



48K Cassette or Disk — Action! cartridge

by Dan Bullok

You are the last Wizard of Akturnis, the strange and mystical world where magic can be worked by anyone with the will to do so. But, in the past few years, people have lost their faith in Wizards and magic. Now the evil **Demon Birds** have begun to plague them, and you are their *only* hope.

To save the people of Akturnis, you must enter the dreaded Valley of Death and destroy all of the **Demon Birds** found there.

Your Wizard starts the game with four lives and fifty units of energy. For every bird you destroy, you will gain two units of energy. However, every time you cast a fireball, you *lose* one unit of energy.

You move your Wizard left and right at the bottom of the screen, using the joystick. You may cast a fireball by pressing the red button while moving in the direction in which you wish it to travel.

Ridding your people of the **Demon Birds** will not be easy. If you are struck by one of the evil birds, or are hit by a meteor from the sky, you will lose one life. You'll also lose a life if your energy reaches zero. Furthermore, the ground in the valley is very unstable, because it sits on top of a pool of lava. If you stand in one place for too long, the ground will open up, and your Wizard will be lost.

#### Disk instructions.

Type in Listing 1 and SAVE it to disk under the filename "D:BIRDS". You must have 48K and the Action! cartridge.

2. Reboot your computer and enter the monitor. Type C "BIRDS".

3. When the disk drive stops, type W "AUTO-RUN.SYS" to save the object code to disk.



4. Whenever you want to play **Demon Birds**, insert the Action! cartridge into the left slot. Insert the disk with the AUTORUN.SYS file into drive one and turn on the computer. The program will load and run automatically.

**Cassette instructions.**

1. Type in Listing 1 and SAVE it to cassette. You must have at least 48K and the Action! cartridge.

2. Reboot your computer and enter the monitor. Type C "C:"

3. When the cassette stops, type W "C:" to save the object code to cassette.

4. Whenever you want to play **Demon Birds**, insert the Action! cartridge into the left slot. Insert the cassette with the object code into the cassette recorder. Turn on the computer and enter the monitor. Type R "C:". The program will load and run automatically.

That's all there is to it. You're ready to do battle with the **Demon Birds**. □

**Action! listing.**

```

;*****
;*
;* Demon Birds *
;* by *
;* Dan Bullok *
;*
;*****
;Data For Player 0
BYTE ARRAY p0={12 12 12 12 4 12 14 30
29 45 13 0 0 0 0 0 0 102 12 12
12 12 4 12 14 14 13 30 12 0 0 0 0
0 0 2 50 12 12 12 12 4 12 14 14
30 12 0 0 0 0 4 4 0 24 12 12 12
12 4 12 12 12 14 14 28 0 0 0 0 0
0 48 6 48 48 48 48 32 48 112 120
184 180 176 0 0 0 0 0 0 102 48
48 48 48 32 48 112 112 176 120 48 0
0 0 0 0 0 64 76 48 48 48 48 32 48
112 112 112 120 48 0 0 0 0 32 32
0 24 48 48 48 48 32 48 48 48 112
112 56 0 0 0 0 0 0 12 96}

;Data For Player 1
BYTE ARRAY p1={0 0 0 4 12 14 30 29
13 12 12 28 28 20 50 34 34 102 0
0 0 4 12 14 14 13 14 0 12 12 12
28 24 20 20 18 50 0 0 0 4 12 14
14 14 14 8 12 12 28 28 8 12 12 8 24
0 0 0 4 12 12 12 14 14 12 12 12
12 12 20 20 18 50 6 0 0 0 32 48
112 120 184 176 48 48 56 56 40 76
68 68 68 102 0 0 0 32 48 112 112
176 112 16 48 48 48 56 24 40 40 72
76 0 0 0 32 48 112 112 112 112 16
48 48 56 56 16 48 48 16 24 0 0 0
32 48 48 48 112 112 48 48 48 48 48
40 40 72 76 96}

;Meteor Data
BYTE ARRAY
ball={60 126 255 255 255 255
126 60},
ball2(8),coordstore(30)

;Character Set
BYTE ARRAY chset=
{0 0 0 0 0 0 0 0
0 32 32 160 168 168 170 170
170 170 170 170 170 170 170 170
0 128 128 128 162 170 170 170

