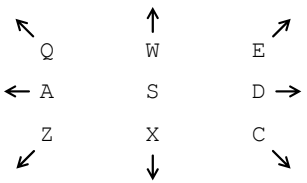
First of all, set up the colours to be used. This is done with the **Graphics Start Table** (option B on the Main Menu) which allows you to specify the colour background (or 'Paper') to be used for each picture. The colour we will use for the Hall is Yellow, so type A 0 7 (remember the spaces) and press RETURN, then use 'P' to print the table. It should have an entry;

Location 0 PAPER: 7
Location 1 PAPER: .... etc

If not, go back to the previous paragraph and try again. Otherwise use 'z' to return to the Main Menu.

Now select **Graphics** again and amend location 0, i.e. A 0. You will be presented with a blank yellow screen with a flashing shape in the top left hand corner. This shape is actually 2 cursors which are exactly in the corner of the screen. They do not look like cursors at the moment because the majority of them is off the visible screen.

The cursors are the way the Illustrator Editor shows where you are on the screen. They can be moved using the keys around S as shown below.



Try moving the cursor around a bit (start with the C key to move the cursor onto the visible screen) You will notice that there is still a cursor in the top left: this is called the Base Cursor (BC) and usually shows the last point plotted, also serving to mark a point for several of the drawing commands. The one you are moving is called the Rubber Cursor (RC) and is used to mark the other point you want a particular command to use. At the bottom of the screen you should see the Status Box which contains the X & Y coordinates of the RC cursor, and the current Colours. The BC cursor is an × while the RC cursor is a +

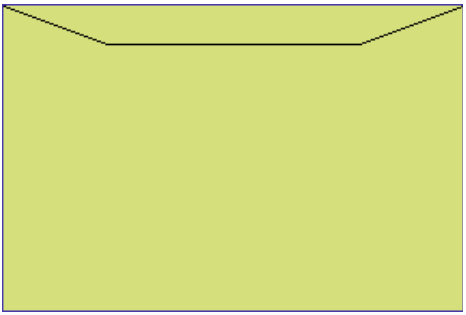
The movement of the RC cursor is quite slow as it moves a pixel at a time. This can be speeded up by pressing SHIFT at the same time as a direction. You can use this feature to get the cursor to the approximate area and then use the single pixel move to position it accurately.

The visible screen is from x=O to 319 and from Y=0 to 191. SHIFT & S can be used to centre the RC even if it is offscreen.

If at any time you have pressed any other keys by accident you can delete their effect with SHIFT & DEL (marked INST).

Now we can start to draw. position the RC cursor so X=72 and Y=24 The first thing we are going to draw is the outline of the walls. Press CTRL & L for LINE draw and a line will be drawn from the Base Cursor to RC and the BC cursor will join the RC. Now move to X=248, Y=24 (straight across) and you will notice BC is at the end of the line we just drew – quite a few operations cause the BC cursor to move to the RC cursor position. Now draw another line by pressing CTRL & L again. If you make a mistake you can erase the last command using SHIFT & DEL. Now move RC to X=320, Y=0 and draw another line. The screen should now look like Diagram 1.

Diagram 1



The next part of the picture must be drawn in a different part of the screen so we need a command to move the BC cursor elsewhere. position the cursor at X=319, Y=191 and press CTRL & R for REL MOVE! MOVE can be thought of as allowing the pen to be lifted from the paper – thus the BC cursor is moved to the RC position without drawing a line.) We must draw three more lines for the

bottom of the walls so draw a line to each of the following x,y positions; X=248, Y=119 then X=71, Y=119 and X=-1,Y=191. Thus far the picture should look like diagram 2. Now the back wall needs defining so REL MOVE (i.e. CTRL & R) to X=71, Y=119 then draw a line to 71,24 (We will drop the 'X=,Y=' from now on, thus 71,24 means X=71,Y=24). Do the same for a line from 248,24 to 248,119.

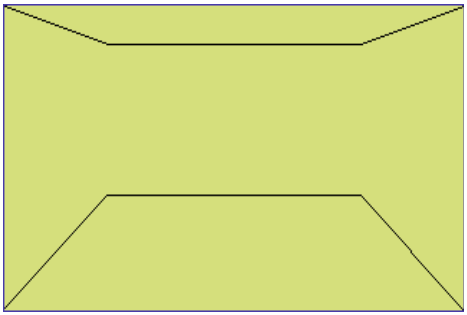


Diagram 2

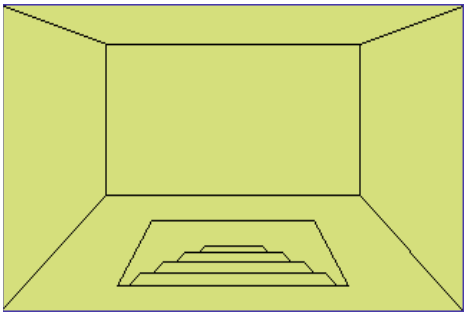


Diagram 3

The REL MOVE command causes the cursor to move to a specific X,Y position but this position is relative to the last position plotted so if you insert an extra command before the REL MOVE the position after will change. This can cause problems when editing, as the whole picture may change shape. It is thus a good idea to separate a picture into sections with the next command we are going to introduce. Position the cursor at 79,176 and press CTRL & P for PLOT. A set pixel will appear at the centre of the two cursors, which are now on top of each other. This point is absolute i.e. it is fixed in position no matter where on the screen the last point plotted was.

