

## Introduction

Mid 1980's the Sinclair QL arrived with new storage devices **microdrive** 'mdv1\_ & mdv2\_'. It wasn't long before external **floppy drives** 'flp1\_' & 'flp2\_' were available and **Hard Drives** 'win1\_' etc, followed soon after to open up the possibility of even larger storage capacities

The **QL Technical Guide** identified the **QL Filename** as being up to **36 Bytes** in length or the equivalent in **ASCII Characters**. Viewing files using the SuperBASIC **DIR** command displays a single vertical list. This soon spread over several screens, mistyping a file name became a frustrating exercise reviewing the spelling with the **DIR** command. The **QBITS** approach was to develop a more friendly **File Directory Handler**.

## QBITS File Management Concepts

By 1987 a collection of SuperBASIC routines to keep track and review Filenames evolved into an early File Management Tool called File Tidy later shortened to **FTidy**. It accessed a Source Device and viewed up to 160 Filenames. **QBITS FTidy** was submitted to QUANTA a short while before Howard Clase published his **FTidy** program in QLWorld Sep1988.

## QBITS FTidy128

The screen displayed four columns of file names of up to 18 characters. However, the full Filename of up to 36 characters, when selected was shown in the window below the Menu bar. **COPY** and **DELETE** commands allowed for single File or batch processing of multiple files. **SelfDev** was used for **Source** and **Target** selection. The **Print** command was for Printer export of File lists. These were later dropped for **LOAD/LRUN**.



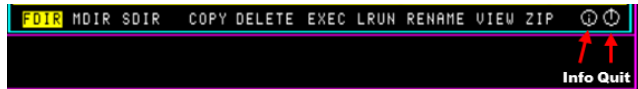
The **FDIR** with **SubDIR**ectories were added with Millennium updates. The latest versions include **VIEW** with ASCII or HEX Readout, **EXEC** for **\_obj** files plus a **ZIP** option to Load and Compile a SuperBASIC **\_bas** File.

## QBITS FTidySE

Screen layout is divided into four areas. Top centre the Title Box displays **QBITS FTidy<sup>+</sup>** at start up and prompts for Selection of a Source device shown in the bottom action window.



The main display area shows a **Help** screen of Commands with a brief description of their functions. Navigation of Menu Commands and Displayed Filenames is by Cursor Keys **←↑↓→** with actions taken by **—** Spacebar **↵** Enter Keys. The Menu can also be Selected by individual Keys **F M S C D O L R V Z**. For Help screen Press 'I' for Info **I**, Press 'Q' to Quit **Q** the program.



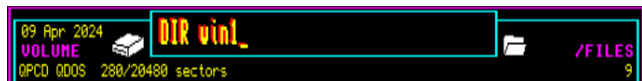
## QBITS FTidySE File Directory

**FDIR** displays the **DIRectory** of the Default or last **Device** chosen. Full Filenames and Stats, Byte Size & Date/Time Stamp Entries of the Selected Storage Device are copied to **FList**. The list is then Read and Sorted Alphanumerically.

A Sort program was given in the QL Users Guide Chapter 16. A few tweaks with Array and Variable Names and Voilà! The Filenames of **FList** are selected sequentially by a **FOR loop** and compared within a **REPEAT Loop** the output **DFile\$(n)** array sorted in Alphanumeric order. A second **FOR loop** selects any **SubDIRectory** names and lists them in front of the **Filenames**.

## QBITS FTidySE SubDIRectories

The full identity of a file location can be 41 Characters. This begins with the Drive Device a five-character identifier, ie. mdv1\_, flp1\_, win1\_, the fifth character being '\_' an underscore. The next 36 Characters make up the Filename, with the first twenty-four characters considered for use as **SubDIRectory**'s. For example, 'SubDIR1\_' which as with Drive names end with an underscore. If they were named with letters of the alphabet, 'A\_' to 'L\_' we could potentially create twelve **SubDIRectory** levels. **QBITS FTidy** limit is set at six **SubDIR** levels.

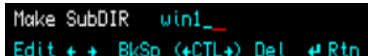


The File DIRectory [**FDIR**] or SubDIRirectories [**SDIR**] if present, are displayed under **Volume** the **Device name**, **Volume/Sectors** and under **Files** the **Number** held in Directory. The Filenames of the selected **Device DIRectory** or **SubDIRectory** are Read and Sorted to generate the new display of Filenames. Any selected **Filename** is shown in full with Stats **Bytes** size and **Date/Time** Stamp in the lower action window.



## QBITS FTidySE MDIR

Use Line Editor create a new **SubDirectory** name.  
QBITS six level **SubDIR** allocation...



DIM SubDIR\$(6,24) where SubDIR\$(1) = "SD1\_" and SubDIR\$(6) access =  
"SD1\_SD2\_SD3\_SD4\_SD5\_SD6\_"

### QBITS FTidySE COPY / DELETE

Select single or multiple files. The Filename(s) are identified by moving through the files listed and highlighting with the Spacebar. For **COPY** select a destination **Target** device with **(D)**rive and **(S)**ubDIR.

```
COPY win1_QBITS_File(s) (y/n)
```

Press **(C)**opy and selected Filename(s) from

```
COPY QBITS_File(s) TO win1_QBITS_
Change (D)rive (S)ubDIR (C)OPY File(s)
```

**Source DIR**ectory are then copied across to the **Target** device. Any files of same name in destination device prompts for further action with an **Overwrite** 'y/n'.

```
DELETE win1_SpaceInvader_fnt
```

Similarly, for **DELETE** a highlighted Filename is confirmed with 'y/n' before Deleting.

### QBITS FTidySE EXEC / LRUN

Select a Filename, the full Filename up to 36 characters is displayed together with its Byte length and Time/Date Stamp. **EXEC** is for Object files, machine code files that can be loaded and run as an independent JOB. **LRUN** is for S/SuperBASIC program that Load and Run under the QL Interpreter. For both you are prompted with 'y/n' to action.

```
EXEC win1_progs_darts_v3_obj
```

```
LRUN win1_QBITS_Darts_v3
```

```
RENAME win1_QBITS_Darts_v3_
Edit + + BkSp (+CTL+) Del +Rtn
```

### QBITS FTidySE RENAME

Select an existing Filename (**file**\$) and **Edit** the string (**str**\$) with the **QBITS Line Editor**. Action with Enter and the **FTidy** checks that the Filename doesn't already exist. If not a **COPY** with new filename is made to source and the old file Deleted.

