

# CPM 101: Painting Your Cockpit

The **Cockpit Paint Mod (CPM)** enables CMDRs to paint their cockpits with any combination of colours. This guide will take you through the essential processes of painting your cockpit and exporting a theme.

## Pre-requisites

It is assumed you've installed:

- EDHM UI
- The 3<sup>rd</sup> party mod, the Cockpit Paint Mod
- The 'Anaconda – Elite Default' theme

## Stage 1: Planning your design

Before you dive right into applying colours to your cockpit, there are three important questions to ask:

1. Do you want to design your cockpit colours around your favourite HUD theme?

Or do you want to start from scratch (blank slate) and paint your cockpit in a 'neutral' environment?

The first option is easiest and can take less than an hour to complete.

The second option requires a little extra setup (see the section *Special Note: Creating a Neutral Environment*) and may also require you to create (or adjust) a HUD theme to match your new cockpit – which can take 2 to 4 hours depending on your level of OCD.

2. What sort of role does your ship play?

Is it an exploration vessel with a cockpit designed to relax your eyes on long journeys?

Or does it look like a fighter with aggressive lines and a design built for purpose?

Perhaps you'd like to match your cockpit to your external paintjob?

Or maybe imitate the colours of a starship in a movie?

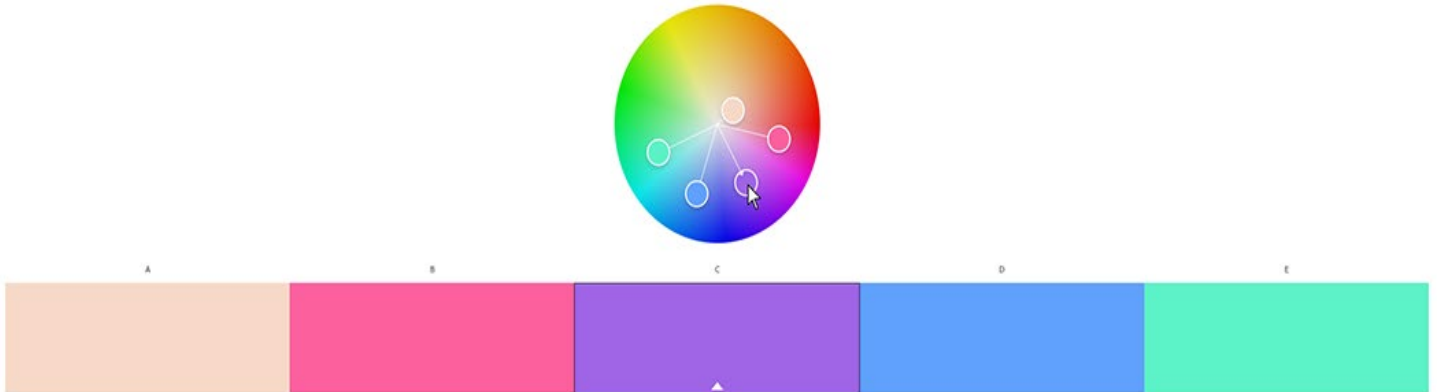
3. Once you have an idea of the direction your design will take, next it's very advantageous to create a **colour palette**.

A colour palette is a set of complementary colours, or colours that tend to work well together. The cockpits presented in the [CPM post](#) on the Elite forums were designed using colour palettes. It's much harder to design a good-looking cockpit by randomly choosing colours.

One of the best online resources to create a colour palette is the [Adobe Color Wheel](#)

When you think about your design, what is the main colour that will dominate the design?

You can choose a colour via the circular palette on the Color Wheel page. Select the centre circle with your mouse and drag the circle around the palette until you find a colour you like.



Alternatively, you can upload an image and Adobe will extract the main colours for you.

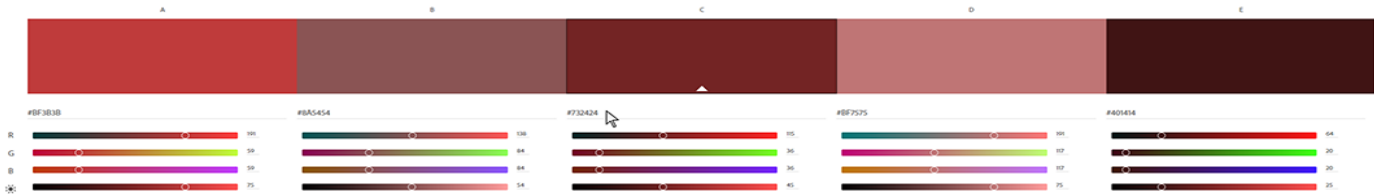
On the top left of the page, select '**Extract Theme**', then upload an image. When uploading an image, try to find one with a transparent, white or black background, so that only your target object is shown. You may want to edit the image to isolate the target object before uploading.