Next the steps descending into the cellar must be drawn. The following list of commands should be entered to do this:

Move Cursor To		Command (with CTRL pressed)
X	Y	
240	176	L(ine)
216	135	L
103	135	L
79	176	L
87	176	R(elative Move)
95	168	L
224	168	L
232	176	L
216	168	R
209	161	L
111	161	L
104	168	L

120	161	R
126	155	L
194	155	L
200	161	L
184	155	R
180	151	L
140	151	L
136	155	L

Now your picture should look like Diagram 3.

The picture is starting to take shape but it needs a bit of colour! We are going to create another section of the picture here so position the cursor at 72,118 now we do not want to actually PLOT (i.e. set) the pixel so we will use yet another command called ABS MOVE which is similar to PLOT but doesn't set the pixel. CTRL & A will cause an ABS MOVE to be inserted in the database so do that now.

In order to colour the back wall Red we will 'PAPER' it! So select PAPER RED by pressing CTRL & O followed by the number 2 and RETURN. Now position the cursor at 247,25 and press CTRL & B. A Block of Red should appear on the back wall. Key 'B' is the BLOCK command which allows the area between the RC and BC cursors to be filled with the currently selected colours - in this case Red PAPER.

The next command to introduce is a very powerful feature of The Illustrator which allows a standard picture to be drawn and then used in other pictures. The defined picture is called a 'subroutine' and the command to call it is GOSUB.

To demonstrate this we have defined a subroutine ready for you: position the cursor at 80,40 and press CTRL & R (i.e. REL MOVE the cursor to give a starting point for our 'subroutine'). Now press CTRL & G for GOSUB and you will be asked for a location number. The example is location 6 (notice that this is the number of a non existant location). Next you will be asked for a scale value, for the moment use 0 (we will see examples of scale later). As if by magic a picture appears on the back wall.

Now the background for the picture is Red so let's use the BLOCK command again to give it a yellow background. First use the REL MOVE command to position the cursors at 96,87. As an aside if you press function key F7 you will see a grey grid laid on the screen, this is useful in positioning colours, as you can only have two colours in anyone square - notice how the silhouette man is within four squares exactly. Cancel GRID by pressing SHIFT & F7 (F8) before proceeding.

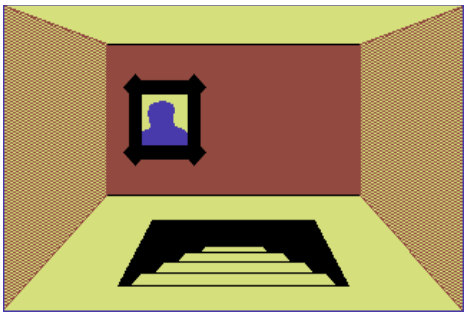
Next select Yellow PAPER (CTRL & O and value 7) and also INK 16 (CTRL & I and value 16 - Ink 16 is like a transparent colour so that only Paper will be affected, in this case we don't want the silhouette's colour to change). Position RC at 126,55 and press CTRL & B.

Now a bit of shading: first of all ABS MOVE the cursors to 0,191 to give another absolute position in the picture. Then position the RC cursor at 160,137 and press CTRL & F – the area around the stairs will be 'F'illed in. The Fill (and Shade) commands are very powerful and will get most nooks, crannys and holes so ensure areas are fully surrounded before using it – although you can DELete if it goes wrong.

Next we are going to give a bit of texture to the side walls, so select Red INK (CTRL & I then value 2) then position the cursor at 32,15 and press CTRL & S. This is the SHADE command which needs to know which pattern(s) 0-15 to use to fill the area. For our example we want to use pattern No. 8 only, so answer 8 for the first pattern and 8 for the second pattern. (The reference section gives details of how to change the 16 default patterns) To make the walls match, position RC at 288,15 and shade with pattern No.8 again.

Your picture should now look like diagram 4. It might be a good idea to save your graphics thus far if you haven't already done so. You can return to the Graphics sub-menu by pressing SHIFT & RETURN.

Diagram 4



The above section has introduced a lot of new ideas and commands the main points of which are presented below:

* Load database must be used to set up the correct number of locations before designing the graphics for a particular adventure.

* Graphics Start Table is used to declare the colours of a location or to define one so that it cannot be drawn when the final adventure is running. i.e. a subroutine

* There are two cursors that are used to define the two points between or upon which a particular command will work.

* The Rubber Cursor is moved using the keys around 'S' and accelerated by pressing SHIFT as well.

* The Status Box at the bottom of the screen displays the current position X,Y of RC and also the current Colours.

* Erroneous commands can be deleted using SHIFT & DEL (INST).

* A new position for the Base Cursor can be set using REL MOVE (CTRL & R) (that is RELATIVE to the last position of BC) or PLOT (CTRL & P) or ABS MOVE (CTRL & A) (which is a fixed (or 'absolute') positioning of the cursor)

* PLOT or ABS MOVE commands should be used to separate a picture into fixed sections: you will find out how useful this is later.

* The current Paper is changed by pressing CTRL & O then a number from 0 to 16 (where 16 is 'transparent'). Similarily Ink is changed with CTRL & I.

* The GOSUB (CTRL & G) command can be used to draw a standard picture called a 'Subroutine' within another picture.