### QBITS FTidySE VIEW

View was seen as a useful option in being able to **OPEN** and read the contents of a File. **S/SuperBASIC** Files are in **Plain Text**, others can be **Data** lists or a mix of code blocks and ASCII characters as in **Executable** computer machine code. **FTidy View** gives the option to display as **ASCII characters** (y) or in **Hex Bytes** (Enter).

```
VIEW win1_QBITS_Darts_v3
```

### QBITS FTidySE ZIP

Compiler **Q\_LIBERATOR** needs to be installed, **QLib\_RUN** if installed can be shared by programs or it can be linked in as part of the Compile process. Select a **SupeBASIC** File with a **'\_bas'** suffix. A Prompt (y/n Enter) appears. Press 'y' if **RUN**time is resident or 'Enter' if to be linked with program. Pressing 'n' returns to **FTidy Menu** bar.

```
ZIP win1_QBITS_QBITS_Darts_v3
```



When completed return to **QBITS FTidySE** with **ALT-f** and activate the Compiled Program. with **EXEC** Filename\_obj

## QBITS FTidySE use of LIBERATOR

An early notion was to include a link to Compile SuperBASIC Programs. In computing ZIP is a term used for File(s) or Routines compressed into a package and descriptively can imply to go faster. A Spectrum BASIC Compiler written by N Goodwin was called ZIP. I hope he won't object to QBITS use of the word!

Attempting to maintain some compatibility across various QL Platforms, the compiler choice was between SUPERCHARGE, TURBO or LIBERATOR. For the present QBITS\_FTidySE relies on the SMSQ/E O/S being in place and use of Sinclair QL Forum Edition 2020 for QPC2 of QLBERATOR. Users should refer to the User Manuals for a better understanding of limitations with other environments.

## QBITS FTidySE and Handling of Screen Positioning

Filename are listed across the screen in columns and rows, each column having a defined number of characters or string length. If a name exceeds this length, then the name is truncated. If the name string is less, the missing characters are filled with spaces to overwrite the possibility of characters left over from a previously displayed Filename. If a Filename List exceeds the available screen space, upon reaching the bottom of the window the bottom row can be scrolled up and a new group of filenames added. To keep track a Line pointer identifies the position in the Filename list and a Row pointer for the screen position. A filename position can be identified by subtracting the Row pointer from the File Line pointer. A similar arrangement is utilised for scrolling the screen down so as to add rows at the screen top.

**Note:** A program having run its course needs to close down, release RAM etc and restore the system back to previous settings

## Note: File & DIrectory Info

QL Files appear as an array of bytes on a physical storage device such as microdrives - mdv1\_, Floppy disks - flp1\_ and Hard drives - win1\_ etc.. The storage system is composed of 512-byte blocks, addressing is via an associated File Pointer by Block number (sector) and Byte number within that block. The QL Tech Guide describes the 64 Bytes File header as follows:

\$00	long	file length
\$04	byte	file access key (not yet implemented - set at 0)
\$05	byte	file type
\$06	8bytes	file type-dependant information
\$0E	2+36 Bytes	filename
\$34	long	reserved for update Date (not yet implemented)
\$38	long	reserved for reference Date (not yet implemented)
\$3C	long	reserved for backup Date (not yet implemented)

The file types allowed at the time of original QL:

- 2 a relocatable object file
- 1 an executable program where the first longword of the type-dependant information holds the default size of data space required for the program.
- 0 for anything else

## QBITS FTidySE Procedures

<b>Init_win</b>	Initialises Program setting the screen display
<b>F_Title</b>	Displays QBITS Title / DIR headings
<b>F_Info</b>	Displays Info/Help screen
<b>Cmd_Menu</b>	Main Program Loop
<b>SelDrv</b>	Selects Source or Target Devices
<b>FileDIR</b>	Generates File List of Device DIRectory or a Sub DIRectory
<b>F_Sort</b>	Arranges Filenames AlphaNumerically with SubDIR(s) first
<b>MakeDIR</b>	Uses Line Editor to create a New SubDIRectory
<b>SubDIR</b>	Selects and displays the Filenames of a SubDIRectory
<b>Sub_up</b>	Move to Drive DIR or Higher-Level SubDIR
<b>Sub_dn</b>	Move to a Lower-Level SubDIR
<b>F_Select</b>	Use Cursor keys to Select a SubDIR or Filename
<b>Fscr_posn</b>	Calculate screen position of SubDIR or Filename
<b>Fscr_up</b>	Scroll up one row
<b>Fscr_dn</b>	Scroll down one row
<b>F_write</b>	Print SubDIR or Filename and Stats o screen position
<b>F_clear</b>	Prints updated File List to screen
<b>F_Chk</b>	Returns y/n Enter answer [no=0 yes=1 Enter=2
<b>F_Copy</b>	Selects and Confirms Filename(s) y/n? from Source Device
<b>F_Target</b>	Selects destination - Targeted Device DIR/SubDIR
<b>F_Copy2</b>	Copies File(s) to Target Device DIR SubDIR with overwrite y/n?
<b>F_Delete</b>	Deletes Selected Files(s) from Source Device y/n?
<b>F_Lrun(act)</b>	EXEC or Load/RUN selected File from displayed list
<b>F_Rename</b>	Uses Line editor to Rename a selected Filename
<b>F_View</b>	Prints ASCII or Hex Code of selected Filename to screen
<b>F_ZIP</b>	Selected SuperBASIC File linked into QLBERATOR Compiler
<b>Ln_Ed</b>	Line Editor action menu
<b>Str_chk</b>	Checks if last Character of string is '_' and deletes
<b>Ln_Prn</b>	Prints Filename to Screen
<b>Ln_Cur</b>	Prints Current Cursor Position to Screen
<b>Add_chr</b>	Adds a character anywhere within String or at end.
<b>Del_chr</b>	Deletes a character anywhere in string
<b>KInfo</b>	Key Graphic Image created for Info/Help
<b>KQuit</b>	Key Graphic Image created for Quit
<b>GDrive</b>	Hard Drive symbol
<b>GFolder</b>	File Folder Symbol

## QBITS FTidySE\_bas Code

1000 REMark **QBITS\_FTidySE\_bas** [QBITS FTidySE 2024 QL40th - QPC2] vM30

1002 **dev\$='win1\_'**:MODE 4:gx=0:gy=0 :REMark Basic Settings

1004 **WHEN ERROR** :eck=1:CONTINUE:**END WHEN**

**Note:** **dev\$** is set to the default source device which is accessed to Import **QBITSConfig** settings, if nor found the program will hang. If FDIR fails to find a Device or Files then it returns **DEVICE ERROR** and instead of the Interpreter halting the program **WHEN ERROR** will **CONTINUE** the Program.