```

```

128 128 128 136 136 168 170 170
0 0 0 0 0 0 170 170
0 0 2 34 42 170 170 170
0 2 2 2 34 42 42 170
0 0 0 2 2 34 42 170
0 5 85 1 1 1 0 0
20 92 85 64 64 64 64 0
0 1 1 1 5 85 0 0
64 64 64 84 92 85 0 0
20 53 85 1 1 1 1 0
0 80 85 64 64 64 0 0
1 1 1 21 53 85 0 0
0 64 64 64 80 85 0 0
252 254 102 102 102 254 252 0
0 0 60 102 124 96 56 14
0 0 254 255 219 219 219 3
0 0 63 102 102 102 60 0
0 0 220 102 102 102 246 7
252 254 102 126 102 254 252 0
24 0 56 24 24 24 62 0
0 0 223 96 96 96 240 0
14 12 252 204 204 204 119 0
0 0 62 96 60 6 252 0
0 195 60 60 60 195 0 0,

```

```

chset2=
{15 31 63 120 120 120 124 127
248 252 252 28 28 28 28 220
127 124 124 126 126 126 126 60
220 28 28 28 28 28 20 20 8
126 126 127 127 121 121 124 124
8 28 28 28 156 156 220 220
126 126 127 127 127 127 127 62
252 124 124 60 60 20 20 8
96 112 112 112 112 112 112 120
0 0 0 0 0 0 0 0
120 124 124 126 126 127 127 63
0 0 0 0 248 236 248
63 127 127 120 112 112 112 120
248 252 252 28 28 28 28 28
120 124 124 126 126 127 127 63
28 28 28 28 28 244 244 248
63 127 127 120 112 112 112 121
248 252 252 0 0 0 0 248
120 124 124 126 126 127 127 63
252 124 28 28 28 244 244 248}

```

```

;Notes for song
BYTE ARRAY notes=
{243 243 162 182 162 182 193 243},
notes1=
{162 96 108 121 108 121 128 162},
dur={10 10 30 6 6 6 10 20},
increase={2 0}

```

```

;y-positions of birds
BYTE ARRAY strafey=
{10 11 12 13 14 15 16 17 18 19 19
19 19 18 17 16 15 14 13 12 11 10
11 12 11 10 11 11 10 10 10 10 10
10 10 10 10 10 10 07 08 10 12
14 16 17 17 18 18 18 18 17 16
15 15 14 14 13 13 13 13 14 14 14
15 15 14 13 12 12 11 11 10 10 09
08 08 08 14 14 14 15 15 15 16 16
17 18 18 18 18 18 18 18 18 18 19
19 20 20 20 20 20 20 19 19 19 18
18 17 17 16 15 15 14 14 14 14 12
12 13 14 15 16 18 19 19 20 20 19
19 18 16 15 14 13 12 12 13 13 14
15 16 17 18 18 18 18 18 18 18 16
15 14 13 12 12 12 14 14 14 14 15
16 16 17 18 18 19 19 19 19 19 18
18 17 17 17 17 17 18 18 19 19
19 19 19 18 17 17 16 15 15 14
14 14 14 14 15 16 16 16 17 17 18
18 18 19 19 20 20 19 19 19 19
18 18 17 17 16 16 15 15 15 15
15 15 14 14 14 14 14 14 14}

```

```

BYTE ARRAY flapinc={1 0}, bexist(10)
BYTE bcount,char1,char2,dieflag,bx,
by,fallx,fally,fallflag,bflap
;Miscellaneous variables
BYTE a,b,c,d,e,x={100},y={154},