* FILL (CTRL & F) can be used to fill a self-contained area.

* SHADE (CTRL & S) can be used to shade a self-contained area with one of numerous shading patterns.

All the commands introduced above plus the others provided by The Illustrator are defined fully in the reference section.

Note: We will not be listing all the key presses from now on so if you forget which key a command is on try pressing H for HELP which lists all the commands and gives your current location number.

Adding a doorway

In order to demonstrate some of the other editing commands we will add a doorway to location 0 on the left wall. Make sure you are Amending location 0.

All the Illustrator commands are stored in the database in a long string in memory. The editor can split this string at ANY point along its length allowing quite advanced editing to be carried out. Press SHIFT & CRSR UP for START and the screen clears, but don't worry - you haven't lost the drawing. The START command moves what is known as the drawstring pointer to the start of the sequence of drawing commands (the drawstring) for the location we are editing. We can now step along the sequence until we reach the command we want; in this case it is the PLOT command which was used to start the steps in the floor.

You can step along using CRSR RIGHT (NEXT). If you do this twelve times you will see the picture build up until the PLOT at 79,176. Now we want to insert our door drawing commands BEFORE this PLOT so that the PLOT will ensure the rest of the picture remains in its fixed position. We can step back through the picture using SHIFT & CRSR LEFT (PREVIOUS). (although if you have to go a fair

way back it is faster to do a START - then NEXT until you reach the required point). In this case press PREVIOUS (SHIFT & CRSR LEFT) just once as we only need to step back past the PLOT.

REL MOVE (i.e. CTRL & R) the cursors to X=24,Y=166 - this is the starting point - and then draw lines to the following points;

24,64 55,65 55,135 48,135 48,65

this will give a display as in Diagram 5. You could use NEXT to step through all the way to the end of the picture but a fast trick is to press SHIFT & RETURN to return to the Graphics Sub Menu and then Amend the location again.

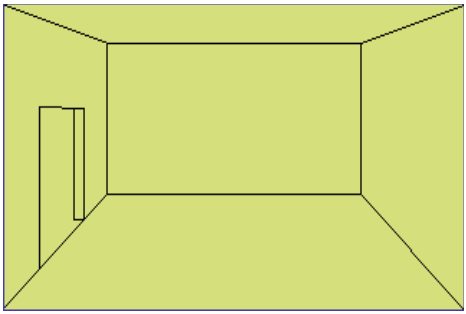


Diagram 5

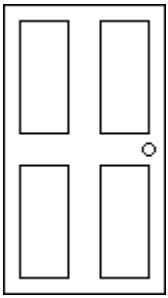


Diagram 6

Using Scale in subroutines

We have already looked at the use of subroutines in pictures; now we are going to see how to set up our own subroutines. For an example, we are going to use a door which will be added to the back wall of the hall. The type of door is shown in diagram 6.

First of all we must create a location containing the door; use Insert (I) on the Graphics sub-menu to create a new location. This is achieved by just typing I and RETURN, which will create a new location and automatically amend it. So now we have a blank screen on which to draw our door. Press H to get a list of commands and make a note of the location number you have just created as you will need it later. As it is a subroutine we are going to draw it fairly large and Scale it when it is used. The following sequence of commands will create the door:-

They are in the form "X,Y:comand" running across and then down. (L is CTRL & L, R is, CTRL & R - i.e. LINE and REL MOVE).

0,144;L 80,144;L 80,0;L 0,0;L 8,8;R 8,64;L

32,64;L 32,8;L 8,8;L 72,8;R 48,8;L 48,64;L

72,64;L 72,8;L 72,80;R 72,136;L 48,136;L 48,80;L

72,80;L 32,80;R 8,80;L 8,136;L 32,136;L 32,80;L

Diagram 6 shows a handle on the door: this is left as an exercise for you! If you don't want to tackle the handle yet then continue without it and amend the subroutine later.*

Now we must add the door to location 0. Press SHIFT & RETURN to return to the Graphics sub-menu and Amend location 0. A suitable point to insert our door is just before the PLOT which starts the steps in the floor so press START (SHIFT & CRSR UP) and step through the commands using NEXT until you find it. Position the pointer just before it using PREVIOUS. REL MOVE the cursors to 175,47 as the starting point for our door and press CTRL & G for GOSUB; the location number is the one you made a note of earlier.

Now as for Scale, the door we drew was far too large to use so we will make it smaller by using a scale value of 4. The scale value can range from 0 to 7; 0 means no scale and 1 to 7 specify the size of the subroutine in eighths. e.g. 4 means 4/8 = 1/2 , thus the door is drawn half size.

You could try deleting that GOSUB using DEL and then using a different scale. If you use too big a scale part of the door might be drawn off the screen. If the RC is off the visible screen then SHIFT & S may be used to centre it.

Make sure you have a door of scale 4 drawn. Now we want the door to be in Cyan so we are going to use another BLOCK command. Position the drawstring pointer at the end of the drawstring by pressing SHIFT & RETURN and Amending location 0 again. Now set the cursors to 176,118 (bottom left of door) using ABS MOVE, select PAPER CYAN (CTRL & O then value 3) place RC at 213,48 and use CTRL & B to BLOCK in the area.

