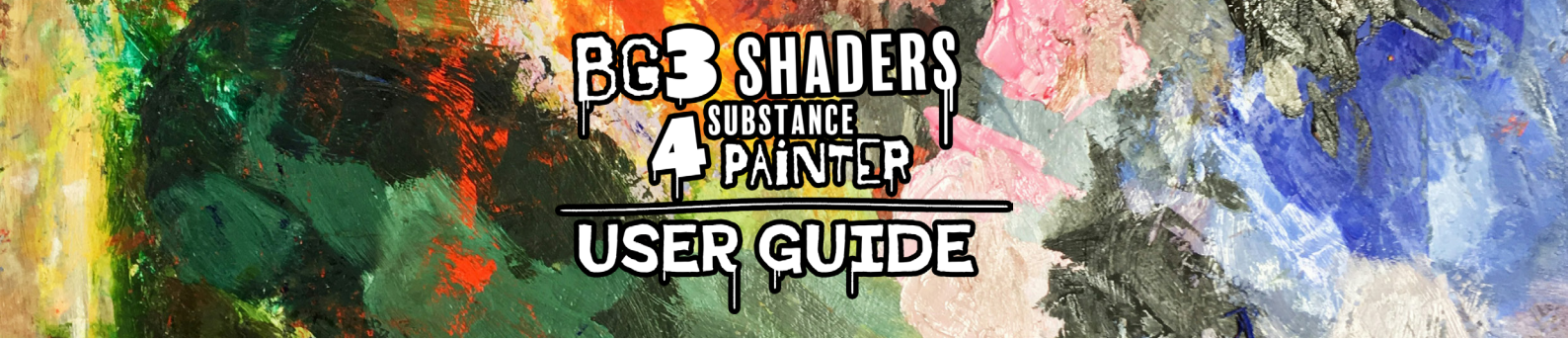


FORWARD

Heya! Thanks for downloading the BG3 Shaders for Substance Painter, I hope you have fun creating with it. This brief guide will help you get started using these shaders, as well as explain some of their idiosyncrasies. This is not a guide for absolute beginners, either for using Substance Painter or for modding BG3, but I aim to explain things as best as I can.

If you have any questions, please feel free to contact me over on Nexus Mods or on Discord (username is the same)

-Volno

HELPFUL LINKS + SUGGESTED RESOURCES

- BG3 Modding Community Wiki
- BG3 Search Engine
- Baldur's Gate 3 Guides on Mod.oi
- Building Virtual Textures (non-toolkit version)
- BG3 Substance-Painter DDSExporter
- Volno's Texture Toolbox
- chaiNNer

INSTALLATION

To install the required files, take the folder labelled ‘assets’ inside the zip file you download, go to your Substance Painter directory, and merge it with the existing ‘assets’ folder (merge files if promoted). That’s it, you’ve got everything you need installed.

GETTING STARTED

When starting a new project make sure you select the project template relevant to your project, if you’re editing skin use the template called ‘BG3 Skin VolShader’, if you’re making armour select ’BG3 Armour VolShader’ (always use the latest version of this template), and check that you have set your normal map format to DirectX.

If you are planning on painting onto a head, I recommend that you join the head and ears into a single mesh and uv map for the best results This also applies to any other objects that share the same texture maps, such as tiefling body and tail.

APPLYING THE SHADER

With your head material selected, open the shader settings tab then click on the dark grey panel with the name of your current shader (it should be something like ‘asm-metal-rough’). In the new tab that opens up, select the shader relevant to your project.

I also suggest that you rename your material to what the final file name (minus the map’s syntax) needs to be, so that you do not have to rename them individually later.