1006 REMark **Import QBITSConfig Settings - QPC2**

1007 OPEN \_IN#9,dev\$&'QBITSConfig':INPUT#9,gx\gy\dn\$\dev\$\dn%\dm%

1008 DIM Drv\$(dm%,5):FOR d=0 TO dm%:INPUT#9,Drv\$(d):END FOR d:CLOSE#9

1010 REMark **Set max% number of Files :DIM Arrays**

1011 max%=300

1012 DIM DFile\$(max%,2,36),fink\$(max%),CFile\$(max%,2,36),cink\$(max%)

1013 DIM Comd\$(58),key\$(3,52),help\$(9,48),Time\$(20)

1014 DIM DD\$(5),DDIR\$(24),SD\$(5),SDIR\$(24),TD\$(5),TDIR\$(24),str\$(36)

**Note:** DFile\$(max%,2,36)

Filename=1

Stats =2

Max ASCII Characters

1016 REMark **FTidy Setup & Comand Menu**

1018 Init\_win:Cmd\_Menu

1020 **DEFine PROCEDURE** Init\_win

1021 OPEN#5,scr\_:WINDOW#5,512,256,gx,gy :PAPER#5,0:BORDER#5,1,3:CLS#5

1022 OPEN#4,scr\_:WINDOW#4,504,214,gx+4,gy+7 :PAPER#4,0:BORDER#4,1,5:CSIZE#4,1,0

1023 OPEN#3,scr\_:WINDOW#3,280,26,gx+114,gy+2 :PAPER#3,0:BORDER#3,1,5:CLS#3

1024 WINDOW#2,504,220,gx+4,gy+2 :PAPER#2,0 :CSIZE#2,0,0:INK#2,7

1025 WINDOW#1,496,162,gx+8,gy+42:PAPER#1,0 :BORDER#1,1,6:CSIZE#1,0,0:INK#1,7

1026 WINDOW#0,512,34,gx,gy+222 :PAPER#0,0 :BORDER#0,1,3:CSIZE#0,0,0:INK#0,7

1027 OVER#4,1:INK#4,3

1028 FOR i=0 TO 1:CUSOR#4,4+i,12:PRINT#4,'VOLUME'

1029 FOR i=0 TO 1:CUSOR#4,450+i,12:PRINT#4,'FILES'

1030 OVER#4,0:INK#2,6:Time\$=DATE\$

1031 CURSOR#2,6,7:PRINT#2,Time\$(10 TO 11)&Time\$(5 TO 9)&Time\$(1 TO 4)

1032 SCALE#2,100,0,0:SCALE#1,100,0,0:F\_Title 2,66,'QBITS FTidy':F\_Info

1033 **END DEFine**

1035 **DEFine PROCEDURE** F\_Title (cs%,x%,Title\$)

1036 CLS#3:CSIZE#3,cs%,1:OVER#3,1

1037 INK#3,2 :FOR i=0 TO 1:CUSOR#3,x%+i,1:PRINT#3,Title\$

1038 INK#3,6 :FOR i=1 TO 2:CUSOR#3,x%+i,2:PRINT#3,Title\$:OVER#3,0

1039 **END DEFine**

VOLUME



FILES

09 Apr 2024

QBITS FTidy\*

**Note:** cs% - Character SIZE: x% - horizontal offset: Title\$ - Character string.

# 1041 DEFINE PROCEDURE F\_Info

```

1042 help$(0)=' FDIR      - Show FileDirectory on Source Device'
1043 help$(1)=' MDIR      - Make SubDirectory on Source Device'
1044 help$(2)=' SDIR      - Show SubDirectory on Source Device'
1045 help$(3)=' COPY      - File(s)from Source TO Target Device'
1046 help$(4)=' DELETE    - File(s)from Source Device'
1047 help$(5)=' EXEC      - EXEC Selected Object File'
1048 help$(6)=' LRUN      - LRUN Selected SuperBASIC File'
1049 help$(7)='RENAME     - Edit Name of Selected File'
1050 help$(8)=' VIEW      - ASCII String(y) or HEX(Enter)'
1051 help$(9)=' ZIP        - Load & COMPILE a SuperBASIC File'
1052 OVER#1,1:CSIZE#1,1,0:CLS#1:sp=20
1053 FOR hp=0 TO 8
1054   INK#1,7:FOR i=0 TO 1:CURSOR#1,54+i,sp+hp*10:PRINT#1,help$(hp,1 TO 9);
1055   INK#1,5:PRINT#1,help$(hp,10 TO):IF hp=2:sp=24
1056 END FOR hp
1057 OVER#1,0:CSIZE#1,0,0:INK#1,5:GDrive 7,31,92:GFolder 7,136,91
1058 CURSOR#1,106, 8:PRINT#1,'Select Menu with ←→ CURSOR keys and ↵ ENTER'
1059 CURSOR#1,106,128:PRINT#1,'Select File(s) ←↕↗→ Mark   Page Up/Down ALT ↑ ↓'
1060 BLOCK#1,2,4,334,10,5:BLOCK#1,12,3,256,132,5:INK#1,6
1061 CURSOR#1, 96,142:PRINT#1,"Press'I' to show  Info Panel  Press 'Q' to  Quit"
1062 KInfo 1,6,94,8:KQuit 1,6,167,8: cmd=1:mm%=1:mx%=9:lptr%=0:INK#0,7:px%=108:DD$=""
1063 END DEFINE

```

**FDIR MDIR SDIR COPY DELETE EXEC LRUN RENAME VIEW ZIP** ⏏ ⏻

# 1066 DEFINE PROCEDURE Cmd\_Menu

```

1067 DIM cx%(9),Cmd$(10,6):RESTORE 1075:FOR i=1 TO 10:READ cx%(i),Cmd$(i)
1068 DATA 16,'FDIR',50,'MDIR',90,'SDIR',144,'COPY',182,'DELETE'
1069 DATA 240,'EXEC',280,'LRUN',320,'RENAME',376,'VIEW',416,'ZIP'
1070 STRIP#4,0:INK#4,7:FOR i=1 TO 10:CURSOR#4,cx%(i),200:PRINT#4,Cmd$(i)
1071 KInfo 2,7,158,4,6:KExit 2,7,164,4,4:SelDrv:CLS#0
1072 REPEAT Cmd_ip
1073   STRIP#4,6:INK#4,0:CURSOR#4,cx%(cmd),200:PRINT#4,Cmd$(cmd)
1074   k$=(INKEY$(#0,-1)):k=CODE(k$)
1075   STRIP#4,0:INK#4,7:CURSOR#4,cx%(cmd),200:PRINT#4,Cmd$(cmd)
1076   SELECT ON k
1077     =192:cmd=cmd-1:IF cmd<1 :cmd=10 :REMark← Left  Cursor min-max
1078     =200:cmd=cmd+1:IF cmd>10 :cmd=1  :REMark→ Right Cursor max=min
1079     =73,105:F_Info :PAUSE :CLS:F_clear :CLS#0 :REMark (I)nfo
1080     =81,113:IF dn$="":STOP :ELSE LRUN dn$ :STOP :REMark(Q)uit
1081     =10,65 TO 122:IF k<>10:cmd=1+(k$ INSTR 'fFmMssCcDdEeLlRrVvZz')DIV 2

```

## 1082 SELECT ON cmd

```

1083   = 1:SelDrv      :CLS#0
1084   = 2:MakeDIR     :CLS#0
1085   = 3:SubDIR      :CLS#0
1086   = 4:IF fto!%>0:F_Copy      :CLS#0
1087   = 5:IF fto!%>0:F_Delete    :CLS#0
1088   = 6:IF fto!%>0:F_Run 2     :CLS#0 :REMark EXEC
1089   = 7:IF fto!%>0:F_Run 1     :CLS#0 :REMark LRUN
1090   = 8:IF fto!%>0:F_Rename    :CLS#0
1091   = 9:IF fto!%>0:F_View      :CLS#0 :REMark ASCII(y) HEX(Entr)
1092   =10:IF fto!%>0:F_ZIP       :CLS#0 :REMark Compiler

