



THE MAKING OF: HIGHPAL LOOKUP TABLES

By: Derek McPherson



Greetings, I'd like to structure this rather loosely. More like the story of how I went about making the Highpal table for WGR2 than a real tutorial. Hopefully you come out of this with an understanding of how to apply some new found knowledge to your project. Let's begin.

First and foremost; I hope you've at least glanced through the required reading list on the wikipedia page. I've copied it here for good measure:

<http://wiki.eduke32.com/wiki/Highpallookup>

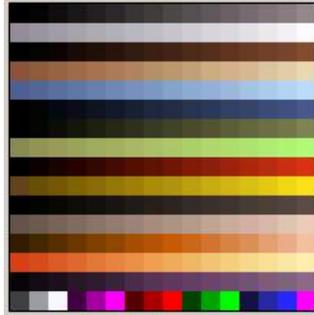
Ok, from this point I'm assuming that you've good grasp on con and def language as well as running an evaldraw script. And you best be able to make / rotate / crop / resize canvas / index an image file and you need to be able to capture perfectly sized screenshots of evaldaw. I used Fraps. Pretty much stop here if you're lost cause I'm crossing into the deep end soon.

Let's begin for reals. Duke3D uses 8-bit art tiles right? Each of these tiles all are made using a specific palette range of colors. 256 colors to be exact. Duke has 5 or 6 palettes in total one for the base gameplay, that's the main one all art uses. Then it has a seperate palette for the logo screen and title and animations. These are not used too often. But there are two others that are very important. The water palette and night vision. You can use certain programs to make or adjust 8 bit palettes,

<http://forums.duke4.net/topic/3129-duke-nukem-3d-modding-tools/>

In my specific case I came into modding a game that already existed. WGR2 had it's own unique palettes compared to Duke. With the

advancement of the TC to use models and more 32 bit art, next came the need (in the form a request by one Micky C) for a highpal lookup table. As I write here, with the knowledge I've gained by doing this, I'm not sure if there would be any other way to define the quad damage effect, as it's not just a new pal that's being applied but a whole new palette. sorry, sidetracked. As I was saying, I've got a different base palette to start from so lets look at it.



Now you may say to yourself, "Wait, where'd that come from?" and I'd say "Wait, and I'll tell you." Haha. I'm sure there's more than one way to get these palettes, my way is not prfect, nor is it the best. That said it works perfectly for me. :)

STEP 1>

I used The Build Cusomization Suite by The JonoF. I ran it with my palette.dat and lookup.dat in the folder. It gave me 5 d3d****.pal files and game.pal.

STEP 2>

Here I had some trouble, how to view my .pal files. Like always I open a new small filetype with notepad++, cause that's how I roll. It looks quite interesting and I'm about to ramble on again so consider yourself warned.

```
JASC-PAL
0100
256
```

If one opens a .pal in a text editor you'll notice these three lines at the top. They declare the file type and the amount of colors it contains. It goes on to list in order r,g,b values of each color in order from top left > bottom right, to be structured in a way that it is 16 X 16 pixels for the full 256 color range. Duke and Eduke are both hardcoded so that the last row (or the last 16 lines) of a palette are fullbright pixels, these are ignored in our highpal table.

STEP 2>

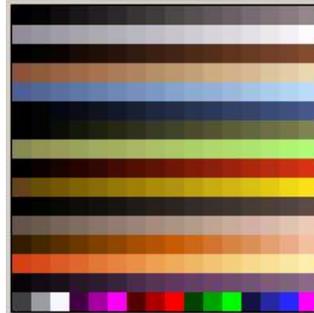
Ok, lets see our palette. Get the gimp (2.8 right now), open it, under window select dockable dialogs > palettes there is a little arrow

under the close x button that leads to a pop up menu, select palette menu then import palette > from file

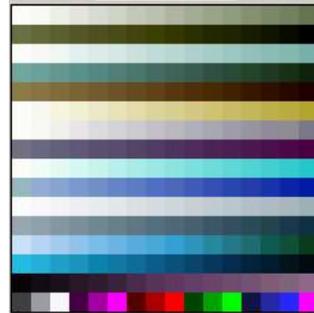
Here are all my base (pal 0) Palettes

{Note the difference between palette and pal, pals are like oh, pal 2 red cool. palette is like oh, we're underwater now switch to special palette.}

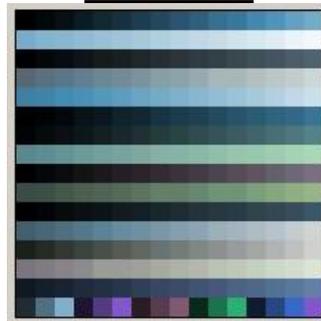
GAME.PAL



INVIS.PAL



WATER.PAL



These are imperfect raw screenshots I snagged using the snipping tool, not yet what we need but we are on our way. I hope you've run Craidfatemans evaldraw script (clutstat) with the original duke palette, if not do so now I'll help walk you through it.

