

RADGEN - Rad to Genesis Converter!

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RAD is a format exclusive to Atari and should be considered proprietary,  
(like anyone in their right mind is going to steal it). Rad files contain  
various pages (screens) with definitions of cells (pictures/animation frames).  
Rad files have the extension of \*.rad

DPAINT is the dpaintii / dpaint enhanced format generated by Electronic  
Arts Dpaint series and is currently the most popular tool among entertainment  
software artists. A dpaint file usually has an extension of \*.lbm

----- OVERVIEW -----

RADGEN is a PC compatible utility with TWO functions.  
The first simple function is as a RAD FILE / DPAINT viewer.  
The second is a ripper/extractor which converts files to genesis formats.

REQUIRES - TRUE PC compatible, 640 k of ram, 286 or better, VGA card is nice...

===== VIEWER =====

To invoke the viewer, call radgen followed by the filename. If no extension  
is given, radgen assumes it is a rad file. So, for example....

RADGEN TITLE.RAD ; Shows the rad file title.rad  
RADGEN INTRO.LBM ; Shows the dpaint file intro.lbm

Radgen also accepts some extra command line parameters. Some of these are...

EGA 320\*200\*16 color EGA mode  
VGAHI 640\*480\*16 color VGA mode  
VGA 320\*200\*256 color VGA mode (DEFAULT)  
SVGA 640\*480\*256 color SVGA mode (REAL SLOW! -- uses BIOS)  
GMODE=num experimental! set num = number of goofy graphic mode for int 10h-

FAST Eliminates Keypress Wait command  
BIOS Uses bios commands for all graphic output- REAL SLOW!  
INFO Display misc info on file.  
BOX turn off box display around cells  
DEBUG Turns on misc debuggers with odd informaton  
NOFATAL Tries to continue DESPITE fatal otherwise fatal error!

ADDITIONALLY (and you thought it could not get any better), radgen also has  
extra features for .RAD files with Cell definitions. Among these are..

CELLS Display all cells in order  
C1 Display cell 1  
C1,5 C2,5 Display cell 1 for 5 clicks, cell2 for 5 clicks,  
C1,5 C2,5 C3,5 CLOOP Display cell 1-3, and repeat (cloop = restart line)

Using these features you can preview animation and tweak timing, a click is  
1/60th of a second-

WARNING - If the cell is from a different page, then the timing will not be

accurate since RADGEN needs some time to load up a different page-

```
===== SCRIPT MODE  RIPPER  CELL PROC EMULATION =====
This portion of the radgen tool was originally patterned after CELPROC, an
ATARI internal tool which processed rad files.
```

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IN GENERAL...

RADGEN reads a "script" file (\*.opt is typical) which gives it a series of commands to read certain .rad/.lbm files, rip them into 8\*8 characters, output a character definition file (binary file \*.o) and cell/screen/sprite definition source file.

Additionally it does things like look for repeating characters, flip horizontal/vertical characters, rip horizontally/vertically, shrink sprites down to smallest size, left/right/up/down justify and lots of other little dinky things.

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Codewise, RADGEN sets up a virtual screen 640\*512\*256 colors. It loads in the appropriate screens/pages into the virtual screen. Cells are defined and ripped all out of the virtual screen. Anything seen on the display screen is MERELY INFORMATIVE, so visual uglies are possibly irrelevant, but things can be learned by watching how much of something is ripped.

A typical .opt file looks something like this...

```
outline = *This is a comment line for the output file..
order = v      ; do things in vertical mode
noreduce = 1   ; don't reduce!
file = test.rad ; which rad file to rip mobs from!
mobs = 1,2,3,4 ; rip these mobs
savechar      ; save out results in charset (not needed, but nice);
```

And now the list of commands- (this will probably grow in time )  
FILE = filename Rad file to read in

```
ASMOUT      Save chars as dc.w file!      (still .o extension)
CHARSOFF    Turn off save flag for chars
CHARSON     Turn on SAVE flag.           (default)
ASMOFF      Turn off assembly output (text file).
ASMON       Turn on assembly output. (default)
OUTPUT = filename filename for output files (default = .opt filename)
ORDER = V   V for vertical rip, H for horizontal rip. H = default.
LABEL = 5,CELL Labelname for cell list cell number appended to name.
OFFSET = num Additive offset to character numbers.
BLANK = num  predefined BLANK character (OFFSET NOT INCLUDED!)
OUTLINE =   Text Line copied directly to output .asm!
MACRO = filename Loads up textfile into beginning of .asm file
              (presumably a macro definition file)
MACNAME =   Label to put at begining of macro cell definition.
            CURRENTLY CELL DEFINITION FORMAT LOOKS LIKE THIS      v 0.8
# of xcells, x offset to data, # of ycells, y offset to data,
```

original size x pixels, original size y pixels, shrunk xsize, shrunk ysize,  
xoffset to data to CENTER coords, yoffset to data to CENTER coords.