Freehand drawing

There is one more function which will be introduced in the tutorial - the FREEHAND option. This allows you to add fine detail to pictures, but be warned it eats memory! FREEHAND is selected by pressing F1 and an "F" will appear in the Status box to indicate FREEHAND mode. Every time you move the cursor the direction it was moved in is stored in the drawstring and the point it left PLOTted. Freehand mode can be cancelled using SHIFT & F1 (F2). n.b. if there is a continuous run of more than three pixels in any part of your drawing use a LINE command to draw that part as it will take less memory than FREEHAND.

Important: FREEHAND is not subject to Scale so it may not be used in a subroutine which is drawn at anything other than full size (scale 0).

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*One solution for a handle in Diagram 6:

71,75;R 73,75;L 75,73;L 75,71;L 73,69;L 71,69;L 69,71;L 69,73;L 71,75;L

Summary

Again the above has introduced a variety of principles which are summarised below:

* All commands for drawing are stored in a long string which can be split at any point. The current position of the split is called the drawstring pointer.

* START (CRSR UP) moves the drawstring pointer to just before the very first drawing command.

* NEXT (CRSR RIGHT) can be used to step through the commands one at a time, while PREVIOUS (CRSR LEFT) can be used to step backwards.

* It is faster to START and use NEXT to reach a particular point than to use PREVIOUS several times.

* Additional sections to a picture should be added just before one of the PLOT or ABS MOVE statements which have been used to split the picture into sections. This ensures that the remainder of the picture is not upset by the additional part.

* If you wish to get to the last drawing command quickly, press SHIFT & RETURN and amend the location again.

* The Scale input on GOSUB allows subroutines to be drawn in one of eight sizes; 0 means no scale (full size), 1 to 7 specifies a size in eighths.

* The H key gives a summary of the commands, their keys, the current location number and whether it is a subroutine.

* The BLOCK (CTRL & B) command is used to fill the rectangle defined by BC and RC with the current Paper and Ink.

The Final Stage

Now that we have created the graphic database suitable for our adventure we have to save it as a game. Ensure you have saved the graphics before proceeding to save an adventure.

SAVE Adventure (Option J on the Main Menu) allows the graphics created with The Illustrator, the database created with The Quill and a machine code program to be saved in a form that will auto-run when loaded using SHIFT RUN STOP on tape or 8,1 on disc.

Because of the way The Illustrator works (i.e. it does not hold the entire Quill database in memory) **SAVE Adventure** has to load in the Quill database for your adventure before it can save it. This means The Illustrator will be overwritten and thus unavailable. So selecting **SAVE Adventure** checks you actually want to continue – go no further unless you mean to!

You will be requested to select 'Disc or Tape' and then to enter a file name for the database saved from The Quill. The Illustrator will then be locked in a loop until it successfully loads the required database (no going forwards or backwards). Once this is done you will be provided with a mini menu which will allow you to SAVE as many copies of the final adventure as you like. When you have done so, you can select RUN adventure which commits you to playing the adventure - there is no return!

Creating your own game

The following steps should be adhered to fairly closely in order to produce your own graphic adventure;

1/ Design the adventure using The Quill but try to give it a wide variety of different locations suitable for graphics. Change system message 32 to read something like "Disc, Tape or Ram?" as the Illustrator modifies The Quill slightly to allow a game position to be saved to a Ram buffer as well as to Disc or Tape. In order to provide control over the graphics, entries similar to the following should be inserted in the Event table (having of course inserted suitable words in the Vocabulary):-

```
PICS ON   Conds                    ;allows graphics constantly
           Acts     LET 29 64
                    OK

PICS OFF  Conds                    ;graphics are never drawn
           Acts     LET 29 32
                    OK

PICS NORM Conds                    ;normal (first visit only)
           Acts     CLEAR 29
                    OK

LOOK *    Conds                    ;allows picture to be seen
           Acts     PLUS 29 128    ;in addition to text (i.e. R)
                    DESC
```

The picture for each location is normally drawn only when you first visit the location. Flag 29 however is used by the Illustrator as follows:-

If bit 5 (32) of flag 29 is set the picture is not drawn. ie. PICS OFF.

If bit 6 (64) of flag 29 is set the picture is drawn. ie. PICS ON

If bit 7 (128) of flag 29 is set the picture is drawn. ie. LOOK

Whether or not the picture is drawn bit 7 of flag 29 is cleared. Note that flag 29 is otherwise unavailable for use in graphic adventures.

2/ Choose the locations which are to have graphics and draw out your ideas (appendix A may help here).

3/ Save a database from The Quill

4/ Create a suitable blank graphic database using **LOAD database** on The Illustrator Main Menu.

5/ Draw out your pictures - defining any locations which do not have graphics to be subroutines.

6/ Use **SAVE Adventure** (once you have saved the graphics) to combine The Quill database and produce an independent game.

The above points should help you produce a professional adventure but if you intend trying to sell your adventure ensure it is thoroughly tested. We would repeat the request that you credit the use of The Quill and The Illustrator in your game and continue our offer of looking at your games. If you are interested, please send a fully tested copy of the databases, the final game, a map, a solution and one pound to cover administration costs to:-

GILSOFT International Ltd
2 Park Crescent
Barry
South Glamorgan
CF6 BHD

Please be prepared to wait a while as we thoroughly check all the games sent to us and this can take some time. Happy Adventuring!

Part 2

Description of the Interpreter

The interpreter consists of a simple loop used to decode each command in the required drawstring one after another and also to take care of subroutine calls.