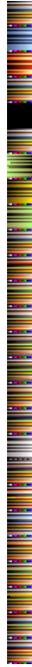
STEP3>

Run evaldraw.exe, press esc, click open .kc file, navigate to clutstat open clutstat2.kc, at this point the script should be on the screen, taking up most/all of the window, you can move the text window around

inside the evaldraw window, I move it down to the bottom out of our way, interesting stuff in there, we don't need to understand exactly what's going on to use it. Anyways, your screen should look like this, maximize it.



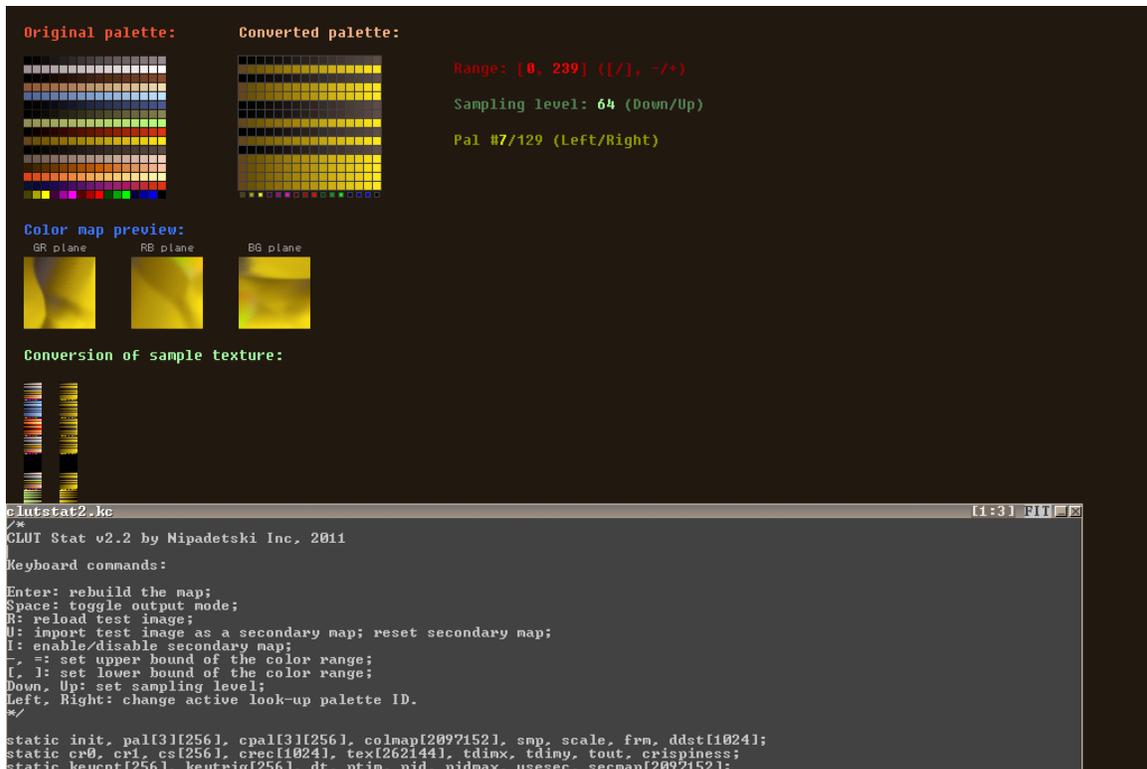
We need to load up our pal strip, what do you mean you don't know what a pal strip is? I'll show you, no worries ;)