IMPORTING EXISTING MAPS

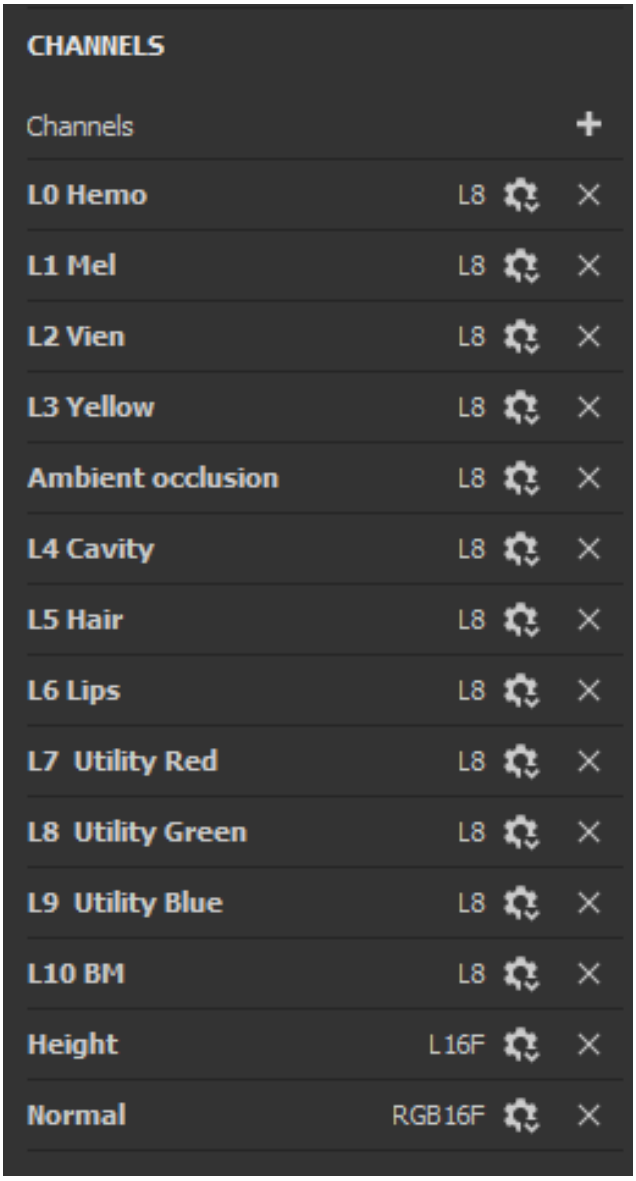
Some maps need to have their channels decomposed into separate greyscale images before they can be brought into substance painter. You can do this in programs like GIMP or Photoshop, or can use the chaiNNer setups I have provided on the mod page to automate it.

Alternatively, for maps that lack an alpha channel you can instead use the ‘greyscale conversion’ generator to separate the colour channels.

For normal maps, you will need to take the map’s alpha channel and place it into the map’s red channel. The reason for this is that the DDS compression format BG3 uses for normal maps can store more information in the alpha channel than the Red channel. !!IMPORTANT!! BG3’s AO maps are much lighter than those baked by Substance Painter, to avoid visual errors in game, I recommend lightening a baked AO map by around 50% before you export it.

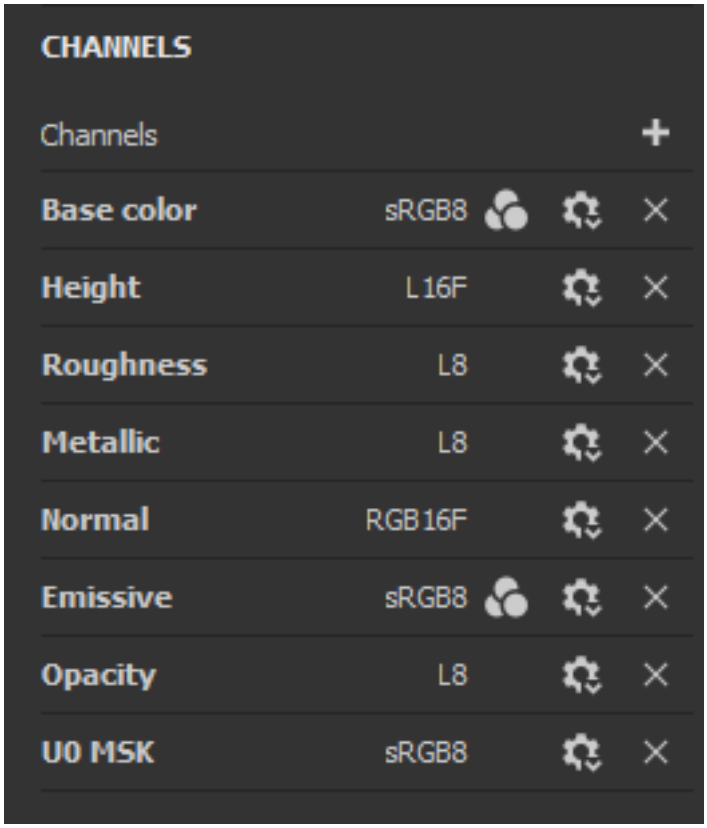
CHANNELS CHANNELS CHANNELS

Here's the full list of channels used by each shader and a breakdown of what goes into each user channel.