For example, here's an X-Wing from Star Wars:

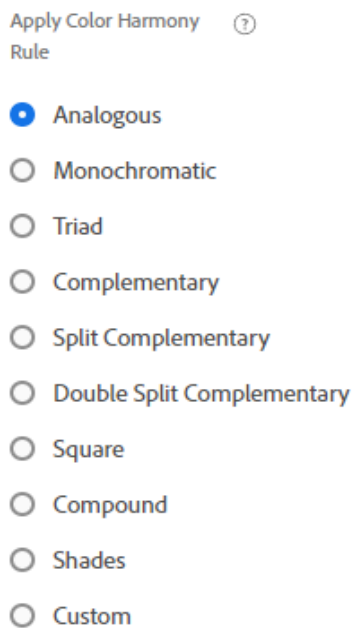


You can use the extracted colour palette for your cockpit design.

Or you can choose the main colour of interest from the extracted palette, press the copy button, then return to the Color Wheel tab (top left), select 'Analogous' from the button menu, and then paste the colour into the central box and press Enter, like this:



Once you have your main / dominant colour, try browsing through the different colour modes on the left button menu, such as *Monochromatic*, *Triad*, *Complementary*, etc



Sometimes you won't know which colours actually work well together until you see the combination in your cockpit, but now you have a colour palette to work from.

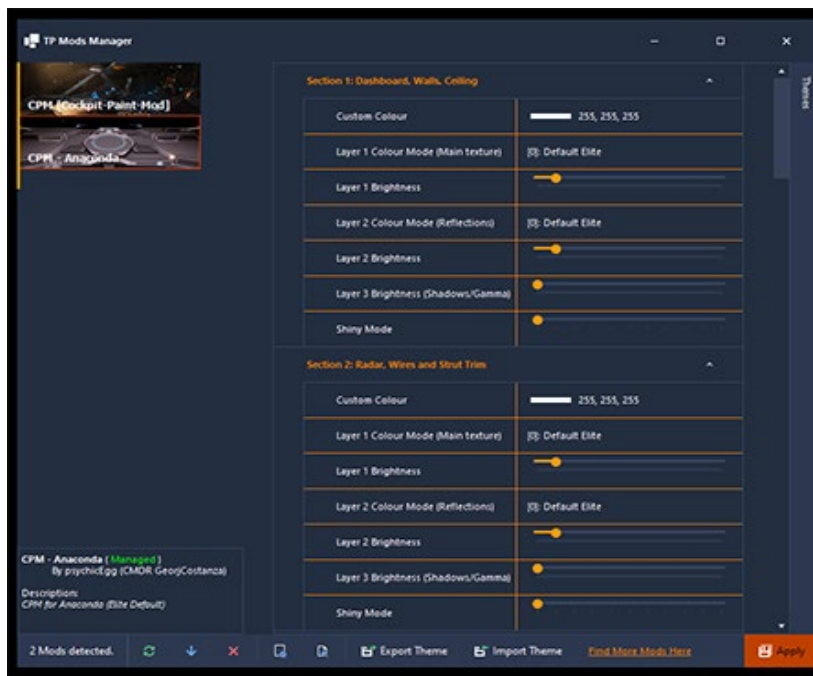
## Stage 2: Understanding the structure of the mod

Open up the CPM mod in EDHM UI, and ensure the **Elite Default** theme is loaded.

As a reminder, whenever you want to see the changes you make, just ALT TAB back to Elite and press F11

On the right of the 3PM window you will see a long list of options to paint your cockpit, and it's important you understand the mod terminology before you start.

There are three important concepts: **Sections, Layers, and Modes**

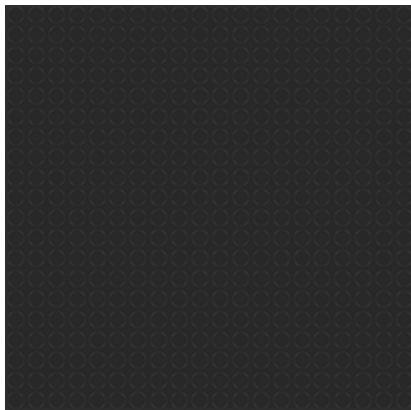


## Sections

A Section is an area of the cockpit where a particular colour will be applied.