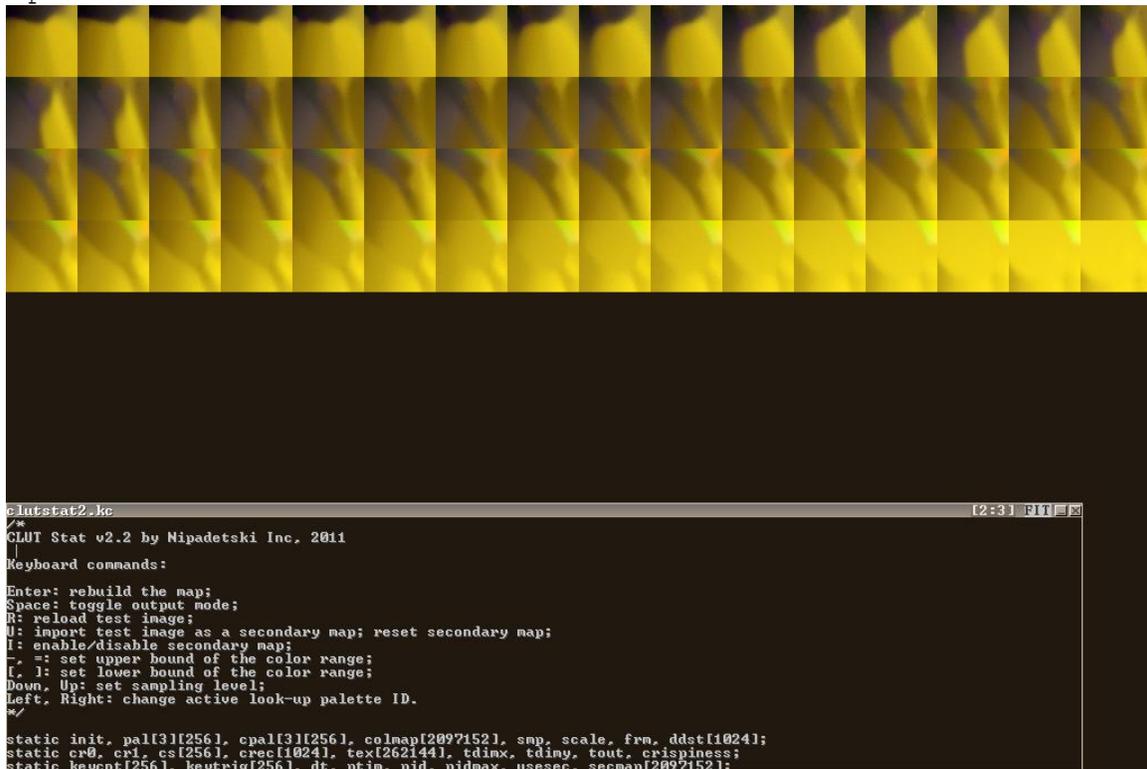
This is the pal strip I made based on the WGR2 palette, I made this ass backwards using the color picker tool and going over dukepals.bmp which comes with clutstat. I first precisely reduced my game.pal to a 16 x 16 image, defined it as a sprite and took a picture of it as each pal. What? dID I jump around again? Opps.

```
Back to evaldraw,  
you'll want to test now,  
just load up  
dukepals.bmp,  
PRESS CTRL-P to load a pic.  
PRESS CTRL-ENTER to recompile on the fly (EVALDRAW ROCKS)
```

Now you see this yes?



Now press SPACE



Yes sir, you've just made a highpal lookup table for pal 7. Cool!

But just wait it's supposed to look like this no?



Ya, we've only just begun.

(NOTE: I have a nice 1024 x whatever screen res, perfect for easy cut and paste editing of these results, I did it once recorded as a photoshop action. Rinse and repeat FTW!!)

STEPS 8, 9, 10^

I hope you kinda know what your doing now. Cause here we go, short and sweet, no more BS, starting.....NOW!

STEP 1 > RIP

Rip your palettes from your palette.dat and lookup.dat via BCS

STEP 2 > CONVERT

Convert your .pals to perfect 16 X 16 palettes
* .pal to gimp to screenshot to image editor

STEP 3 > DEFINE

Define your newly made 16 X 16 palettes as tiles using tilefromtexture

STEP 4 > HUD CON

In a screen drawing event use rotate sprite to draw your sprite on screen.

STEP 5 > PHOTO

Run Duke32 software windowed 320 X 200 take pixel perfect screenshots of all pals all palettes.

**use a version of duke using your palette

STEP 6 > PAL STRIPS

Image editor > cut and paste pal strips.

***carefully, 16 pixels wide by multiples of 16 high

STEP7> EVALDRAW

Now, if you've got your own pal strip made you need to make the Evaldraw script recognize it. You can do this one of two ways, name it dukepals.bmp and overwrite the original or edit the script to get your image. See lines 25, 28, 291.

GOOD LUCK!!!!

Derek