Description of the Graphics Database

The Graphics database contains three tables and an area of miscellaneous information such as the number of graphics created and pointers to the rest of the database. Unlike a Quill database, the graphics database grows DOWN from the top of memory. This allows the area normally occupied by The Quill to be used in the final adventure. The tables are:-

A The Location Flags

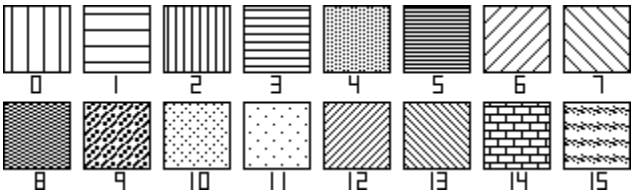
This table has a 1 byte entry for each picture specifying if the picture can be drawn when that location is reached (i.e. if the location is not a 'subroutine') and the background colour to be used for the picture - foreground defaults to Black or White determined by the Paper to give maximum contrast.

B The Picture Table

Each entry in the table uses 3 bytes plus the length of the Drawstring. There are always at least the same number of entries as locations in the adventure, but the table can contain extra entries which are available for use via the GOSUB command. The Drawstring is encoded as a variety of various length commands which minimise the amount of memory needed to produce the drawing.

C The Shade Table

This contains the 16 patterns that are used by the SHADE routine.



Default Shade Table

Detailed Description of the Editor

The Illustrator maintains a similar menu driver to The Quill allowing users familiar with that program to use The Illustrator easily.

A **Graphics**

Pictures may be inserted, amended, printed, saved or have their length calculated:-

Insert I

The next available picture number is used and a null entry is made for it in the picture table. An entry of 'subroutine' is also made for it in the location flag table. Processing then continues with an automatic call to the amend routine to allow the user to amend the null entry already set up in the picture table.

Amend **A picno**.

The graphic database is expanded to provide a gap at the end of the required picture. The main loop of the Graphic Editor described below is then entered. When return is pressed any gap still remaining is removed. n.b. unlike editing text on The Quill, the database itself is changed, thus you cannot abandon an edit with RUN STOP.

Size S

The number of bytes between the start of the drawstring and the start of the next is calculated and printed on the screen.

Print **P picno**. or **L picno**.

The required picture is drawn on the screen and if **L** was selected a subroutine (SCDUMP) is called. **picno**. must be specified.

Points to note:

a) Locations which are subroutines use PAPER 6 as a start up colour.

b) There is a limit of 254 pictures.

c) SCDUMP is a routine which will copy the hires screen to the printer. You can if you wish change the routine to use a different printer by creating a file (max 1000 bytes) at the address given on the title screen, and loading it into The Illustrator using **LOAD Graphics**.

Dump D

Copies the picture specified to tape or disc as an 8K Hires screen (Saved from $8000 hex) followed by a 1K Colour screen (Saved from $CC00 hex) under the filename specified, but preceded by a B & C respectively – these could be used in your own programs, the programmers guide gives details of using a normal hires screen from BASIC.

B **Graphics Start Table**

The status of a picture can be amended or printed:-

Amend **A picno. (paper)**

A flag is set to indicate that picture **picno.** is a subroutine unless a **PAPER** value is specified, in which case it is stored as the initial Global colour for the picture. All locations in the adventure which do not require a picture should be Amended as a subroutine.

Print **P** or **L**

Printing is either to the screen using **P** or to the printer using **L**. If the location is not a subroutine the Global colour is printed.

C **Mode Selection**

The Currently selected picture mode is displayed and can be changed if required.

The modes are as follows:-

0 Full Picture (Default mode)

When the final adventure is running a picture will be drawn if there is one for the current location. The entire 24 lines of hires screen will be displayed with a single blank text line at the bottom while the program waits for a key to be pressed.

1 Full Picture, with message.

As mode 0, but system message 16 is printed on the normally unused bottom line of the text screen. Thus the last line of message 16 will be visible – using the Quill default this will display:-

Press any key to continue.

2 Constant picture window

The screen is split so that the top section of the screen contains the picture and the lower section (from the Text

start line as displayed) the text display, the picture will remain until a Redescribe of text only (unless PICS ON) or a save to Disc/Tape occurs – or a move is made to a location without a picture.

3 Picture until 'More...'

The screen is split as in mode 2 but it will disappear as soon as a key is pressed during a 'more...' screen output pause. Or if a Redescribe, Save etc occurs as in mode 2.

4 Text scrolls over picture

The screen is split as in Modes 2 & 3 but as more text lines are required the point the screen is split moves up. N.B. Picture will be removed by a Redescribe, Save etc as in Modes 2 & 3.

5 – 9

As modes 0 – 4, but the Border is also set to the background colour from the Graphics Start Table – the border will be reset to its Quill value when the Hires screen is removed.

D **Shade Table**

The current shade patterns (0–15) may be Amended or Printed.

Amend **A shade**

The shade pattern specified is copied into workspace and the Shade Editor described below is called. When RETURN is pressed the new pattern is copied into the database. RUN STOP will abandon the edit and return to the sub-menu.

Print **P** or **L**

The current 16 shade patterns are displayed on the hires screen and if **L** was selected the SCDUMP routine is called. Then the Illustrator waits for a key to be pressed before returning to the shade sub-menu.