```

```

ctr=[0],dir,fx,fy,fireflag,df,
mx=[10],my=[10],chad,men=[4],
memory,gflag=[1]

;Hardware registers
BYTE vcount=54283,colpf0=53270,
colpf1=53271,colpf2=53272,
colpf3=53273,wsync=54282,
chbase=54281,random=53770,
consol=53279,rtclock=20,ch=764

CARD pmbase,ac,bc,cc,vds1st=512,
dli1vec,score=[0],energy=[50]

PROC Dli2()
;Changes color of text window to red
[72 169 68 141 10
212 141 24 208
169 0 141 23 208]
vds1st=dli1vec
[104 64]
RETURN

PROC Dli1()
;Changes color of ground to Brown
[72 169 20 141 10
212 141 23 208]
vds1st=Dli2
[104 64]
RETURN

INT FUNC DeltaX()
;Returns Delta-X value of stick(0)

BYTE aa
INT xx

aa=stick(0)
IF aa>12 THEN xx=0
ELSEIF aa<8 THEN xx=1 dir=80
ELSE xx=-1 dir=0
FI
RETURN(xx)

PROC Center(CARD cnum
            BYTE basx,basy)

;right-justifies number
IF cnum<10 THEN
  Position(basx,basy)
  PrintD(6,"0")
ELSEIF cnum<100 THEN
  Position(basx-1,basy)
  PrintD(6,"0")
ELSEIF cnum<1000 THEN
  Position(basx-2,basy)
  PrintD(6,"0")
ELSE
  Position(basx-3,basy)
  PrintD(6," ")
FI
PrintCD(6,cnum)
RETURN

PROC Delay(CARD cnt)
;Delay Loop

CARD cnt

FOR cnt=1 TO cnt DO OD
RETURN

PROC PMove(CARD pm,add
           BYTE plr,px,py,pix)
;Moves Player
;Variables passed:
;pm: address of pmbase
;add: address of source image
;plr: # of player to move 0-3
;px: x-position of player
;py: y-position of player
;pix: number of bytes to move

px==+48
py==+32 ;add screen margin offsets
ac=pm+1024+plr*256 ;add work space
Zero(ac+py-5,pix+10) ;clear area out
MoveBlock(ac+py,add,pix)
Poke(53248+plr,px)
RETURN

PROC BirdPos
  (BYTE xpos,ypos,char1,char2)
;Puts two bytes, char1 & char2
;at xpos, ypos on screen

CARD scmem=88

ac=scmem+xpost+(ypos*40)
Poke(ac,char1)
Poke(ac+1,char2)
RETURN

PROC Song()

FOR a=0 TO 7 DO ;eight notes in song
  b=notes(a)
  c=dur(a)
  d=10
  e=notes1(a)
  FOR ac=1 TO c*40 DO
    IF ac MOD 100=0 THEN
      d=-1 ;decrement volume
    FI
    Sound(0,b,10,d)
    Sound(1,e,10,d)
  OD
  Sound(0,0,0,0)
  Sound(1,0,0,0)
OD
RETURN

PROC Init()
;Initialize chset,pmg & playfield

Poke(106,memory) ;reset top of memory
Graphics(0)
Poke(559,0) ;turn ANTIC off
;Display List
ac=PeekC(560)
FOR a=6 TO 24 DO
  Poke(ac+a,4) ;IR Mode 4
OD
Poke(ac+25,164) ;DLI & VSCROLL on
Poke(ac+26,164)
Poke(ac+27,34) ;VSCROLL Set
Poke(ac+28,34)
;colors
Poke(706,30)
Poke(707,14)
Poke(708,68)
Poke(709,12)
Poke(710,128)
Poke(712,128)
Poke(752,1) ;cursor off
Poke(82,0) ;Left margin-0
;Character Set
a=Peek(106)-8
chad=a
Poke(106,a)
Poke(756,a)
FOR ac=0 TO 1023 DO
  b=Peek(57344+ac)
  Poke(a*256+ac,b)
OD
MoveBlock(a*256+512,chset,224)
MoveBlock(a*256+776,chset2,160)
;Player Missile graphics
a=-16
Poke(106,a)
Poke(54279,a)
Poke(53277,3)
Poke(623,52)