.eg

.OPT1 \$27,\$00,\$1b,\$00,320,224,319,223,\$a0,\$70

NOCOM - No comments won't output any line that would begin with "\*" to asm  
RESETALL - Reset's all vars, closes all files! Allow multiple rips  
in same opt.

---- Palette Manipulation & data saving

FFPAL = FPALNAME Labelname for palette definition (0-ff palette, rgb!)  
SEGAPAL = SPALNAME Labelname for SEGA PALETTE!  
PALOFFSET = num Additive offset to palette set.  
FORCEPAL = num Force all characters to palette #num.  
ONLYPAL = num Only rip data from palette #num - for 32 color pics.  
RIPSEQ = 1 Rips all sprites from sequence #1...  
PALFILE = FILENAME ; output palette info to separate file!

--- Justify defaults to CENTER and should not need to be overridden.

justify = l (r) Left/Right Justify rip- very confusing!

justify = t (b) TOP/Bottom Justify rip- very confusing!

Justify defines where ripping of shrunk square begins.

(in other words, where excess slop of 8\*8 cells won't go).

In left justify mode, ripping will start exactly at first left data.

In right justify mode, ripping MAY start earlier at left to data STOPS  
exactly on right side.

For a complete explanation, rip a cell with doodle on and slow and  
vary the justify.

--- Ripping commands

MOBS = 1:4,7 rip a MOB from 1 to 4, and then 7 (1,2,3,4,7)

CEL = 1,3:5 rip a screen 1, 3-5 (1,3,4,5)

savechar Save out character file. (if radgen finishes without  
finding this, it will save automatically- so not necessary)

--- DPAINT/LBM COMPATIBILITY COMMANDS

LBMSCREEN = filename LBM screen to read in. cell #1 is entire screen.

LBMCELLS = filename LBM file which CONTAINS CELLS BOXES OF BOXCOLOR!

BOXCOLOR = num LBM compatibilty- color of boxes around cells in dpaint.  
(default = 255)

LBM CUT = x,y,xsize,ysize

LBMSCREEN must already be defined= Used to cut HUGE lbm screen

xsize & ysize must NOT exceed 640 \*512

XOFF=num used for show to show into a HUGE lbm file

YOFF=num radgen huge.lbm xoff=320 yoff=0 vga ; shows starting at 320

----- Debugger misc info commands -----

NONE NO GRAPHIC OUTPUT! (default)

EGA 320\*200\*16 color EGA mode

VGAHI 640\*480\*16 color VGA mode

VGA 320\*200\*256 color VGA mode

DOODLE Turns on doodle mode - display misc cutting stuff

INFO Display misc info on file.

FAST Eliminates Keypress Wait command

BIOS Uses bios commands for all graphic output- REAL SLOW!

SHOWCHAR = num Display entire charset so far at 0,num.

PAUSE Wait for a keypress at this moment.

CLEARSCREEN Clear the screen.  
BOX Turn off boxes around cells -- doodle stuff  
SLOW Pause between cell rips  
NOFATAL Tries to continue DESPITE otherwise fatal error! No promises!  
(dangerous since will override disk errors, handy for corrupted files)  
SEQ=1,8 Displays RAD animation #1, with delay of 8 (0 for key press)

==== CELLPROC COMPATIBILITY COMMANDS! Not necessary, but they're there.  
NOREDUCE = num Set to 1 to stop reducing (redundant reduction) -  
Automatically selected by MOBS CELS command. If mixing  
CEL rips and MOB rips in same file, use this to declare FOR SURE!  
vflip= 4096 (default = 4096) Assign vertical flip bit 0 = disable vflip  
hflip= 2048 (default = 2048) horizontal flip bit. 0 = disable hflip  
PALFLAG = 13 (default = 13) Shift value for palettes usually 13.  
nooutput = Completely ignored- but does not cause error!  
FORMAT = 2 Better say 2 or it chokes!