```

## 1093 END SELECT

## 1094 END SELECT

## 1095 END REPEAT Cmd\_ip

## 1096 END DEFINE

Select Drive: win1\_ (↑) (ENTER)  
 Make SubDIR win1\_  
 SubDIR win1\_ (↑) \_Test (→) (y/n)  
 COPY win1\_0BIT5\_File(s) (y/n)  
 DELETE win1\_SpaceInvader\_fnt  
 EXEC win1\_proggs\_darts\_v3\_obj  
 LRUN win1\_0BIT5\_darts\_v3  
 RENAME win1\_0BIT5\_darts\_v3  
 VIEW win1\_0BIT5\_darts\_v3  
 ZIP win1\_0BIT5\_0BIT5\_darts\_v3

## 1100 REMark QBITS FTidy DiRectory Management

### 1102 DEFine PROCEDURE SelDrv

1103 DIM SubDIR\$(6,24):dl%=0:OD\$=DD\$:dch=0

1104 IF cmd=1:INK#0,7:CUSOR#0,18,6:PRINT#0,'Select Drive: 'px%=108

Select Drive: winl\_ (↑) <ENTER>

#### 1105 REPEAT Dr\_ip

1106 INK#0,5:CUSOR#0,px%,6:PRINT#0,Drv\$(dn%)&' (↑↓) <ENTER>':CLS#0,4

1107 k=CODE(INKEY\$(#0,-1))

#### 1108 SElect ON k

1109 =10:DD\$=Drv\$(dn%):EXIT Dr\_ip :REMark Enter Select Drive

1110 =208:dn%=dn%-1:IF dn%< 0:dn%=15 :REMark Up

1111 =216:dn%=dn%+1:IF dn%>15:dn%= 0 :REMark Down

#### 1112 END SELECT

#### 1113 END REPEAT Dr\_ip

1114 IF OD\$=DD\$:RETurn :ELSE DDIR\$=:FileDIR

#### 1115 END DEFine



### 1117 DEFine PROCEDURE FileDIR

1118 CLS#0:DELETE DD\$&DDIR\$&'FList':F\_Title 1,4,'DIR ' &DD\$&DDIR\$

1119 IF cmd<2:INK#0,5:CUSOR#0,24,6:PRINT#0,'Files being Selected...'

Files being Selected...

1120 OPEN\_NEW#9,DD\$&DDIR\$&'FList':STAT#9,DD\$&DDIR\$:WSTAT#9,DD\$&DDIR\$:CLOSE#9

1121 OPEN\_IN #9,DD\$&DDIR\$&'FList':INPUT#9,DName\$DSec\$:n=1:ftot%=0

#### 1122 REPEAT DIR\_ip

1123 IF EOF(#9) OR n>max%:ftot%=n-1:CLOSE#9:EXIT DIR\_ip

1124 INPUT#9,DFile\$(n,1):fink%(n)=5

1125 IF '>' INSTR DFile\$(n,1)=0:INPUT#9,DFile\$(n,2):n=n+1:ELSE n=n+1

#### 1126 END REPEAT DIR\_ip

1127 BLOCK#2,88,10,414,7,0:IF dl%>0:CUSOR#2,414,7:PRINT#2,'SubDIR Level:':dl%

SubDIR Level:1  
/FILES

1128 BLOCK#2,480,10,4,29,0:INK#2,6:CUSOR#2,4,29:PRINT#2,DName\$,' 'DSec\$

1129 CUSOR#2,466,29:PRINT#2,FILL\$(' ',5-LEN(ftot%))&ftot%

1130 IF ftot%=0:stot%=0:CLS:F\_Title 1,4,'DEVICE ERROR':RETurn

1131 F\_Sort:nm%=1:nx%=ftot%:lptr%=0:CLS#1:F\_clear:n=1

#### 1132 END DEFine

QBITSProgs 0005 88527528/438077944 sectors

### 1134 DEFine PROCEDURE F\_Sort

1135 FOR sn=1 TO ftot%

1136 p=sn:comp\$=DFile\$(p,1):info\$=DFile\$(p,2)

#### 1137 REPEAT Sort\_ip

1138 IF comp\$>=DFile\$(p-1,1):EXIT Sort\_ip

1139 DFile\$(p,1)=DFile\$(p-1,1):DFile\$(p,2)=DFile\$(p-1,2):p=p-1

#### 1140 END REPEAT Sort\_ip

1141 DFile\$(p,1)=comp\$:DFile\$(p,2)=info\$

1142 END FOR sn

1143 ntop=1:nsl=1:stot%=0

1144 FOR sn=1 TO ftot%

1145 IF '>' INSTR DFile\$(sn,1)

1146 comp\$=DFile\$(sn,1):info\$=DFile\$(sn,2):nsl=sn-1

1147 FOR p=nsl TO ntop STEP -1

1148 DFile\$(p+1,1)=DFile\$(p,1):DFile\$(p+1,2)=DFile\$(p,2)

1149 END FOR p

1150 DFile\$(ntop,1)=comp\$:DFile\$(ntop,2)=info\$:ntop=ntop+1:stot%=stot%+1

1151 END IF

1152 END FOR sn

#### 1153 END DEFine



#### 1155 DEFINE PROCEDURE MakeDIR

```
1156 md%=24-LEN(DDIR$):px%=138+LEN(DDIR$)*6
1157 IF md%<3:CURSOR#0,24,6:PRINT#0,'Lowest Level Reached':PAUSE 50:REtUm
1158 INK#0,7:CURSOR#0,24,6:PRINT#0,'Make SubDIR ':;INK#0,5:PRINT#0,DD$&DDIR$
1159 cp%=1:sl%=0:sm%=md%:str$="Ln_Ed:IF LEN(str$)=0:REtUrn
1160 CURSOR#0,px%+LEN(str$)*6,6:PRINT#0,'(y/n)':K_Chk
1161 IF chk=1
1162   FOR n=1 TO stot%:IF DDIR$&str$ INSTR DFile$(n,1):REtUrn
1163   MAKE_DIR DD$&DDIR$&str$:FileDIR
1164 END IF
1165 END DEFINE
```

Make SubDIR win1\_

Make SubDIR win1\_  
Edit ← → BkSp ←(CTL→) Del → Rtn

#### 1167 DEFINE PROCEDURE SubDIR

```
1168 INK#0,7:CURSOR#0,24,6:PRINT#0,'SubDIR ':;INK#0,5:PRINT#0,DD$&DDIR$;
1169 INK#0,7:PRINT#0,' ↕ ↕ ':CLS#0,4:k=CODE(INKEY$(#0,-1))
1170 IF k=208 AND dl%>=0 :Sub_up dl% DiRectory Level
1171 IF k=216 AND stot%>=0:Sub_dn stot% Sub Total
1172 END DEFINE
```

