

# How to make Pico Launcher themes

(Tutorial by Mow)



Making themes is easy!

There are 7 different graphics that make up a theme. To start with, you can set custom images for the top and bottom screen backgrounds. That much is self-explanatory.

Next to know, there are two display modes in Pico Launcher to be concerned with: "banner list" mode, and "grid" mode:



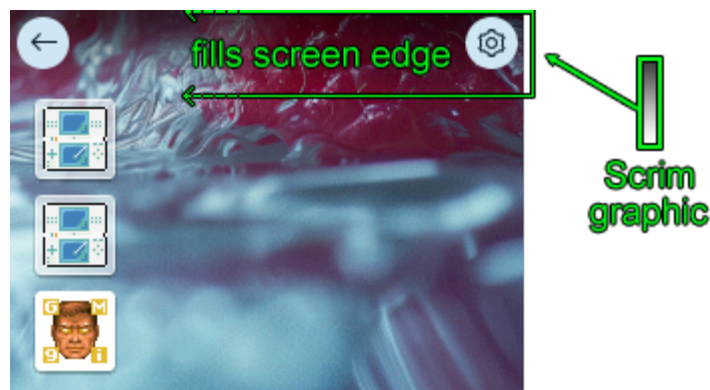
Your theme must include graphics for an entry in the banner list mode, and an entry in the grid mode.

Each of these graphics must have a regular version, and a "selected" version, used to highlight the entry when the cursor is on it:



Grid mode has two different layouts, horizontal and vertical, but this is not really important when designing the graphics. There is also the "cover" display mode, but this doesn't use any theme UI graphics so it can be ignored for now.

Lastly is the "scrim", which is a backdrop behind the UI buttons in the corners. This is a small 8 pixel wide strip which is repeated until it fills the edge of the screen. It can be placed either on the top edge or the left edge of the bottom screen, depending on the selected layout. This only supports black in varying transparencies, so it has limited customization options. I recommend you either leave this as a simple gradient, or set it to blank entirely, depending on what suits your bottom screen background.



So, in total these are the 7 graphics that you need to make to create a theme:

- Top screen background
- Bottom screen background
- Grid item (normal)
- Grid item (highlighted)
- Banner item (normal)
- Banner item (highlighted)
- Scrim

Download the template graphics zip file which will have these graphics at the proper sizes with bounding boxes marked out for you. Game icons and text will be written atop these graphics, which is marked out, so make sure to leave room for this to be legible.

You can use any image editing software you like to make your graphics: Photoshop, Gimp, Paint.NET, or Photopea are recommended.

Some of the files have extra empty space around the graphic; this is just something required by the DS's graphics formats and you can ignore this. Make sure to save the file without trimming this off.

## Graphics limitations

All of the graphics are limited to the DS's color palette, which is far smaller than full RGB color. NitroPaint (discussed lower down) will automatically convert your graphics files into the correct palette; however, you still should be aware that using a lot of smooth gradients or color fades will end up looking blocky or dithered in the final product.

The top and bottom screen backgrounds are full 15 bpp bitmaps, so they can use any number of colors.

The UI elements, the banner list entry graphic and the grid cell graphic, are both limited to a palette of 32 different colors. So these cannot be too multicolored!

The scrim is the least customizable of the bunch. It has a color limit of only black: its colors are ignored, and black is rendered in its place. The only value that matters is the transparency. It has a palette of only 8 colors, so you cannot be too granular with this either.