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--- RIPSEQ addendum.

RIPSEQ #

First, radgen interprets the sequence, and rips all unique cells.  
All cells are numbered in ORDER ripped, starting with 0.

The radgen generates a special set of labels, call  
SEQ#\_LAB

followed by a list of sequence cell pointers.

The list is terminated by \$ffffffff.

If using this command, radgen generates a sequence lookup  
table that looks like this.

```
frame00  lots of data
frame01  lots of data
frame02  lots of data
frame03  lots of data
```

```
SEQ3_BAT04
dc.l frame00,frame01,frame02,$ffffffff
```

```
frame04  lots of data
frame05  lots of data
```

```
SEQ5_BAT04
dc.l frame00,frame04,frame05,frame06
dc.l $ffffffff
```

The label ("frame") is from the label command, or defaults to CELL.

The "extension" after the underscore is generally the "opt" file, unless output has been overwritten in some strange way!

=====  
Revision/Version list...  
=====

0.4- 0.8 Prototype- 12/92  
Probably has lots of little problems, but does support dpaint,  
lots of little problems.  
=====

v 0.81 1/4/93  
hflip = 0/ vflip = 0 Horizontal Vertical flip disable while still matching.  
Pal # saved in cell macro as last item.  
Bug in DPAINT read fixed (didn't work with odd offset chunks).  
SVGA mode added - Well, it works on MY CARD.  
ALSO GMODE command to try different video modes- .eg  
GMODE=18 GMODE=96  
uses Gmode to determine what to call int10h with when initializing graph mode.  
=====

version .85  
LBM now saves more than 1 palette.  
PALFILE command added to allow palette output to new file.  
Minor modification in formatting of Palette assembly output.  
LIMIT ON MAXIMUM CHARACTERS -- 0xc00 = 3000 chars!  
Error message accordingly - But stumbles through  
1st try at tracking characters with BAD COLOR DATA -eg  
8\*8 character contains more than 1 palette.  
=====

version .9  
Now handles HUGE lbm files-  
LBM CUT command added Rips from coordinates.  
XOFF= command added for viewer  
YOFF=  
Improved error tracking and reporting.  
- keeps track of inexact palettes, incorrect data, etc.  
Fixed major bug with LBMCELL LBM MOB commands!  
Display SIZE info.  
NOFATAL added- to stumble through corrupted files.  
=====

version .95  
Display Animation Cell stuff now working for LBM files!  
CELLS & c1,8 c2,8 c3,8 etc  
charson/charsoff command added.  
asmon/asmo command.  
Adjusted borders decisions to INCLUDE cell edges before shrinking.

Fixed problem with inexact palette error reporting  
Fixed problem with char data file including 1 extra character.  
Memory adjustment so massive memory not needed for viewing.  
Now - about 420k needed for viewing, about 520 needed for ripping.

=====

version.96

MAXCHARS now defined as function of available memory-  
with 600k free MAXCHARS is about 4000.

Bug with output= command fixed.

Bug with LBM screens (sizing in .95 caused problems )  
anim command added.

.96f

Mike- Special version- Fixes even 8 pixel boundary problem with cells!

.97

FORPETE enhanced, and (this is cool), rips can occur WITHOUT opt files!

type radgen opt (then a list of opt commands!)

Of course, lines over 100 chars don't work, and no spaces allowed in args-  
Palettes saved out ALWAYS = 4.

Screen cleared after all display types

MAX CHARS set to 4000 on big memory machines.

.98

"JITTERY" Rip now fixed. Offsets should be kosher now.

Cells display now skips blanks, only exits with "esc" key (wraps correctly).

SEQ command (replaces old ANIM command) - works properly.

RIPSEQ command added.

.98r Multiple RAD files page reading error fixed. For Richard!

.99

RESETALL command added for multiple rips in 1 opt file.

Improved character usage reporting!

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.99c

outfile command now closes existing file, allowing multiple asm files using  
one charset.

CUTALL command added- cut every mob-

Special PRIORITY bit flip- if a character contains a "\$40" color pixel,  
\$8000 is added to char causing a high priority background char.'

.99d - allow palname=NONE disables pal output!

.1000 - scary! Now allows as many chars as memory can handle, (about \$1400)  
on my machine.

.100 - Closer- Now really should work with over \$800 characters!