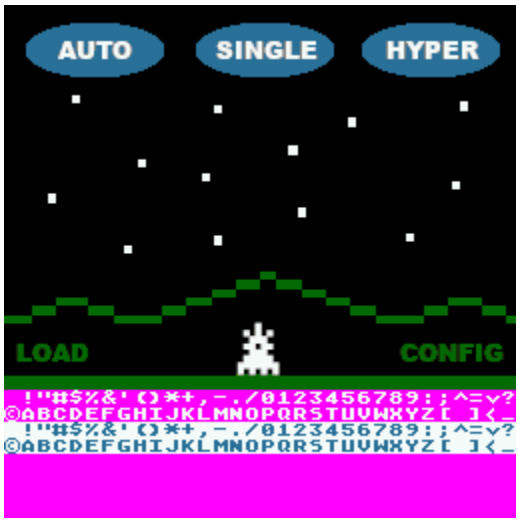
NINTELLIVISION – CUSTOM OVERLAY GUIDE **v1.1**

With the Nintellivision DS emulator, custom overlays can be used to produce any graphical layout you wish on the bottom (touch) screen. This layout also contains “hotspots” where you can define what happens when you press that area of the screen – usually this is an Intellivision controller keypad button (0-9, Clear or Enter) or it can be a “meta” key like showing configuration, loading a new game or other menu options.

Here is an example graphic overlay that is included with the emulator to show you how a custom overlay works. It won’t win any style awards – but it’s effective in showing you how to create your own overlay.



This graphic is 256x256 pixels... although the usable area is only 256x192. The pink/white stuff below the 192 mark is the font that is used to render info/error messages on screen. So you only have the top 256x192 to use as your overlay. This maps 1:1 with the DS lower screen resolution of 256x192.

You can change the upper pixels in any way you desire. GIMP is the recommended paint tool to manipulate this graphic. With GIMP you can also change the 256 color palette. While you only get 256 colors, they can be any 256 colors you desire which will render most images reasonably well on the little DS screen.

It is recommended you start by renaming a sample graphic overlay (.png file) when starting your new custom overlay.

If you import an image into GIMP, you will need to use the Image menu to change the image type to 256 Color Indexed.

To make things easier on the emulator, this graphics file must be turned into a .ovl overlay file. The .ovl file contains both the graphics characters (in tiled form which makes rendering to the screen fast and efficient) along with the “hotspots” that define what happens when you touch areas of the graphic on screen.

Warning: this graphic must be saved as 8-bit PNG – basically don't change the file format of the existing example images you have been given as a template. It is recommended to use the GIMP "Overwrite" from the file menu so nothing gets changed.

Once you have your 256x256 8-bit PNG custom graphic file, you must pass this through an open source tool that will run on Windows or Linux. It's included in the 'extras' that this manual came from. Open a command prompt and run GRIT on the new graphic file as follows:

```
grit astrosmash.png -o astrosmash.s -gt -mrt -mR8 -mLs -gzl -mzl
```

Now that will generate 2 files... astrosmash.s and astrosmash.h - only only need the .s file which will be renamed to .ovl – this file contains the compressed graphics that is *almost* in the right format for the emulator. We will need to touch up some of the output before it can be used.

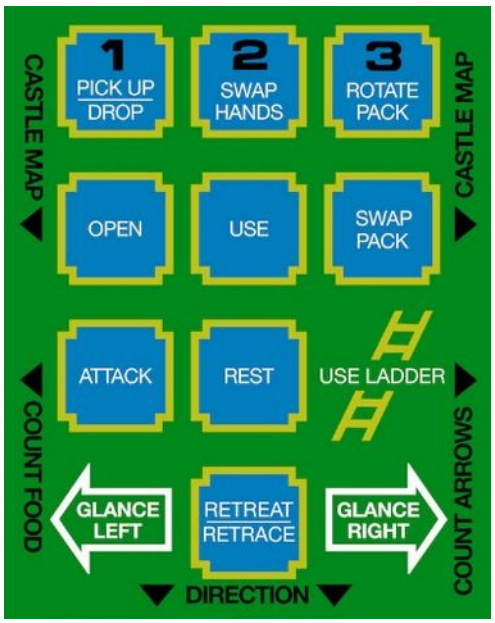
Open the new astrosmash.s (rename it to astrosmash.ovl at some point or whatever the name of your game .ROM is called) and perform some edits on it.

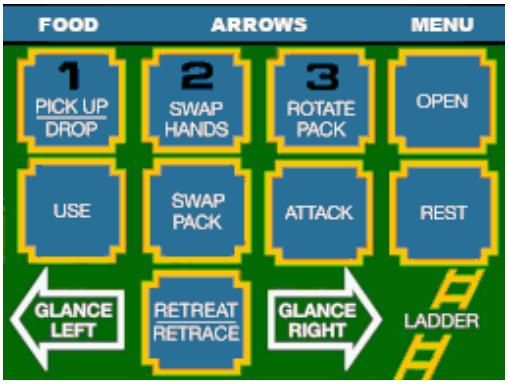
- Search globally for .word and replace with .tile – this is most of the file.
- Go to the bottom of the file where the pallette stuff is and change the block of .hword lines and replace every .hword with .pal
- Search for all remaining .hword and replace every .hword with .map
- Remove all the lines that aren't .tile, .pal or .map - in theory you could leave them in but they aren't processed.

Now at the top of the file add your .ovl lines which map the keypad controller to X1,X2 and Y1, Y2 coordinates. You can get your coordinates for your custom buttons in GIMP. I usually go a little wider than the buttons so that they are easy to press with your thumb when playing. These .ovl lines must be in this exact order - KEY1 first, KEY2 next, etc. Do not change the order (but you can change the text to the extreme right as "comments"). In the end you should end up with a file that is formatted and laid out just like the example astrosmash.ovl - this is the only file that needs to be placed on your SD or Flash cart (i.e. the source .png graphic file is not used by the emulator). It should have the same base filename as the game rom (just with a .ovl extension instead of .int or .rom). If you did it right, the custom overlay will show on screen and pressing your "hotspot" areas will activate the keys you've assigned them to.

Some GIMP Tips:
Using GIMP, you take a source graphic image and use the "Image → Mode" to Mode" to render it down to a 256 color indexed graphic. Then you can use this indexed graphic as the palette for the template overlay (Colors → Map → SetColorMap and pick the source image that you've already indexed down to 256 colors). Then you can Image → ScaleImage to resize your original high-res graphic down to dimensions for your overlay.

The original overlays for Intellivision were taller than they were wide. This doesn't work very well on the DS which has more horizontal pixels (256) than vertical (192). So you are better off trying to rework the custom overlay for a horizontal layout. For example, for my personal use only I've developed a Treasure of Tarmin (aka Minotaur) overlay. Here is the original source scan vs the Nintellivision overlay I developed:


CASTLE MAP
1
PICK UP
DROP
2
SWAP
HANDS
3
ROTATE
PACK
CASTLE MAP
OPEN
USE
SWAP
PACK
ATTACK
REST
USE LADDER
COUNT FOOD
COUNT ARROWS
GLANCE
LEFT
RETREAT
RETRACE
GLANCE
RIGHT
DIRECTION


FOOD
ARROWS
MENU
1
PICK UP
DROP
2
SWAP
HANDS
3
ROTATE
PACK
OPEN
USE
SWAP
PACK
ATTACK
REST
GLANCE
LEFT
RETREAT
RETRACE
GLANCE
RIGHT
LADDER

Finis.