Each cockpit generally has eight sections, plus the floor, chairs and signage (signs & symbols painted on the walls and chairs).

In technical terms, the area comprising each section is defined by the layout of a particular texture around the cockpit, as defined by the FDev designers. Usually a texture is simply a square image with a unique surface design, such as:



We can't change the layout of the textures, nor do we replace the textures themselves – we are only modifying the properties of the existing textures (colour and reflectivity).

Since the layout (and number) of Sections varies greatly across ships, we can't apply one ship's CPM theme to another – occasionally it works, but most of the time the colour layout will look odd. That's why we have CPM themes on a ship-by-ship basis.

Each Section can only have one colour, the Section Colour.

## Layers

Each texture has three layers:

1. The base texture, which you might see if you loaded the texture into a graphics program. Same as the texture image above.
2. The reflectivity of the texture – how much the texture reflects external light, matte vs. shiny
3. The gamma of the texture – generally we don't use this layer except in rare circumstances where we would like to slightly boost the colour of a very shiny texture, or a texture in shadows

The Section colour is applied to all three layers, but you control the amount of colour applied via the 'brightness' setting for each layer. The Brightness setting can be greater than 1 to increase the intensity of the colour.

Most of the time you will only be adjusting Layers 1 and 2 for each Section.

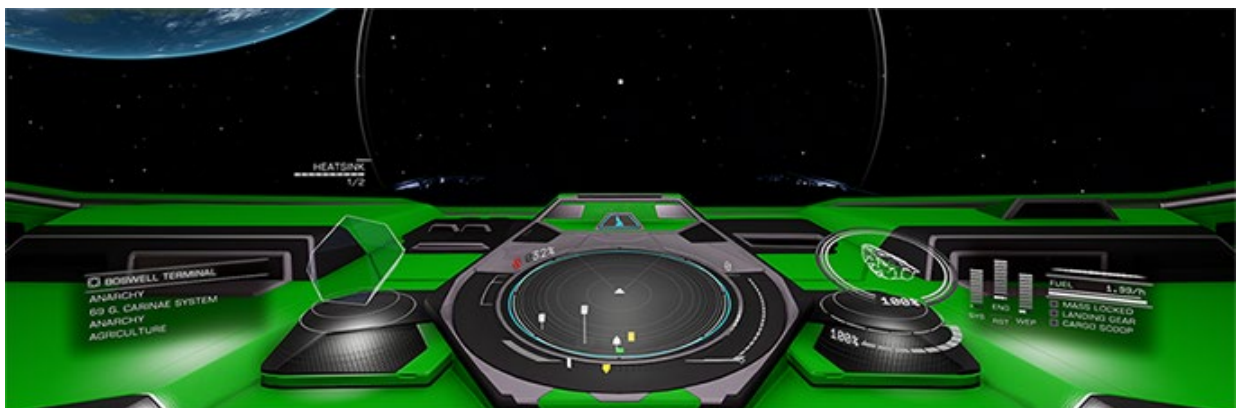
## Modes

A mode is the way colour is applied to each layer of a texture.

We need different methods because FDev programmed the textures to respond and react in different ways to colour and lighting. Some modes simply don't work for some textures, and requires a little experimentation.

There are nine colour modes, plus Elite Default mode (no mod), and Test Mode (bright green, to identify the layout of a Section).

An example of **Test Mode** showing the Section 1 layout of the Anaconda



Although nine modes might sound complicated, most of the time you will only use Modes 1, 2 or 3.

A Mode is the most technical concept to understand in the CPM, but it's not important to fully grasp the underlying colour application methodology – just know **each mode represents a different way of applying colour to a layer**.

**Use Modes 1, 2 or 3**, and then experiment with the other modes if you can't achieve the look you're going for.

In Sections 1 to 8, only Layers 1 and 2 have Modes.

Layer 3 (the gamma layer) only has a brightness setting that you will rarely use.

The Sections corresponding to the **Floor, Chairs, and Signs and Symbols** only have a single Layer and 2 or 3 Modes.