SubDIR win1\_ ↕ ↕

SubDIR dos2\_Test ->  
Select using ↕↕↕ ↕ Alt ↕↕ ↕

#### 1174 DEFINE PROCEDURE Sub\_up

```
1175 SubDIR$(dl%)=":dl%=dl%-1:DDIR$=SubDIR$(dl%):FileDIR:REtUm
1176 END DEFINE
```

#### 1178 DEFINE PROCEDURE Sub\_dn

```
1179 IF stot%<1 OR dl%=6:REtUrn
1180 px%=96:mark%=5:n=1:nm%=1:nx%=stot%:st%=1:F_select:st%=0
1181 INK#0,5:CURSOR#0,px%,6:PRINT#0,DFile$(n,1)&'(y/n)':CLS#0,4:K_Chk
1182 IF chk=1
1183   DDIR$=DFile$(n,1 TO flen%-3)&' ':dl%=dl%+1:nm%=stot%:nx%=ftot%:FileDIR
1184   SubDIR$(dl%)=DDIR$:CURSOR#0,px%+12,6:PRINT#0,DDIR$:CLS#0,4
1185 END IF
1186 nm%=1:nx%=ftot%:F_clear:n=1
1187 END DEFINE
```

SubDIR dos2\_Test -> (y/n)

### QBITS Ftidy SubDIRectories

The full identity of a file location can be 41 Characters. This begins with the Drive Device a five-character identifier, ie. mdv1\_ flp1\_ win1\_ dos1\_ the fifth character '\_' always being an underscore. The next 36 Characters make up the Filename, of which the first twenty-four characters can be considered for SubDIRectory use. For example, 'SubDIR1\_' which as with Drive names have to end with an underscore. If they were named with letters of the alphabet, 'A\_' to 'L\_' we could potentially create twelve SubDIR levels. However, QBITS File Tidy is limited this to just SIX Sub levels, further levels will not be accessed by SDIR.

DIM SubDIR\$(6,24) where SubDIR\$(1) = "SD1\_" and SubDIR\$(6) access =  
"SD1\_SD2\_SD3\_SD4\_SD5\_SD6\_"

## 1200 REMark QBITS FTidy Filename Display

```
1202 DEFINE PROCEDURE F_select filename: select and highlight in screen location
1203 IF cmd>3:INK#0,7:CURSOR#0,24,6:PRINT#0,Cmd$(cmd):CLS#0,4 Note: Check a File Command
1204 INK#0,5:CURSOR#0,66,6:PRINT#0,DD$&DDIR$ Device & SubDIR
1205 REPEAT Sel_ip
1206 Fscr_posn:fink%(n)=7:F_write:fink%(n)=5:k=CODE(INKEY$(#0,-1))
1207 SElect ON k
1208 =192:Fscr_posn:F_write:n=n -1 :REMark Back 1
1209 =200:Fscr_posn:F_write:n=n +1 :REMark Forward 1
1210 =208:Fscr_posn:F_write:n=n -4 :REMark Up 1 Row
1211 =216:Fscr_posn:F_write:n=n +4 :REMark Down 1 Row
1212 =209:Fscr_posn:F_write:n=n -60 :REMark Up 1 Page
1213 =217:Fscr_posn:F_write:n=n+60 :REMark Down 1 Page
1214 = 32:fink%(n)=mark%:F_write:n=n+1 :REmark mark Filename mark% in Highlight Colour
1215 = 10:fink%(n)=7:CURSOR#0,0,20:CLS#0,4:RETURN fink%(n) File Ink Highlight Colour
1216 END SElect
1217 END REPEAT Sel_ip
1218 END DEFINE

1220 DEFINE PROCEDURE Fscr_posn calculate screen position
1221 IF n<nm%:n=nm% n file number nm% min nx% max
1222 IF n>nx%:n=nx% Note: n floating point – necessary with QDOS FOR loops
1223 fptr%=n-1:frow%=(fptr% DIV 4)
1224 IF frow%>(15+lptr%):Fscr_up:n=fptr%+1:Fscr_posn frow% file row fptr% file pointer lptr% line pointer
1225 IF frow%<( 0+lptr%):Fscr_dn:n=fptr%+1:Fscr_posn
1226 srow%=frow%-lptr%:scol%=(fptr% MOD 4)*20 srow% screen row scol% screen column
1227 END DEFINE

1229 DEFINE PROCEDURE Fscr_up
1230 lptr%=lptr%+1:SCROLL#1,-10:n=(lptr%+15)*4:srow%=15
1231 FOR i=0 TO 3:scol%=i*20:n=n+1:F_write
1232 END DEFINE

1234 DEFINE PROCEDURE Fscr_dn
1235 lptr%=lptr%-1:SCROLL#1,10:n=(lptr%)*4:srow%=0
1236 FOR i=0 TO 3:scol%=i*20:n=n+1:F_write
1237 END DEFINE

1239 DEFINE PROCEDURE F_write
1240 IF n>ftot% OR n<1:RETURN
1241 flen%=LEN(DFile$(n,1)):slen%=LEN(DDIR$) flen% Filename length slen% SubDIRectory length
1242 IF flen%-slen%>18:flen%=18+slen%
1243 INK#1,fink%(n):CURSOR#1,8+scol%*6,srow%*10 fink% file ink print colour
1244 PRINT#1,DFile$(n,1,1+slen% TO flen%)&FILL$(' ',18+slen%-flen%) Filename - Main Screen
1245 INK#0,5:CURSOR#0,px%,6:PRINT#0,DFile$(n,1):CLS#0,4:IF st%<>1:RETURN Action Window
1246 INK#0,5:CURSOR#0,24,20:PRINT#0,'Select using ←↕→ — Alt ↑↓↵ :CLS#0,4
1247 BLOCK#0,12,3,130,24,5:BLOCK#0,2,4,198,22,5:CURSOR#0,300,6:PRINT#0,DFile$(n,2) File Stats
1248 END DEFINE Use of BLOCK for Spacebar and Return Tail

1250 DEFINE PROCEDURE F_clear Clear marked files
1251 FOR sc=1 TO ftot%:fink%(sc)=5 ftot% File Total sc set clear (ink colour)
1252 fs%=(lptr%*4)+1:fe%=(lptr%+16)*4:IF fe%>ftot%:fe%=ftot%
1253 FOR n=fs% TO fe%:Fscr_posn:F_write fs% file start fe% file end
1254 END DEFINE
```

## 1260 REMark QBITS FTidy File Mangement

1261 **DEFine PROCEDURE K\_Chk**

**Note: INKEY\$ Check**

1262 **REPeat chk\_lp**

1263 k=CODE(INKEY\$(#0,-1))

1264 **SElect ON** k=78,110:chk=0:**EXIT chk\_lp**

**Note: Answer 'n,N' no**

1265 **SElect ON** k=89,121:chk=1:**EXIT chk\_lp**

**Note: Answer 'y,Y' yes**

1267 **SElect ON** k=10:IF cmd=9 OR cmd=10:chk=2:**EXIT chk\_lp**:

**Note: Answer 'Enter' for VIEW &**

**ZIP**

1268 **END REPeat chk\_lp**

1269 **END DEFine**

1271 **DEFine PROCEDURE F\_Copy**

Select Single/Multiple Files

**COPY win1\_boot**

1272 px%=96:mark%=7:nm%=stot%+1:st%=1:**F\_select**:st%=0

1273 **CURSOR#0**,px%,6:PRINT#0,DDIR\$;'File(s) (y/n)':CLS#0,4:fnum=n:**K\_Chk**

1274 IF chk=1:cn%=0:ELSE nm%=1:**F\_clear**:n=fnum:**RETurn**

1275 **FOR** n=stot%+1 **TO** ftot%

**COPY win1\_QBITS\_File(s) (y/n)**

1276 IF fink%(n)=7

1277 cn%=cn%+1:CFile\$(cn%,2)=DFile\$(n,2)

**Note: Copy Stats**

1278 CFile\$(cn%,1)=DFile\$(n,1+LEN(DDIR\$) **TO** LEN(DFile\$(n,1)))

**Note: Copy Filename (less SubDIR)**

1279 **END IF**

1280 **END FOR** n

1281 SD\$=DD\$:SDIR=DDIR\$:TD\$=DD\$:TDIR\$=DDIR\$:F\_**Target**

1282 **END DEFine**

1284 **DEFine PROCEDURE F\_Target**

Select Target DIrectory

**COPY QBITS\_File(s) TO win1\_QBITS\_**  
**Change (D)rive (S)ubDIR (C)OPY File(s)**

1285 **REPeat tag\_lp**

1286 **CURSOR#0**,24,6:PRINT#0,' COPY Files(s) **TO** '&TD\$&TDIR\$:CLS#0,4

1287 **CURSOR#0**,24,20:PRINT#0,'Change (D)rive (S)ubDIR (C)OPY File(s)'

1288 k=CODE(INKEY\$(#0,-1))

1289 **SElect ON** k

1290 =68,100:px%=138:**SeIDrv** :TD\$=DD\$

:REMark **D** (Drive)

1291 =83,115:px%=170:**SubDIR** :TDIR\$=DDIR\$

:REMark **S** (SubDIR)

1292 =67,99:**EXIT tag\_lp**

:REMark **C** (Copy) Exit loop

1293 **END SElect**

1294 **END REPeat tag\_lp**

1295 IF SD\$&SDIR\$=TD\$&TDIR\$:nm%=1:**F\_clear**:n=fnum:**RETurn** :ELSE CLS#0:F\_**Copy2**

1296 **END DEFine**

1298 **DEFine PROCEDURE F\_Copy2**

COPY the selected file(s)

1299 **FOR** n2=1 **TO** cn%

1300 str\$=CFile\$(n2,1):chk=1

**Note: CFile\$(n2,1)=DFI:e\$(n2,1) less SDIR\$**

1301 **CURSOR#0**,24,6:PRINT#0,' COPY '&str\$&' **TO** '&TD\$&TDIR\$:CLS#0,4

1302 **FOR** n1=stot%+1 **TO** ftot%

1303 IF str\$=DFile\$(n1,1,1+LEN(TDIR\$) **TO** LEN(DFile\$(n1,1)))

**Note: Target with same Filename**

1304 INK#0,3:**CURSOR#0**,6,20:PRINT#0,CFile\$(n2,2)&' '&DFile\$(n1,2)

1305 INK#0,5:**CURSOR#0**,340,6:PRINT#0,' Overwrite y/n':**K\_Chk**

1306 IF chk=0:**NEXT n2**

1307 **END IF**

**Note: chk=1 Filename exist 'y=yes' Delete then Copy**

1308 IF chk=1:DELETE TD\$&TDIR\$&str\$:COPY SD\$&SDIR\$&str\$ **TO** TD\$&TDIR\$&str\$

1309 **END FOR** n1

1310 **END FOR** n2

1311 **FileDIR**

**Note: Display Updated Volume Info & Filenames of Target device**

1312 **END DEFine**

```

1314 DEFINE PROCEDURE F_Delete
1315 px%=96:mark%=7:nm%=stot%+1:st%=1:F_select:st%=0
1316 fnum=n:fdel%=ftot%
1317 FOR n=stot%+1 TO ftot%
1318 IF fink%(n)=7
1319 CURSOR#0,96,6:PRINT#0,DFile$(n,1)&' (y/n)':CLS#0,4:K_Chk
1320 IF chk=1:DELETE DD$&DFile$(n,1):fdel%=fdel%-1:fink%(n)=0:Fscr_posn:F_write
1321 IF chk=0:fink%(n)=5:Fscr_posn:F_write
1322 END IF
1323 END FOR n
1324 IF LEN(DDIR$)>0 AND fdel%=0:DELETE DD$&DDIR$:dl%=dl%-1:DDIR$=SubDIR$(dl%)
1325 IF fdel%<ftot%:FileDIR:ELSE nm%=1:F_clear:n=fnun
1326 END DEFINE

```

DELETE win1\_SpaceInvader\_fnt

1328 DEFine PROCEDURE F\_Run(act)

Action Filename EXEC

or LRUN

```

1329 px%=96:mark%=5:nm%=stot%+1:st%=1:F_select:st%=0
1330 CURSOR#0,96,6:PRINT#0,DFile$(n,1)&' (y/n)':CLS#0,4:K_Chk
1331 IF chk=1 AND act=2:EXEC DD$&DFile$(n,1)
1332 IF chk=1 AND act=1:LRUN DD$&DFile$(n,1)
1333 fink%(n)=5:Fscr_posn:F_write
1334 END DEFINE

```

EXEC	win1_progs_darts_v3_obj
LRUN	win1_QBITS_Darts_v3

**Note:** Select OEXE to EXEC Program as a JOB that allows CTRL-C to switch back to SuperBASIC Interpreter. Exit the program cancels the JOB. The LRUN Menu command is not actionable from QBITSFTidySE\_obj.

1336 DEFine PROCEDURE F\_Rename

RENAME win1\_QBITS\_Darts\_v3

```

1337 px%=96:mark%=5:nm%=stot%+1:st%=1:F_select:st%=0
1338 CURSOR#0,96,6:PRINT#0,DFile$(n,1)&' (y/n)':CLS#0,4:K_Chk
1339 IF chk=0:fink%(n)=5:Fscr_posn:F_write:RETurn
1340 INK#0,5:CURSOR#0,px%,6:PRINT#0,DDIR$:CLS#0,4
1341 str$=DFile$(n,1,1+LEN(DDIR$) TO LEN(DFile$(n,1)))
1342 sl%=LEN(str$):cp%=sl%+1:sm%=36-LEN(DDIR$):px%=px%+LEN(DDIR$)*6:Ln_Ed
Filename

```

IF NO Clear Highlight &

```

1343 IF str$="":str$=DFile$(n%,1):fink%=5:Fscr_posn:F_write:n=fnun:RETurn

```

Edit

```

1344 FOR n1=1 TO ftot%:

```

```

1345 IF str$=DFile$(n1,1)

```

```

1346 INK#0,5:CURSOR#0,24,20:PRINT#0,'Filename Exists':CLS#0,4

```

**Note:** Check if Rename

Exists

```

1347 PAUSE 50:fink%(n)=5:Fscr_posn:F_write:RETurn

```

```

1348 END IF

```

```

1349 END FOR n1

```

```

1350 COPY DD$&DFile$(n,1) TO DD$&str$:DELETE DD$&DFile$(n,1):FileDIR

```

```

1351 END DEFINE

```

**Note:** A Filename Change uses Copy and then Delete and does not check the available storage on target device. Please take note if a Large File is being renamed this might lead to the action being rejected and possible loss of Data!.