BG3 Skin:

- User 0: Hemoglobin (HMVY red channel)
- User 1: Melanin (HMVY green channel)
- User 2: Vein (HMVY blue channel)
- User 3: Yellowing (HMVY alpha channel)
- AO: AO map (CLEA alpha channel)
- User 4: Cavity Map (CLEA red channel)
- User 5: Hair (CLEA green channel)
- User 6: CLEA Makeup/Lips (CLEA blue channel)
- User 7: Non-Skin Mask (MSK red channel)
- User 8: Melanin Removal (MSK green channel)
- User 9: Cancel Map (MSK blue channel)
- User 10: BM map



BG3 Armour:

- Base Color: BM map
- Metallic: PM/PMA (red channel)
- Roughness: PM/PMA (green channel)
- AO: PM/PMA (blue channel)
- Emissive: GM map (if present)
- Opacity: BM map (Alpha channel, if present)
- User 0: MSKcloth map

SHADER PARAMETERS

This section goes over the parameters for each shader, note that I have removed some parameters from the from each shader as not all of them where relevant here.

SKIN: MAIN

The shader can use any skintone presets found in the games files, and by default set to ‘Neutral Tone 1’ (SKIN_HUM_Neutral_-2 in the game’s files), I have included the settings for 3 additional skintones at the end of this document, as well as how to find and use other skintones.

SKIN: EXTRA

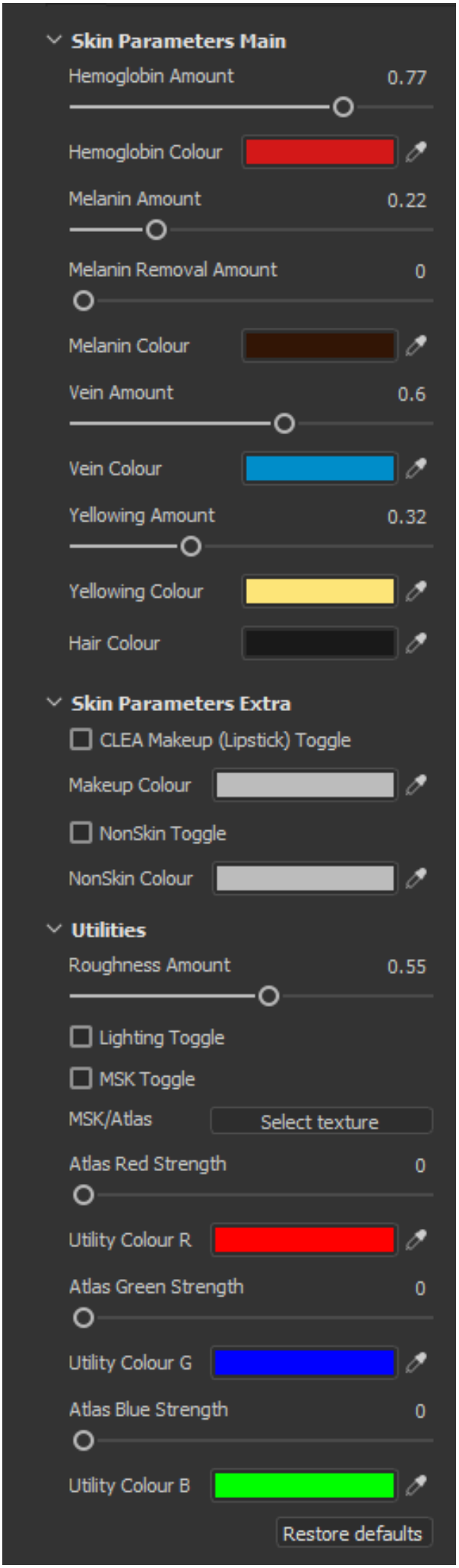
As the name implies these are the settings for the extra parts of the skin, both can be toggled off and on. Note that ‘Nonskin’ refers to things such as nails, tiefling horn plates, and Aylin’s gold skin cracks. The BM map is multiplied with the colour that you set here.