For those interested in the technical details, here's a list of the different modes and how colour is applied to the texture:

| Mode | Details  |
|------|--|
|      |  |
| 0    | Default Elite.<br>No mod is applied to the layer of the texture.<br>Set Layers 1 and 2 to Mode 0 to show the default Elite texture |
| 1    | Direct application of RGB colours without modification   |
| 2    | The base texture is converted to greyscale, then colour applied to the greyscale   |
| 3    | The reflections layer is converted to greyscale, then colour applied to the greyscale  |
| 4    | The base texture is copied, then direct colour is applied  |
| 5    | The base texture is copied, then the base texture is converted to greyscale, then colour is applied                                |
| 6    | The base texture is copied, then the reflections layer is converted to greyscale, then colour is applied                           |
| 7    | The reflections layer is copied, then direct colour is applied   |
| 8    | The reflections layer is copied, then the base texture is converted to greyscale, then colour is applied                           |
| 9    | The reflections layer is copied, then the reflections layer is converted to greyscale, then is colour applied                      |
| 30   | Test colour (bright green) to identify the layout of the Section   |

**Modes 1, 2, and 3** will be used for most layers / textures.

**Modes 4, 5, and 6** copy the base texture layer to preserve the texture details. These modes can be useful on some Lakon ships that have rusty metallic textures. However, texture detail is preserved at the expense of colour depth.

**Modes 7, 8, and 9** are used for the occasional texture that lacks a base texture. This doesn't happen very often, (for example, the vertical struts in the Krait ships), but is a set of fail-safe modes for these textures.

## Shiny Mode

A highly requested feature is the ability to make matte textures more reflective.

I recommend deciding if a Section will be shiny before spending a lot of time on the layers, modes and colour brightness.

When you activate shiny mode (increase the level above 0), it will change the properties of a texture, sometimes in unpredictable ways. It can make the Section very dark or very bright, and you will probably need to experiment with different modes to achieve a good result.

I recommend being conservative with the shiny mode – don't make all your sections shiny as it can make the cockpit look unnatural and overly reflective.

## Stage 3: Applying colours to the Sections

Just remember you don't have to apply colour to every section. Sometimes it's best to leave a Section at Default Elite.

Now that you understand Sections, Layers and Modes, it's time to apply colour to the Sections of your cockpit.

Before you start changing your settings, I recommend undocking your ship from a station or carrier, and positioning the cockpit so that **some starlight falls across parts of the cockpit**. This is important as external light can greatly increase the brightness of cockpit surfaces – if you made them very bright in the darkness, then they can become overly bright in the presence of external light.





Usually I try to allocate the Dashboard texture to Section 1, so I recommend starting with Section 1.

- Set Section 1, Layer 1 to **Test Mode**, then ALT TAB to Elite and press F11 (you don't need to press 'Apply' in the bottom right corner of the 3PM window).
- You will see Section 1 light-up bright green. Use your mouse-look to look around the cockpit and take note of the Section layout.
- Next, change the colour of Section 1, then set Layer 1 to **Mode 1**, and then F11 in-game. You should see the Section change colour to your target colour. Experiment with the different modes – some of them will look exactly the same, but for other Sections/textures the output will differ.
- Also try adjusting the brightness of Layer 1 up and down – you don't want the cockpit to be too bright or it will be distracting.
- Now try adding a mode to Layer 2, the reflective layer of the texture. You don't always need to modify the reflective layer of a texture, sometimes the default Elite reflection is ideal.
- Try turning down the brightness of Layer 1 to see what Layer 2 looks like when it's dominant. Experiment with the different modes.
- Lastly, increase shiny mode to 5 – you don't need it at maximum (10) for it to look good. Sometimes having shiny mode at maximum will cause reflections to pixelate, and if that happens turn it down to 8 or lower.

#### Anaconda Section 1 example:

**Colour:** RGB(95, 73, 122)

**Layer 1:** Mode 9, Brightness 9

**Layer 2:** Mode 1, Brightness 10

**Layer 3:** Brightness 33

**Shiny Mode:** 5



Note: If you adjust the Mode and the texture becomes very dark, turn up the brightness of that Layer to 20 or 30. You might find a nice deep colour hiding in the shadows.

For example, **Section 5 of the Anaconda:**

**Colour:** RGB(74, 80, 135)

**Layer 1:** Mode 2

**Layer 2:** Mode 0 (Elite default)

This will result in a very dark Section, but **increase the Layer 1 Brightness to 28** and you have a nice deep blue:



Notice how the cockpit is transformed with only two Sections with custom colour.

Try colouring a few more sections using the main colour #5F497A palette on the [Adobe Color Wheel](#)

The CPM was programmed for maximum design flexibility, and at first the options and settings might seem overwhelming. But after some practice you will learn to adjust layers and modes very quickly.