```





```

PROC NewMan()
;Materialize New Wizard
Zero(pmbase,2048)
Poke(704,70) Poke(705,70)
FOR a=0 TO 100 STEP 2 DO
  FOR b=0 TO 7 DO
    ball2(b)=ball(b)&random
    Sound(1,a+a,8,a/10)
  OD
  PMove(pmbase,ball2,0,a,y,8)
  PMove(pmbase,ball2,1,200-a,y,8)
OD
Zero(pmbase,2048) ;clear pm area
b=10
;Materialize man
FOR a=0 TO 20 STEP 2 DO
  b=10-a/2
  PMove(pmbase,p0+b,0,100,y+b,a)
  PMove(pmbase,p1+b,1,100,y+b,a)
  Poke(704,30-a/10)
  Poke(705,140-a/2)
  FOR c=0 TO 100+a*6 DO
    d=255-c
    Sound(1,d,10,10-a/2)
  OD
OD
Sound(1,0,0,0)
Poke(704,20)
Poke(705,130)
x=100
y=154
fireflag=0
rtclock=0
RETURN

PROC Die()
;Death of wizard
;Puts player data in Missile area
;and blows player apart into 4 pieces

BYTE ARRAY image(20)

Poke(704,14)
Poke(705,14)
;Spins player around
FOR a=0 TO 15 DO
  PMove(pmbase,p0+40,0,x,y,20)
  PMove(pmbase,p1+40,1,x,y,20)
  Delay(1000)
  PMove(pmbase,p0+120,0,x,y,20)
  PMove(pmbase,p1+120,1,x,y,20)
  Delay(1000-a*30)
  Sound(0,155-a*10,10,a)
OD
SndRst()
Zero(pmbase,2048)
FOR a=0 TO 20 DO
  image(a)=p0(a)*p1(a) OD
FOR a=0 TO 20 DO
  image(a)=image(a) RSH 1 OD
MoveBlock(pmbase+800+y,image,20)
Poke(711,14)
;blows player apart
FOR a=0 TO 100 DO
  Poke(53254,x-a+48)
  Poke(53253,x-a/2+48)
  Poke(53252,x+a/2+48)
  Poke(53255,x+a+48)
  Sound(0,a/3,8,a/12)
  Delay(a)
OD
SndRst()
RETURN

PROC Move()
;move wizard
ctr==+20 ;image counter
IF ctr=80 THEN
  ctr=0 ;reset counter if too big
FI
x=x+DeltaX()
IF x<10 THEN x=10
ELSEIF x>142 THEN x=142 FI
IF DeltaX()=0 THEN
  ctr=-20 ;if player is not moving
  Delay(250)
  IF ctr>60 THEN ctr=60 FI
  ;If player stood still too long,
  ;Make him sink in the mud
  IF rtclock>80 THEN
    Birdpos(x/4-1,21,0,0)
    Birdpos(x/4+1,21,0,0)
    SndRst()
    FOR c=0 TO 24 DO
      PMove(pmbase,p0,0,x,y+c,26-c)
      PMove(pmbase,p1,1,x,y+c,26-c)
      Delay(3000)
      Sound(0,c+150,10,5)
    OD
    Sound(0,0,0,0)
    dieflag=1
  FI
  ELSE
    Poke(20,0)
    PMove(pmbase,p0+ctr+dir,0,x,y,20)
    PMove(pmbase,p1+ctr+dir,1,x,y,20)
  FI
  IF ctr=40 AND DeltaX()#0 THEN
    ;click feet
    Poke(53279,0)
    Poke(53279,8)
  ELSE
    Delay(250)
  FI
  IF fireflag THEN
    CntFire()
  ELSEIF Strig(0)=0 THEN
    fireflag=1
    fx=x/4+1
    fy=20
    df=DeltaX()
    energy=-1
  ELSE
    Delay(300)
  FI
  RETURN

PROC GetReady()
Graphics(18)
Position(5,5)
Print(6,"GET ready")
Poke(623,4) ;players behind playfields
Poke(53277,0)
FOR ac=1 TO 20000 DO
  wsync=0
  colpf0=128-vcount+rtclock RSH 2
  colpf1=vcount+rtclock RSH 2
OD
RETURN

PROC MainLoop()
BYTE mcount,lum

;Infinite Loop
DO
  ;7 player moves to one bird move
  FOR mcount=1 TO 7 DO
    IF random(10 AND fallflag=0 THEN
      fallx=Rand(140)+10 ;drop meteor
      fally=10
      fallflag=1
    ELSEIF fallflag THEN
      fally=-+5
      fallx=-+Rand(5)-2
      FOR b=0 TO 7 DO ;random ball
        ball2(b)=ball(b)&random OD
      PMove(pmbase,ball2,2,fallx,
        fally,8)
      Sound(0,fally,8,fally/10)
      IF fally>170 THEN ;hit bottom?
        fallflag=0
        Zero(pmbase+1536,256)
        Sound(0,0,0,0)
      FI
    FI
    Poke(53278,1) ;hitclr