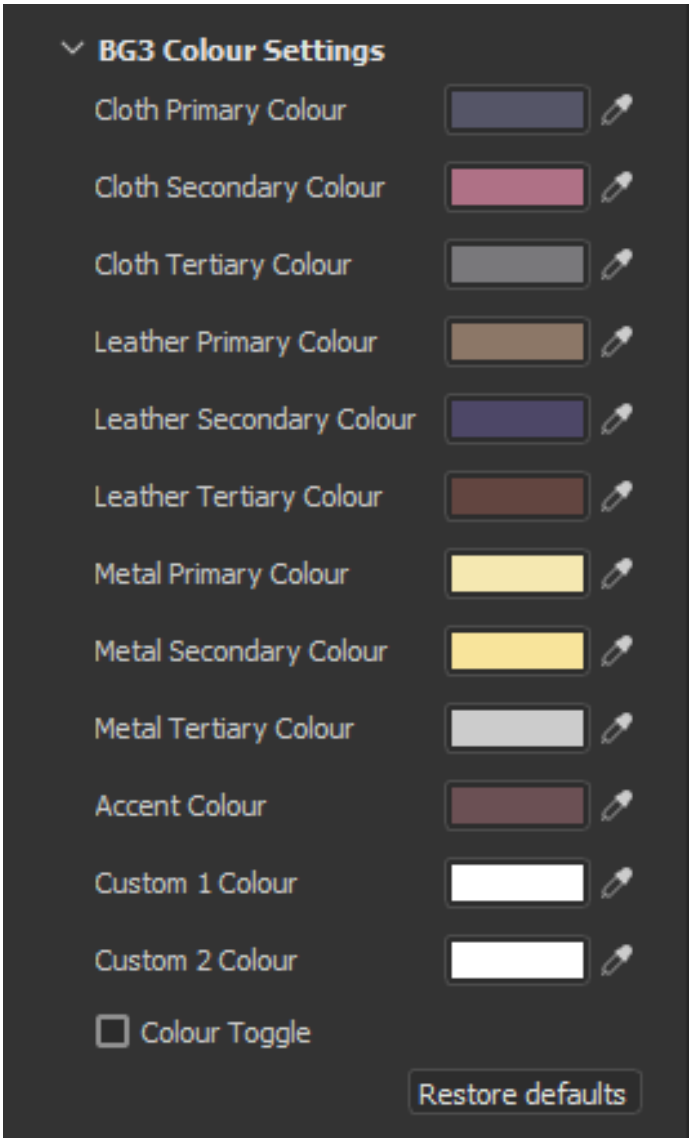
UTILITIES

While most settings here are straight forward, the MSK toggle requires some explanation.

A lot of heads share the same MSK map between them, thus many mod authors choose not to make custom MSK maps. To streamline the workflow I have added the option to load a MSK map directly into the shader parameters. When ‘MSK Toggle’ is off the shader will render using the data in channels 7,8, & 9, when its on it render using the image in MKS/Atlas.

Because these channels are no longer being used as the MSK map, they can be repurposed. When ‘MSK toggle’ is off, the image in MSK/Atlas will be used to render tattoos. When its on, channels 7,8, & 9 will be used instead.





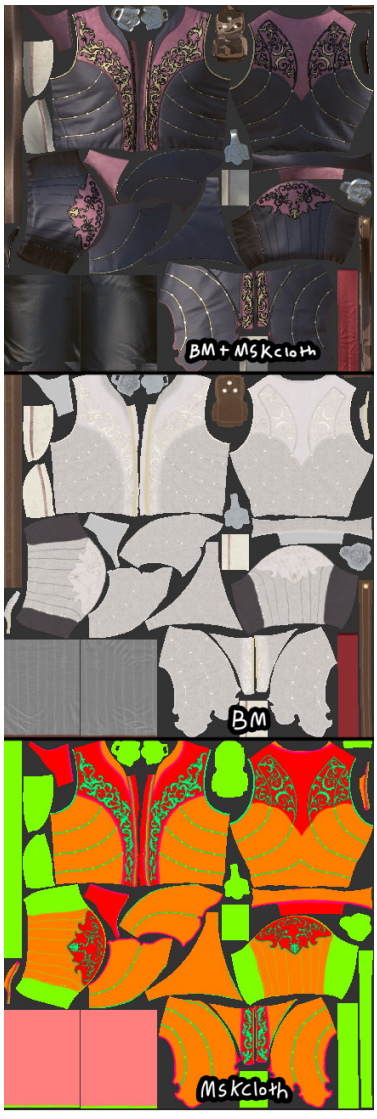
ARMOUR: MAIN

This shader is a lot more simple than the skin shader, by default it is set to use the same colours as Astarion's chest armour.