I recommend starting with small mods, maybe just 2 or 3 sections.

Then when you're confident, go Da Vinci on your cockpit!

# Special Note: Creating a Neutral Environment

Some CMDRs may prefer to design their cockpit in a perfectly neutral environment.

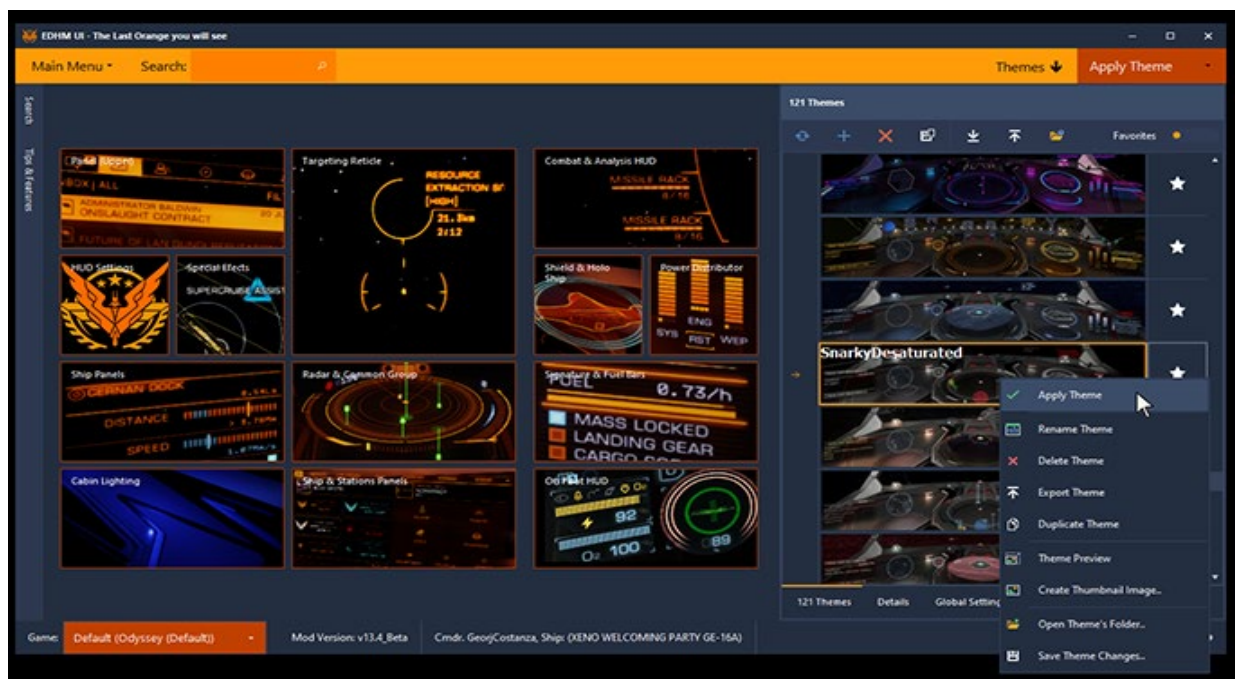
The cockpit textures will be colour contaminated by three main sources:

1. The ambient cabin lighting programmed by FDev.  
This is different for each ship – some default lighting causes minimal impact on the cockpit, such as the cyan FDL lighting, but other lighting has an overwhelming impact, such as the golden cockpit of the Beluga (which is actually silver, only the ambient lighting is golden).
2. The EDHM Ambient Cabin Lighting. As with the FDev lighting, EDHM ambient lighting can change the colour of surfaces around the cockpit.
3. The HUD colours also have a minor impact on the dashboard and other reflective surfaces in close vicinity.