### 1353 DEFINE PROCEDURE F\_View

```
1354 px%=96:mark%=5:nm%=stot%+1:st%=1:F_select:st%=0
1355 CURSOR#0,96,6:PRINT#0,DFile$(n,1)&' (y/n Enter)':CLS#0,4
1356 fnum=0:K_Chk:IF chk=0:fink%(n)=5:Fscr_posn:F_write:RETURN
1357 CURSOR#0,240,20:PRINT#0,'<SPACEBAR> to continue... <ENTER> to Exit'
1358 CURSOR#0,160,20:PRINT#0,'Bytes: ':CLS#1
1359 OPEN _IN#9,DD$&DFile$(n,1):char%=0:flne%=0:row%=0:fbyts=0
1360 REPEAT View_ip
1361 k$=INKEY$(#9,-1):IF EOF(#9):CLOSE#9:K_Chk:IF chk=2:EXIT View_ip
1362 IF chk=1:PRINT#1,k$;
1363 IF chk=2:CURSOR#1,6+char%*15,row%:PRINT#1,HEX$(CODE(k$),8)
1364 char%=char%+1:fbyts=fbyts+1:CURSOR#0,200,20:PRINT#0,fbyts
1365 IF chk=1 AND char%>=74 OR chk=1 AND k$=CHR$(10)
1366 char%=0:flne%=flne%+1
1367 IF flne% MOD 16=0:IF INKEY$(-1)=CHR$(10):CLOSE#9:EXIT View_ip
1368 END IF
1369 IF chk=2 AND char% MOD 32=0
1370 char%=0:flne%=flne%+1:row%=row%+10
1371 IF flne% MOD 16=0:IF INKEY$(-1)=CHR$(10):CLOSE#9:EXIT View_ip
1372 IF row%>150:row%=150:SCROLL -10
1373 END IF
1374 END REPEAT View_ip
1375 nm%=1:CLS#1:F_clear:n=fnum
1376 END DEFINE
```

VIEW win1\_OBITS\_Darts\_v3

ASCII Printout

HEX Printout

ASCII New Line

ASCII New Page

HEX New Line

HEX New Page

### 1378 DEFINE PROCEDURE F\_ZIP

```
1379 px%=96:mark%=5:nm%=stot%+1:st%=1:F_select:st%=0:ALTKEY 'z'
1380 INK#0,7:CURSOR#0, 24,6:PRINT#0,'COMPILE ':DFile$(n,1):' (y/n Enter)':CLS#0,4
1381 K_Chk:IF chk=0:RETURN :END IF :IF chk=2:RTme=1:ELSE RTme=0
1382 CLS:WINDOW 364,138,72+gx,54+gy:PAPER 208:CLS:BORDER 1,7
1383 CSIZE 2,1:CURSOR 132,20:PRINT 'COMPILER':CSIZE 0,0
1384 CLS#0:CURSOR#0,66,6:QLIB_USE:IF eck=1:Load_Qlib(RTme):eck=0:PAUSE 60
1385 CLS#0:CURSOR#0,66,6:cl%=INT(LEN(DFile$(n,1))/2)
1386 CURSOR 24, 60:PRINT FILL$(' ',18-cl%)&'LIBERATE ':DD$&DFile$(n,1),';';
1387 CURSOR 92, 80:PRINT 'Press ALT-z to LOAD & COMPILE'
1388 CURSOR 56,120:PRINT 'Then CTRL-SPACE & ALT-f for QBITS_FTidySE'
1389 ALTKEY 'z','LOAD '&DD$&DFile$(n,1):'LIBERATE '&DD$&DFile$(n,1)&' ';CHR$(10)
1390 STOP
1391 END DEFINE
```

ZIP win1\_OBITS\_OBITS\_Darts\_v3

**Note:** Select OEXE (y/n Enter) – Enter will Compile with Qlib\_Runtime. QL Platform Requires SMSQ/E O/S and QLIBERATOR Sinclair QL Forum Edition 2020 for QPC2.

### 1393 DEFINE PROCEDURE Load\_Qlib(RTme)

```
1394 add1=RESPR(15064):LBYTES dev$&'Qlib_sys',add1:CALL add1
1395 add2=RESPR(49004):LBYTES dev$&'Qlib_obj',add2:CALL add2
1396 REMark Q_LIBERATOR Settings
1397 IF RTme=0:QLIB_USE dev$,dev$,72+gx,54+gy,"0011010100" :REMark RunTime Off
1398 IF RTme=1:QLIB_USE dev$,dev$,72+gx,54+gy,"0011110100" :REMark RunTime On
1399 END DEFINE
```

**Note:** QLIB\_USE attributes: Load\_Device for QLIB\_OBJ, Load\_Device for QLIB\_HELP, Window x,y coordinates,  
"Option Bits" 1 to 8 - STATS-DEBUG-LINES-NAMES-RUN-AUTO-BEEP-WINDS - [9&10 Reserved].

## 1401 REMark QBITS FTidy Line Editor

**Note:** The Line Editor restricts characters to numeric 0 to 9 [ASCII 48-57], the UPPER/lower-case Alphabet A-z [ASCII 65-90 & 97-122] plus underscore '\_' [95]. Position the character highlight (Underline Ln\_Cur) with Left Right Cursors, then Add (Add\_Chrr) a new or Delete (Del\_Chrr) existing Character.

```
1403 DEFine PROCEDURE Ln_Ed
1404 INK#0,5:CURSOR#0,24,20
1405 PRINT#0,'Edit ← → BkSp (← CTL→) Del ↵ Rtn':BLOCK#0,2,4,198,22,5
1406 REPEAT Ed_lp
1407   Ln_Prn:Ln_Cur:k$=INKEY$(#0,-1):k=CODE(k$)
1408   SELECT ON k
1409     = 10:Str_chk:EXIT Ed_lp
1410     = 48 TO 57, 65 TO 90,95, 97 TO 122:Ln_Prn:Add_chrr
1411     =194:IF cp%>1:cp%=cp%-1:Del_chrr
1412     =202:Del_chrr
1413     =192:IF cp%>1:cp%=cp%-1
1414     =200:IF cp%<sl%+1:cp%=cp%+1
1415   END SELECT
1416 END REPEAT Ed_lp
1417 END DEFine
```

```
RENAME dos2_QBITS_Darts_v3_
Edit ← → BkSp (←CTL→) Del ↵ Rtn
```