E **Bytes Spare**

The number of bytes between the end of the Illustrator or the end of the Quill database (whichever is higher) and the bottom of the graphic database are printed.

F **SAVE Graphics**

Saves the graphics database onto tape or disc.

G **VERIFY Graphics**

Verifies the graphics database on tape or disc.

H **LOAD Graphics**

Loads a graphics database into The Illustrator.

Very Important

If BREAK is pressed or an error detected during a load then the database held in memory would · be corrupt, so a call is made to set a minimum database. This means your graphics & shade patterns will be lost, but unlike The Quill you haven't 'corrupted the database and can use any option available. If RUN STOP is pressed while a name or media is requested the graphic database will be unaffected.

I **LOAD database**

This allows the information from a Quill database to be transferred to the graphic database. Only the first few bytes are loaded in, (RUN STOP or an error will restore the existing Quill database). T.here are then three possibilities;

1) There is room to incorporate the new database and the number of bytes spare is amended if required.

2) The new database requires more pictures than are contained in the graphic database.

3) The new database would overwrite the graphic database.

In cases 2 & 3 the option of initialising a suitable graphic database is provided, if this is not done the original database is restored.

This option can be used to set up a graphic database suitable for a new adventure, or to amend the graphic database if you have made changes to the Quill database.

J **SAVE Adventure**

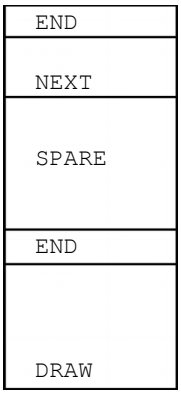
Important; because of the way The Illustrator overlays The Quill database once you commit yourself to loading a Quill database you will be locked in a loop until it is successfully loaded. Ensure you have saved your graphics as a file using option F before using SAVE adventure. Once the database has successfully loaded you will be presented with a mini menu allowing the final adventure to be Saved, Verified or Run. Note the files are designed to auto run when loaded from BASIC using SHIFT/RUN STOP from tape or LOAD"filename",8,1 from disc.

Return to BASIC

Clears memory & resets the machine.

Detailed description of the Graphic Editor

This section of the Illustrator allows a variety of operations to be carried out on a drawstring. When editing, the string is laid out in memory as follows;



The end of string marker

Any commands still undrawn

Available memory

Temporary end marker

The main draw string

A two cursor system is used for editing; the Base cursor shows the last point plotted, moved to etc, the Rubber cursor shows the next position of the Base cursor or the point for a fill.

The Editor provides four groups of commands;

1) Drawing Commands (active if CTRL held down)

PLOT P — Sets the pixel at the position of the Rubber Cursor (RC) according to the current state of Inverse/Over (see later) then moves the Base Cursor (BC) to that position. The position plotted is an absolute position and only positions on the visible screen can be plotted.

REL MOVE R — Moves BC to RC without affecting the screen. This is coded as a relative offset from BC.

ABS MOVE A — Moves BC to RC without affecting the screen. The position moved to is an absolute position and must be on the visible screen.

LINE L — Draws a straight line from BC to RC according to the current Pen, then moves BC to RC. The line is coded as a relative offset from BC. (n.b. final point of line is not set).

FILL F — The area around RC (relative) is filled using solid pixels. Fill works by passing a pattern to the SHADE routine so the notes on SHADE apply also

All the above use 3 bytes in the database. Relative distances are limited to ±511 in the X direction and ±256 in the Y direction.

SHADE S The area around RC (relative) is shaded with one of a large number of patterns. The database contains 16 patterns (0-15), which can be changed using the Shade Editor described later.

The pattern used for shading is determined as follows:-

a) You are asked for 2 pattern Nos in the range 0 to 15. If you only want to specify 1 pattern then specify the same No. for both patterns.

b) The 2 patterns specified are OR'd together i.e. they are placed on top of each other.

c) If INVERSE was 'on' the resultant pattern is inverted, i.e. SET/RESET pixels are swapped.

Notes on the shade (and fill) routine:-

1) The shade first works in a downward direction and then in an upward direction. For speed, when it is going down it doesn't look up and vice versa. Any areas the shade misses must be shaded seperately, although careful choice of the start position for the shade will minimise this problem.

2) The start point of the shade must be on the visible screen. (Although it might be below the screenbreak and thus invisible!)

3) If the area to be shaded is 'too complex' then the shade will be abandoned. It has to do this to enable it to detect when it comes across an area which has already been shaded. Thus an area can only be shaded once as an already shaded area will be 'too complex' to shade again. You should not shade an area and then try to fill in the background with a fill command.

Shade uses 4 bytes in the database.

BLOCK B The rectangle defined by BC & RC (Absolute) is completely filled using the current Colours. This command is faster than FILL but much less flexible. (Note it does not set any pixels only colours).

Block uses 5 bytes in the database.

FREEHAND F7 'on' & SHIFT F7 'off'

When Freehand is 'ON' all movements of the cursor are stored in the database.

Each cursor move uses 1 byte!

2) Colour Commands

PAPER	CTRL & O	Allows a paper from 0 to 16 to be selected.
INK	CTRL & I	Allows an ink from 0 to 16 to be selected.

Both INK & PAPER use one byte in the database. Note that a value of 16 is not a colour as such but can be thought of as transparent, i.e. It causes the existing screen colours to show through.

INK and PAPER each use 1 byte in the database.