To neutralise all three sources of colour contamination, follow this process:

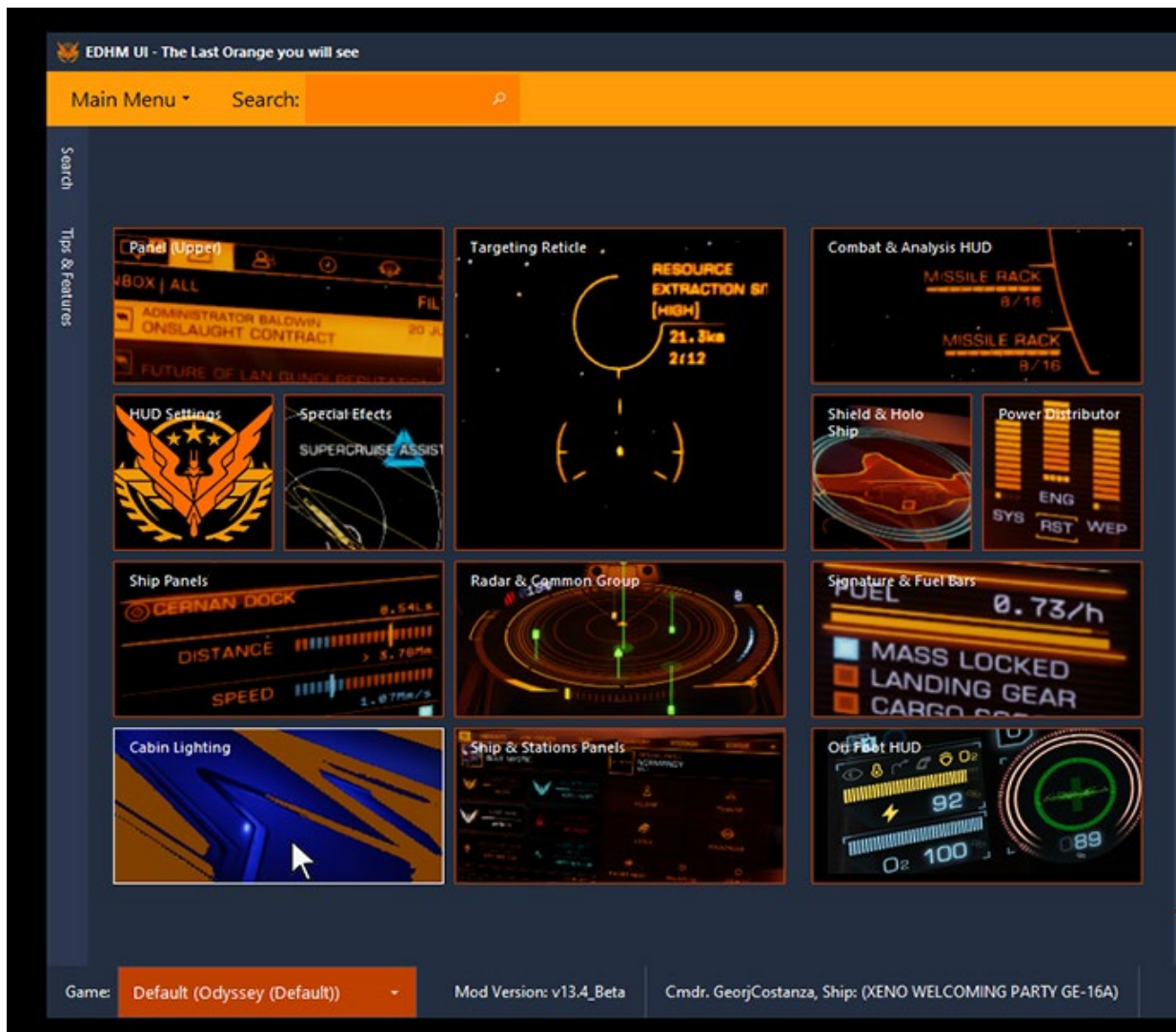
In EDHM UI, install the “**Snarky Desaturated**” theme (don’t forget to backup / export your current theme first if you’ve made any custom changes).

Right click on the theme, select **Apply Theme**, then F11 in-game:



Your HUD will now be white and grey.

Next, click the **Cabin Lighting** tile:



Change the **Ambient Glow** to Custom Colour.

By default the Custom Colour should be RGB(255, 255, 255), but if not then set it to white.

If you prefer a darker environment then set it to grey – just make sure the Red, Green, and Blue colour channels have the same values, for example RGB(200, 200, 200).