ASCII codes available for Filenames  
cp% cursor position

sl% string length

```
1419 DEFine PROCEDURE Str_chk
1420 REPEAT str_lp
1421 IF '_' INSTR str$(LEN(str$))=1:cp%=sl%:Del_chrr:Ln_Prn
1422 IF '_' INSTR str$(LEN(str$))=0:PAUSE 30:EXIT str_lp
1423 END REPEAT str_lp
1424 END DEFine
```

**Note:** Removes any EOL '\_'

```
1426 DEFine PROCEDURE Ln_Prn
1427 IF LEN(str$)>sm%:str$=str$(1 TO sm%):cp%=sm%
length
1428 INK#0,7:CURSOR#0,px%,6:PRINT#0,str$:CLS#0,4
1429 END DEFine
```

```
RENAME dos1_QBPrags_QBConundrum_v3_36
Edit ← → BkSp (←CTL→) Del ↵ Rtn
```

**Note:** Truncate to sm% max string

```
1431 DEFine PROCEDURE Ln_Cur
1432 BLOCK#0,8,1,px%+cp%*6-15,2
1433 END DEFine
```

**Note:** px% x start position

```
1435 DEFine PROCEDURE Add_chrr
1436 IF cp% =1 AND sl%=0 :str$=str$&k$
1436 IF cp%>=1 AND cp%<sl%:str$=str$(1 TO cp%-1)&k$&str$(cp% TO sl%)
1438 IF cp%>=1 AND cp%=sl%:str$=str$(1 TO cp%-1)&k$&str$(cp%)
1439 IF cp%> 1 AND cp%>sl%:str$=str$&k$
1440 IF cp%=sm%:str$(cp%)=k$
1441 IF sl% <sm%:sl%=sl%+1 :ELSE sl%=sm%
1442 IF cp%<sm%:cp%=cp%+1:ELSE cp%=sm%
1443 END DEFine
```

add to string  
add in string  
add one before end  
add to end of string  
change last character

sl% string length sm% max length  
cp% character position

```
1445 DEFine PROCEDURE Del_chrr
1446 IF cp%=sl%:str$=str$(1 TO sl%-1):sl%=sl%-1
1447 IF cp%>=1 AND cp%<sl%:str$=str$(1 TO cp%-1)&str$(cp%+1 TO sl%):sl%=sl%-1
1448 IF cp%=sm%:str$=str$(1 TO sm%-1):cp%=cp%-1:sl%=sm%-1
1449 IF cp%=1 AND sl%="":sl%=0
1450 END DEFine
```

delete end of string  
delete in string  
delete last character  
Null string

## 1452 REMark QBITS FTidy Graphics

```
1454 DEFine PROCEDURE KInfo(ch,col,x,y)
1455 INK#ch,col:CIRCLE#ch,x,y,2:LINE#ch,x,y-1.2 TO x,y:POINT#ch,x,y+.5
1456 END DEFine
```



```
1458 DEFine PROCEDURE KQuit(ch,col,x,y)
1459 INK#ch,col::CURSOR#ch,x,y,-3,-5:LINE#ch,x,y+.25 TO x,y-.8
1460 END DEFine
```



```
1462 DEFine PROCEDURE GDrive(col,x,y)
1463 FILL#2,1:INK#2,col
1464 LINE#2,x-4,y TO x,y+2 TO x+4,y+1 TO x+4,y-1 TO x,y-3.5 TO x-4,y-2 TO x-4,y
1465 FILL#2,0:INK#2,0
1466 LINE#2,x-4,y TO x,y-1 TO x+4,y+1:LINE#2,x,y-3.5 TO x,y-1
1467 LINE#2,x-3.6,y-1.5 TO x-.5,y-2.6:INK#2,7
1468 END DEFine
```



```
1470 DEFine PROCEDURE GFolder(col,x,y)
1471 FILL#2,1:INK#2,col
1472 LINE#2,x-3,y+2 TO x-2.6,y+2.4 TO x-1,y+2.4 TO x,y+2 TO x+2,y+2
1473 LINE#2 TO x+2,y+1 TO x+3,y+1 TO x+2,y-1.8 TO x-3,y-1.8 TO x-3,y+2
1474 FILL#2,0:INK#2,0
1475 LINE#2,x-3,y-1.8 TO x-2,y+1 TO x+4,y+1:INK#2,7
1476 END DEFine
```



**Note:** As an exercise the Graphics below were seen as possible symbols for use with the Pointer Environment.

## 2000 REMark QBITS Pointer Graphics

```
2002 DEFine PROCEDURE KExit(ch,col,x,y)
2003 INK#ch,col:LINE~ch,x+1.8,y+2 TO x-1,y+2 TO x-1,y-2 TO x+2,y-2
2004 LINE#ch,x,y TO x+3,y:LINE#ch,x+2,y+1 TO x+3,y TO x+2,y-1 TO c+2,y+1
2005 END DEFine
```



```
2007 DEFine PROCEDURE GDisk(ch,col,x,y)
2009 FILL#ch,1:INK#ch,col:LINE#ch,x-2,y+2 TO x+1,y+2 TO x+2,y+1
2010 LINE#ch TO x+2,y-2 TO x-2,y-2 TO x-2,y+2:FILL#ch,0
2011 END DEFine
```



Floppy Disk

```
2012 DEFine PROCEDURE GSave(ch,col,x,y)
2008 GDisk ch,col,x,y:INK#ch,0:LINE#ch,x-1,y TO x+1,y
2009 LINE#ch,x-1,y TO x+1.5,y:LINE#ch,x-1,y-1 TO x+1.5,y-1
2010 END DEFine
```



```
2012 DEFine PROCEDURE GLoad(ch,col,x,y)
2013 GDisk ch,col,x,y:INK#ch,0:LINE#ch,x-1.6,y+.5 TO x+1.2,y+.5
2014 LINE#ch TO x-1.6,y-1.6 TO x+1.2,y-1.6 TO x-1.6,y+.5
2015 END DEFine
```



```
2017 DEFine PROCEDURE GCopy(ch,col,x,y)
2018 GDisk ch,col,x,y:INK#ch,0:LINE#ch,x-5,y-.5 TO x+1.8,y-.5
2019 LINE#ch,x-1.5,y+1 TO x-1.5,y-1.5 TO x+1.8,y-1.5
2020 END DEFine
```



```
2022 DEFine PROCEDURE GDelete(ch,col,x,y)
2023 GDisk ch,col,x,y:INK#ch,0:LINE#ch,x-.4,y+1 TO x+.6,y+1
2024 LINE#ch,x-1,y+.5 TO x+1,y+.5 TO x+1,y-1.5 TO x-1,y-1.5
2025 LINE#ch TO x-1,y+.5:LINE#ch,x,y-1.5 TO x,y+.5
2026 END DEFine
```



```
2028 DEFine PROCEDURE GRename(ch,col,x,y)
2029 GDisk ch,col,x,y:INK#ch,0:LINE#ch,x,y+.5 TO x,y-1.5
2030 LINE#ch,x-1.2,y+.5 TO x+1.2,y+.5:LINE#ch,x-1.2,y-1.5 TO x+1.2,y-1.5
2031 END DEFine
```