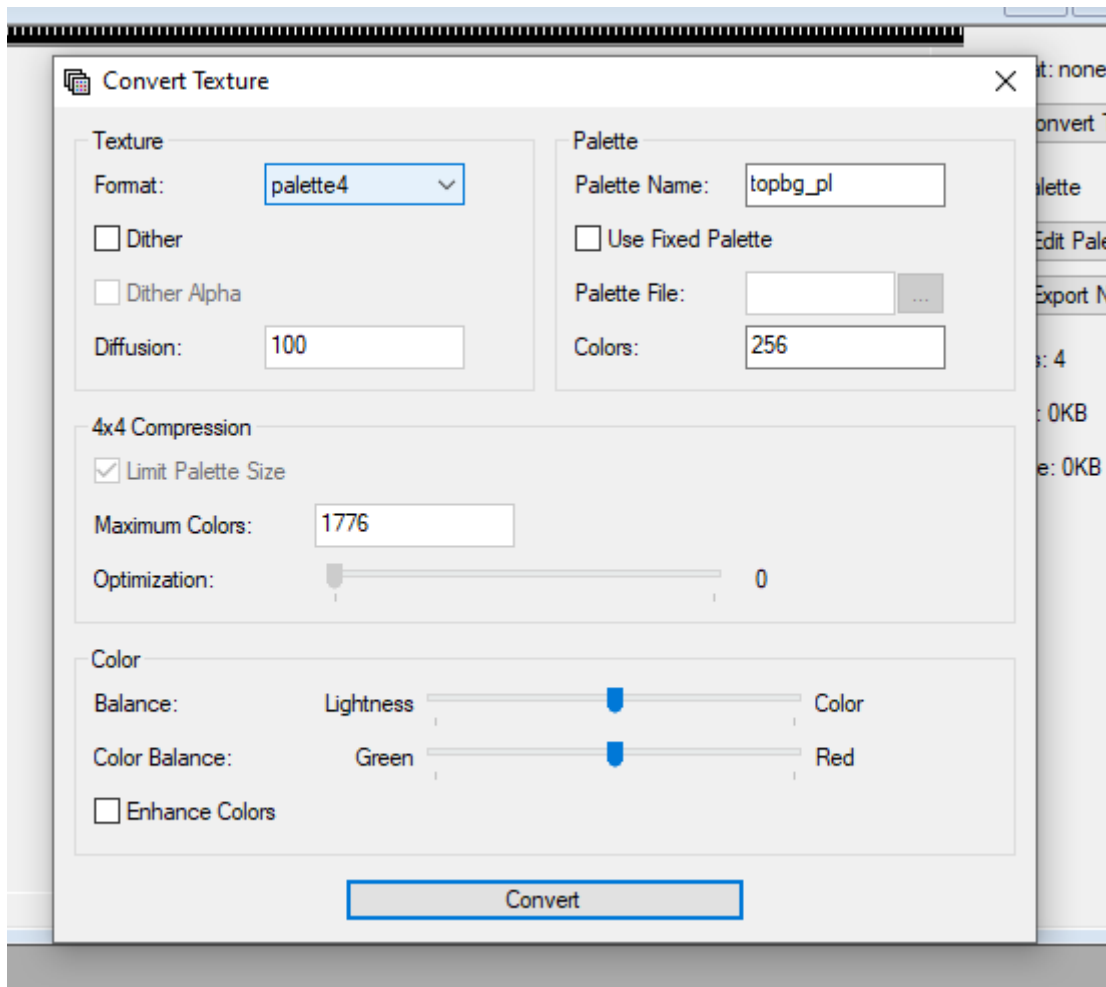
## Converting graphics to the correct formats

The DS is old and fickle and wants its graphics data in a very particular format, regular old PNG will not do.

Download [NitroPaint](#) (Windows only) to be able to convert your files into the right formats.

Open NitroPaint, and just drag any file into the window to import it. It will give you a popup window of what you want to create, "texture" or "BG". Despite the name, all of the files for a theme are "textures".

Next, click on "Convert To..." on the right side of the imported texture's window. You will get another dialog box for converting the file:



The dropdown box in the top left will give you a format selection. The format you want depends on what you are importing:

- For **top screen backgrounds** and **bottom screen backgrounds**, choose **direct**
- For UI elements (**banner list entry graphics** and **grid cell graphics**) choose **a3i5** (the top option)
- For the **scrim**, choose **a5i3** (the option second from the bottom)

Then, click "Convert" and this window will close.

Finally, all you have to do is click on "Export NTF" on the right. Then it will give you a popup window asking where to save the output files.

For all files except for the top and bottom screen backgrounds, it will save *two* files, the bitmap first and the color palette second.

Name all these files like this:

- Top screen background: `topbg.bin`
- Bottom screen background: `bottombg.bin`
- Grid item (normal): `gridcell.bin` and `gridcellPltt.bin`
- Grid item (highlighted): `gridcellSelected.bin` and `gridcellSelectedPltt.bin`
- Banner item (normal): `bannerListCell.bin` and `bannerListCellPltt.bin`
- Banner item (highlighted): `bannerListCellSelected.bin` and `bannerListCellSelectedPltt.bin`
- Scrim: `scrim.bin` and `scrimPltt.bin`

## Theme JSON

The last thing your theme needs is the JSON file that describes it. This can be created or edited in any text editor such as Notepad.

The format is like this:

```
{
  "type": "custom",
  "name": "My theme",
  "description": "My custom theme!",
  "author": "Me",
  "primaryColor": {
    "r": 255,
    "g": 255,
    "b": 255
  },
  "darkTheme": false
}
```

Give it a name and description and fill in your name as the author. `primaryColor` is used to color some of the other non-customizable UI elements and buttons, so fill this with an appropriate red/green/blue color value. If `darkTheme` is set to `true`, the other UI elements will be inverted to white-on-dark instead.

Save this file as `theme.json` with the rest of your theme files.

# Conclusion

That's about it! Put all your graphics files and JSON file into a folder and you have a completed theme (you should have 13 files in total).

To install a theme, place the folder in your SD card's `sd:/_pico/themes/` directory, and then edit your `sd:/_pico/settings.json` file to use the theme.

If you need examples of theme graphics, my theme downloads include the original PNG files used to create it.