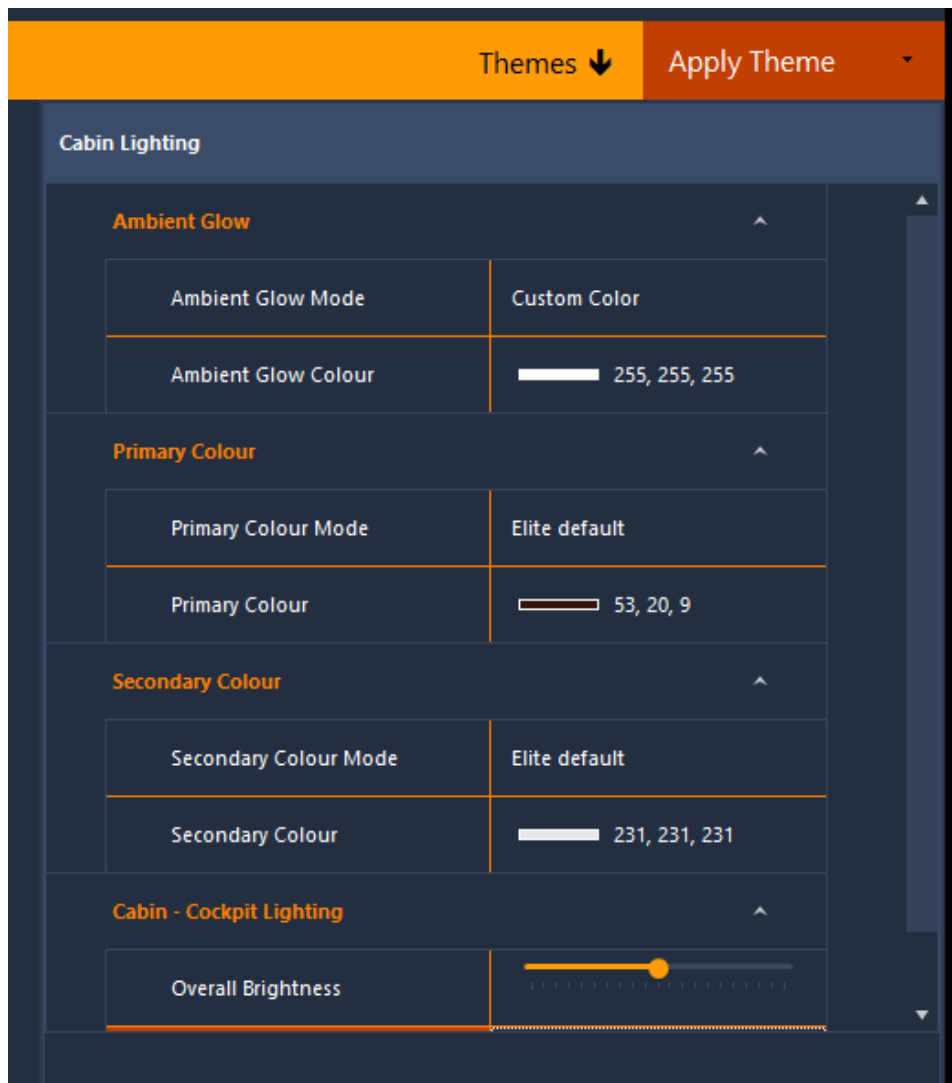
Change the **Primary Colour Mode** to Elite Default (don't worry about the RGB values, they won't be used).

Change the **Secondary Colour Mode** to Elite Default.

Change the **Overall Brightness** to 10

You can turn **Face Fix** off (back to 0)

## Neutral Lighting Settings:



After making your changes, press **Apply Theme** in the top right corner (this saves the new values into the mod's ini files), then ALT TAB to Elite and press F11 in-game.

You should now see the cockpit in its natural state without any colour contamination.



# Exporting a Theme

Only one ship-type theme can be installed at any time (one Anaconda, one Python, one Corvette, etc), so it's important to **'Export'** your theme before changing to another. Essentially, exporting is the same as saving your progress, but you can also export your finished themes to share with others.