INVERSE	F3	Inverse is selected which causes the inverse bit of any future FREEHAND, PLOT LINE & SHADE commands to be set. This causes all pixels to be reset instead of set in the case of FREEHAND, PLOT & LINE and the pattern to be Inverted in the case of SHADE. SHIFT & F3 will reset the Inverse flag.
OVER	F5	Over is selected which causes the over bit of any future FREEHAND, PLOT & LINE commands to be set. This causes any set pixels to be reset and any reset pixels to be set (i.e. the new state of a pixel is the EXCLUSIVE OR of its previous state).

Neither Inverse nor Over use any memory as their state is encoded as part of each instruction.

3) Subroutine Command

GOSUB	G	A picture number is requested which must be in the range 0 to max. Picno. A scale value for the picture is then requested. This can be from 0 to 7 where the number indicates the size of the picture in eighths - 0 means 'no scale' (i.e. 8/8).

Please Note;

a) Scale only affects the relative commands, these are REL MOVE, LINE, FILL and SHADE. The other commands will not be scaled or relocated and should generally not be used in subroutines (although they will work and can be used usefully sometimes)

b) Scale works by multiplying the relative distance by the scale value, dividing by 8 and rounding down. Thus only relative distances which are multiples of 8 will be scaled precisely.

c) Subroutines cannot be nested. If a subroutine includes a GOSUB command it will cause a 'Limit reached' error. If this happens, pressing any key will redraw the picture to just before the GOSUB, then the CLR key (i.e. SHIFT & HOME which deletes the next command) can be used to delete the erroneous GOSUB.

4) Editing commands

START ⇑ (SHIFT & CRSR DOWN) Puts the Drawstring pointer at the start of the drawstring.

NEXT ⇒ (CRSR RIGHT) Executes next available drawstring command: if there isn't one the command is ignored.

PREVIOUS ⇐ (SHIFT & CRSR RIGHT) Moves the drawstring pointer back one command and updates the screen.

DELETE INST (SHIFT & DEL) The previous command is deleted and the screen redrawn.

DELN CLR (SHIFT & HOME) Deletes the next command if there is one.

GRID F7 Overlays a grid on the drawing allowing the colour boundaries to be seen. As only one Paper · & one Ink colour can be in each a x a pixel square some very clever positioning is needed to prevent colour clashes.

SHIFT & F7 will remove the grid (redraws screen).

The Colour Table

Graphic Editor Help Screen

Shade Editor

Detailed description of the Shade Editor

This section of the Illustrator allows a shade pattern to be amended. Shade patterns consist of an 8 by 8 pixel grid which is repeated by the SHADE command over the entire area of shade. Any two patterns can be combined and the result inverted if required.

The editor provides three areas of screen:-

1/ The Grid — The bit patterns of a particular shade are shown on a much enlarged (x8) grid of grey squares, any set bits being shown by a black square. Also present on the grid is a flashing red square showing the current cursor position.

2/ The Test Pattern — To the right of the Grid is a test pattern of the current shade in both normal & Inverted forms. (Normal on top). This does not change as you change the Grid but it can be updated by presssing F7.

3/ Status Area — This shows the current pattern number and gives a summary of the commands available.

In order to modify the pattern use the cursor keys (marked CRSR) along with SHIFT as necessary to move the flashing cursor. The state of the bit under the cursor can be changed at any time using the SPACE BAR.

RETURN will store the amended pattern back in the database.

RUN STOP will abandon the edit leaving the pattern as it was.

Editor Error Messages and their meanings

RUN STOP	RUN STOP was pressed during a peripheral operation or while editing.
I/O Error	An I/O error has occured. Note that an error during a load Graphics will set up a null database.
Database full	There is not enough room in the database for what you were attempting.
Limit reached	The maximum number of pictures is already present or a nested GOSUB has been found.

Note:. After an error during editing, the Drawstring pointer is positioned just before the command which caused the error (i.e. a NEXT (CRSR RIGHT) command will cause the error again). If printing then a return is made to a menu.

Appendix A: How to Approach a Location Picture

Just to give you a different viewpoint on The Illustrator we asked our graphic artist (who did the demonstration pictures) to give his advice on using it;

The most important thing to remember when approaching a location picture, is to think visually - a pencil and sketch pad are essential equipment for creating a graphic adventure. Th2s not only saves time when coding the picture but will also form a useful source of visual information for future pictures.

Once an initial idea for a picture has been decided on, it may be transferred to one of the commercially-available screen planners or to plain graph paper. This must be done with a ruler as accurate line-positioning is essential. When transferring the image to the graph paper it is useful to consider where each LINE, PLOT or MOVE command is going to be in the string of commands i.e. it is sloppy programming to draw a line at the top of the screen, then one at the bottom with a MOVE command in between if a line is to be drawn between these lines later in the command string. This is uneconomical on memory as it uses an unnecessary MOVE command.

Once the picture is drawn in line form, and an economical drawing sequence worked out, it is time to decide on the colours for the picture. When coding the picture it is best to draw as many of the outlines as possible first (split at suitable points by PLOT & ABS MOVE statements to fix positions), then any subroutines then any colour, FILL and SHADE commands (although colour commands sometimes need to be included in the line drawing section).

At first the SHADE command may appear to offer a bewildering range of options but after a bit of experimentation you will find a variety of patterns which appeal to you. These should be noted to make shading of future pictures easier.