```

```

Move()
Poke(711,random) ;flash bird eyes
;kill wizard
IF energy=65535 OR Peek(53252)=1
OR dieflag#0 OR Peek(53262)#0
THEN
men=-1
energy=20
SndRst()
;Turn birds off
FOR e=0 TO 5 DO
  bexist(e)=0
  BirdPos(coordstore(e),
  coordstore(e+10),0,0)
OD
IF men=0 OR men>10 THEN
gflag=0
EXIT
ELSE
IF dieflag THEN
dieflag=0
ELSE
Die()
FI
rtclock=0
GetReady()
Init()
Newman()
Poke(20,0)
FI
FI
OD
IF gflag=0 THEN
EXIT
FI
;Shake earth
e=Rand(4)
Poke(54277,e)
b=Rand(10)
Sound(1,50+b*20,8,e+3)
y=154-e
PMove(pmbase,p0+ctr+dir,0,x,y,20)

```

```

PMove(pmbase,p1+ctr+dir,1,x,y,20)
;If a bird isn't on screen,
;put it there if random<30
FOR e=0 TO 5 DO
  IF bexist(e)=0 AND random<30 THEN
  bexist(e)=1
  IF e MOD 2=0 THEN
  coordstore(e)=0
  ELSE
  coordstore(e)=39
  FI
FI
OD
;Center score and energy
Center(score,13,22)
Center(energy,14,23)
Position(31,22)
Print("0")
PrintC(men)
;Start Key ends the game
;Option Key stops the program
;Any key pauses game
IF consol=6 THEN
EXIT
ELSEIF consol=3 THEN
Poke(106,memory)
Graphics(0)
Break()
ELSEIF ch#255 THEN
ch=255
WHILE ch=255
DO OD
ch=255
rtclock=0
FI
;Move all 6 birds
FOR bcount=0 TO 5 DO
  bx=coordstore(bcount)
  by=coordstore(10+bcount)
  BirdPos(bx,by,0,0)
  IF bexist(bcount)=1 THEN
  bflap=coordstore(20+bcount)
  char1=201+bflap+bflap+4*
  (bcount MOD 2)
  char2=char1+1
  bflap=flapinc(bflap)
  coordstore(20+bcount)=bflap
  bx=+increase(bcount MOD 2)-1
  IF bx=40 THEN
  bx=0
  FI
  IF bx=255 THEN
  bx=39
  FI
  coordstore(bcount)=bx
  by=strafey(bcount*40+bx)
  by=by
  coordstore(10+bcount)=by
  BirdPos(bx,by,char1,char2)
  FI
OD
OD
RETURN

```

```

PROC Game()
memory=Peek(106) ;Get top of memory
DO
;reset variables
men=4
score=0
energy=50
Init()
Title() ;Title screen
Init()
Song()
Newman()
Mainloop()
;play song when game is over
Graphics(17)
Poke(712,134)
Poke(623,4)
Poke(53277,0)
Song()
GameOver()
OD
RETURN

```

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