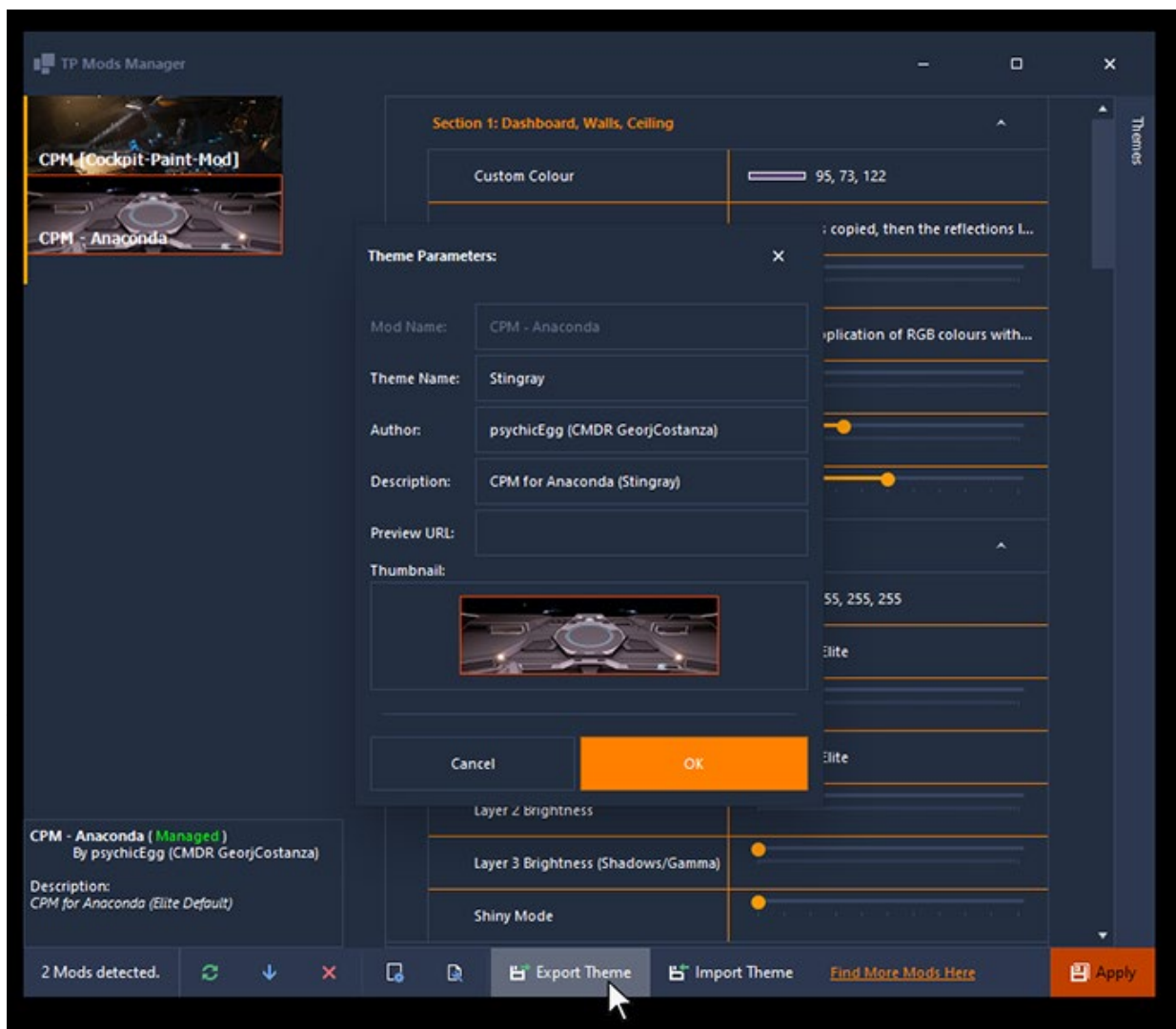
## To Export a theme:

On the bottom row of the 3PM window, click **Export Theme**.

A **Theme Parameters** box will popup. Enter your Theme Name, and I also recommend adding the theme name in brackets ( ) in the Description section, so that the UI will show the theme name in the bottom left corner.

If you've taken photos of your theme and uploaded them to imgur or some other image archive then you can enter the web address in the Preview URL section.

Finally, I recommend making a small thumbnail of your theme with the HUD switched off (CTRL ALT G is the default HUD toggle). The size of the preview image is 200 x 61 pixels, with a 1-pixel border. Right-click on the preview image to load in a new one.



## Endnote

Please remember this is an *alpha prototype* of the **Cockpit Paint Mod**. It is released for the purposes of feedback from the community, and to provide FDev an opportunity to evaluate the mod.

It took months of work to get it to this stage, so I hope we can release the full version in the near future. We really hope you enjoy it!

Fly dangerously,

o7

To provide feedback or suggestions about the CPM in general, please contact psychicEgg#9971 on Discord, or GeorjCostanza on the Elite forums.

You can also post on the [CPM thread](#) on the Elite forums.

To provide feedback or suggestions for EDHM UI, please contact the UI developer Blue Mystic via the [EDHM Discord](#), or his [GitHub](#)

EDHM and the CPM is best enjoyed with [EDHM UI](#)

*Draft version 1.0 of this document by psychicEgg (CMDR GeorjCostanza)*

*September 20, 2022*