Any object which appears more than once in the picture, or more than once in the adventure, should be created as a subroutine, (e.g. Pictures, Doors, Bricks, Trees etc). Subroutines are constructed in the same way as a normal picture but be careful in coding them; if you incorporate a feature make sure it is required each time the subroutine is used i.e. a shadow may not be the same in every picture. Ensure that the subroutine is constructed so as to allow it to be easily positioned in the final picture, and make it large enough to draw correctly and give a range of sizes when used with scale.

The above-outlined methods will allow you to produce economical (on memory) and well-organised pictures, However it's up to you to produce original and interesting graphic adventures.

Huw Jones.

Appendix B: Summary of the Graphic Editor Commands

START	⇑	Moves drawstring pointer to start of drawstring.
PREVIOUS	⇐	Moves drawstring pointer back 1 command.
NEXT	⇒	Executes next command in string.
DELETE	INST	The previous command is deleted and the display updated.
DELN	CLR	The next command is deleted.
Cursor move		The cursor is moved using the keys around S thus; Q W E A D Z X C by 1 pixel at a time. If SHIFT is pressed movement is by 8 pixels at a time.
CENTRE	SHIFT S	The RC is moved to the centre of the screen.
PAPER	CTRL 0	Changes the current Paper Colour.
INK	CTRL I	Changes the current Ink Colour.
PLOT	CTRL P	Plots the current position of RC, then moves BC to it (absolute)
LINE	CTRL L	Joins BC to RC with a straight line (relative)
REL MOVE	CTRL R	Moves BC to RC (relative)
ABS MOVE	CTRL A	Moves BC to RC (absolute)
BLOCK	CTRL B	The rectangle defined by BC,RC is completely filled using the current colours (absolute)
FILL	CTRL F	Fills the area around RC using set pixels.
SHADE	CTRL S	Shades the area around RC with the pattern(s) selected which may be affected by the use of INVERSE (relative)
GOSUB	CTRL G	Allows another string to be drawn at the BC position in one of Eight sizes.
FREEHAND	FI	Allows cursor movements to be stored (relative) (SHIFT FI to cancel)
INVERSE	F3	Selects INVERSE mode (SHIFT F3 to cancel)
OVER	FS	Selects OVER mode (SHIFT FS to cancel)
GRID	F7	Overlays a colour grid (SHIFT F7 to cancel)

Remastered version info

This remastered version is made as close to original as possible. PDF scan of original user manual has 8+MB. This version should be below 0,5MB (ODT, PDF). Font used is TlwgTypewriter.ttf. For arrows and cursors (pages 6,7) FreeMono.ttf has been used. Here is the list of changes:

* Corrected "official" errata (minor errors at pages 15, 19). Few other (minor) typos are also corrected.

* Added solution for "excercise" (door handle, Diagram 6) at page 13.

* Listing of Door subroutine now fits to page 12 (last raw exceeded at page 13 before). It is more natural. Also, this change made space for solution of "exercise" (for door handle).

* Handmade bw diagrams are replaced with original C64 colour screenshots, of same size and at same place. Diagram 6 (door) remains bw because there is no need for colour (original screenshot is white on blue). Same is for The Shade Table.

* Added The Shade Table (page 17). It is missing from C64 version of manual, unlike Spectrum 48K / Amstrad CPC464/664 versions (although shade patterns are different at Spectrum/CPC). It is slightly adapted from original screenshot, now black/white.

* Added The Colour Table (page 25). It is missing from editor and manual both, but it is crucial for editing imho. It is designed to correspond The Shade Table.

* Added screenshots of Graphic Editor Help Screen and Shade Editor (page 25), between chapters that are explaining those subjects.

* Front & back cover pages are remastered. Front page now has proper line "for the Commodore 64" corresponding to Spectrum/CPC versions (instead ugly sticker). Original font (Bodoni bold) used.

* Added signature line below the copyright notice at first page and this info on last page.

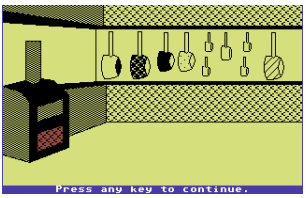
* Added (see below) screenshots of all 6 DEMO adventure locations (rooms), including (missing) completed drawing of room 0 ("hall") - as is described in Part 1 of this user manual.

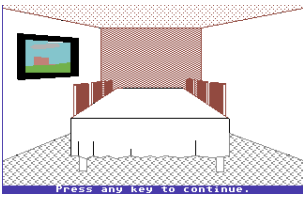
TO DO:

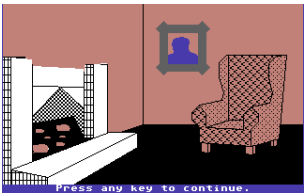
* Same with The Quill user manual

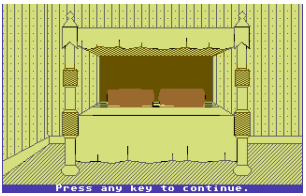
* Same for other platforms (CPC, Spectrum, Atari, DOS, BBC, Oric...)

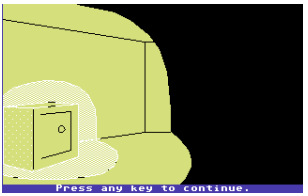
* Convert to other formats (djvu, epub, C64, plain vanilla ASCII...)?











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