The MSKcloth map works just like an ID map in Substance Painter, but it only checks for specific colours and has a limited amount slots (see the chart at the bottom of this page for details).

One the MSKcloth map has been interpreted by the shader, the resulting colour combination is then multiplied with the BM map, resulting in the final appearance. You can use the 'colour toggle' to disable the Disable the MSKcloth effect in substance painter.

When getting your asset set up in game, specific colours can be disable to expose the raw BM map. (ie, in Astarion's armour, metal secondary is disabled). To replicate this in substance painter, simply set one of the colour options to white.



	PRIMARY	SECODARY	TERTIARY
CLOTH	1.0, 05, 0.0 #ffba00	1.0, 0.0, 0.0 #ff0000	1.0, 05, 0.5 #ffbaba
LEATHER	0.5, 0.0, 1.0 #ba00ff	0.0, 0.5, 1.0 #0000ff	0.5, 0.5, 1.0 #babaff
METAL	0.0, 1.0, 0.5 #02ffb9	0.0, 1.0, 0.0 #00ff00	0.5, 1.0, 0.0 #ffba00

ACCENT	CUSTOM 1	CUSTOM 2
1.0, 0.0, 0.5 #ff00ba	0.5, 0.5, 1.0 #00baff	0.5, 1.0, 0.0 #baff00

EXPORTING

When exporting, make sure that you have the relevant export preset for your project selected (either ‘Bg3 Skin VolShader’ or ‘Bg3 Armour VolShader’) selected in both your global and general settings for the best result. For compatibility with BG3 Substance Painter DDS Exporter the default file type has been set to targa. If you plan on converting your maps into a virtual texture please use the VT specific export presets (the ones with ‘(VT)’ in the name) as VTs need to have normal maps in a more standard format.

SKIN TONES

Here is a collection of skin presets for you to use, you can find more skintones at: ‘Shared\Public\Shared\Content\Assets\Characters\Character Editor Presets\Skin Presets’. Note: Linear sRGB to HEX conversion can result in some very slight differences in darker colours (such as melanin). If you want 100% accuracy, you can change the colour picker in Substance painter to linear and enter the sRGB colours manually.

PALLID TONE 12 (SKIN_HUM_PALLID_9)*

HemoglobinAmount 0.6
VeinAmount 0.8
YellowingAmount 0.7
Melanin Amount 0.88
Melanin Removal Amount 0.9
VeinColor #008DC9 (0 0.2673581 0.585973)
Melanin Colour #2E1E18 (0.02708101 0.01311791 0.009261681)
Hemoglobin Colour #D31823 (0.6523701 0.009021491 0.01698805)
Yellowing Colour #FFE779 (1 0.7960784 0.1921569)

GOLD TONE 4 (SKIN_GTY_GOLD_3)

HemoglobinAmount 0.75
VeinAmount 0.5
YellowingAmount 0.2
MelaninAmount 0.57
MelaninRemovalAmount 0.4
VeinColor #008DC9 (0 0.2666667 0.5843138)
MelaninColor #443D0C (0.05818718 0.04614884 0.003697239)
HemoglobinColor #D31616 (0.6509804 0.007843138 0.007843138)
YellowingColor #FFE779 (1 0.7969165 0.1904629)

DUSK TONE 3 (SKIN_UND_DUSK_2)

HemoglobinAmount 0.6
VeinAmount 0.5
YellowingAmount 0.2
MelaninAmount 0.47
MelaninRemovalAmount 0.4
VeinColor #0083C9 (0 0.2271365 0.585973)
MelaninColor #19283E (0.009732138 0.02098306 0.04807407)
HemoglobinColor #D40E0E (0.659224 0.004559754 0.004559754)
YellowingColor #FFE779 (1 0.7969165 0.1904629)

RED TONE 4 (SKIN_TIF_RED_3)

HemoglobinAmount 0.75
VeinAmount 0.5
YellowingAmount 0.7
MelaninAmount 0.51
MelaninRemovalAmount 0.4
VeinColor #0065C9 (0 0.1303523 0.585973)
MelaninColor #440606 (0.05818718 0.001963416 0.001963416)
HemoglobinColor #D40E0E (0.659224 0.004559754 0.004559754)
YellowingColor #FFEA00 (1 0.8199637 0)

*note: dispite the name ‘pallid’ this tone is very dark