

# ICTGAM433

## Rendering Software Preparation

ASSESSMENT 2

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## Project Requirements Summary

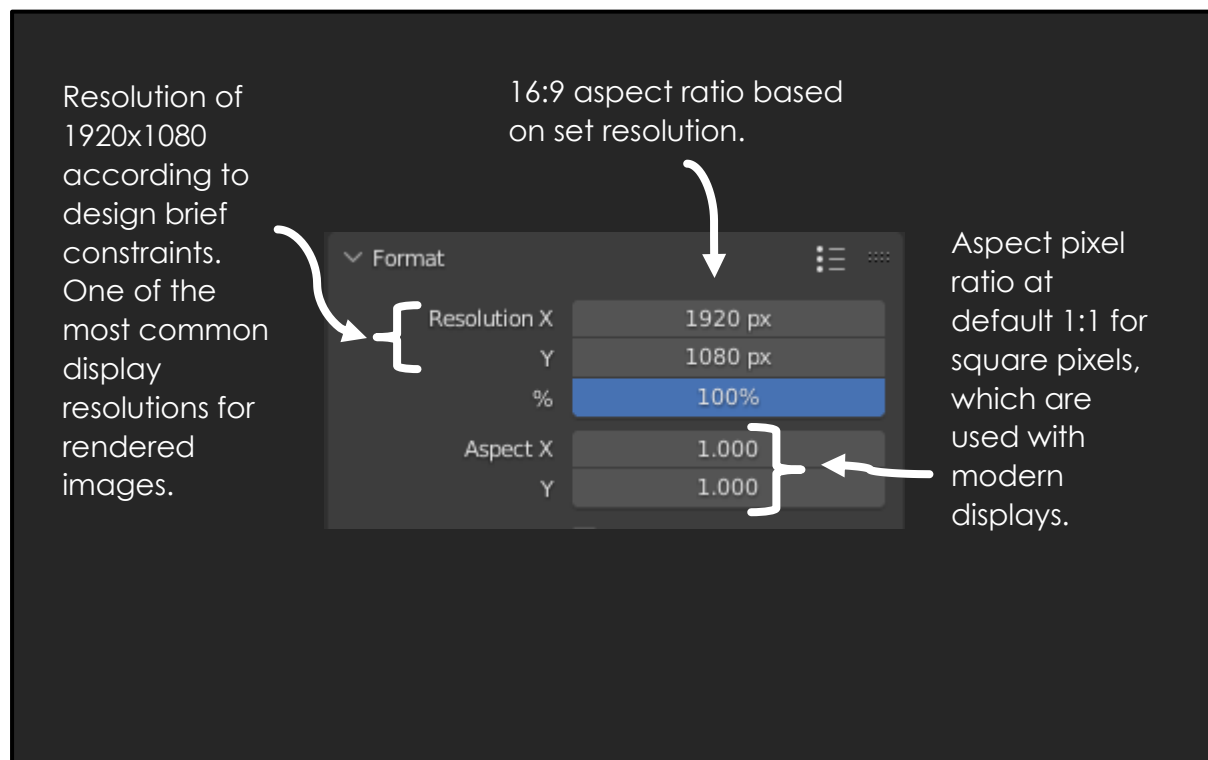
### Excerpt from Project Plan

The requirements of the project are summarised below according to the design brief:

- A blender scene is supplied for rendering purposes, being used as a target for the future implementation of the assets into a game.
  - Materials may be changed as needed.
  - Compositing and any adjustments of assets are permitted.
- The rendering of **three** images each at a resolution of **1920 x 1080**.
  - The render times are expected to be less than **two (2) minutes**.
  - The result of the render is the main priority.
- Each image must have a different camera angle:
  - The camera angle must hide all 3D geometry artifacts.
  - No visible noise should be seen in each image render.
- Each image render result is saved as a **TARGA** file format, with a maximum file size of **800MB** for each file.

## Annotated Images

### Output Properties (Image Resolution, Aspect ratio, Pixel Ratio)



## Anti-Aliasing/Visual Effects Settings

### Sampling Settings

Clamped indirect light values to 10 to reduce the amount of "fireflies" noise artifacts produced during rendering.

Max light bounces limited to 4 to reduce rendering time while preserving image rendering quality.

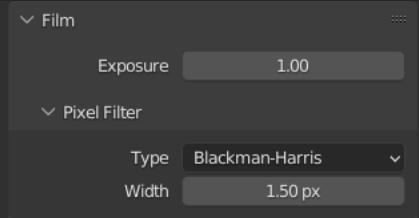
Enabled to increase rendering speed.

### Light Paths Settings

Viewport sampling settings set to 0.1 noise threshold, 32 samples and denoising enabled for less lag while in the "Rendered" viewport sampling mode.

Rendering sampling settings set to 0.3 noise threshold, 128 samples and denoising enabled for balanced image quality, anti-aliasing and rendering times. The time limit for renders is set to 2 minutes.

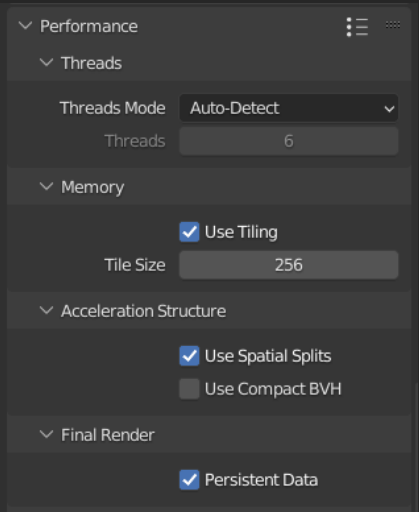
## Film (Anti-Aliasing Pixel Filter)



Pixel filter settings help fine-tune the strength of the “anti-aliasing” effect from the sampling settings.

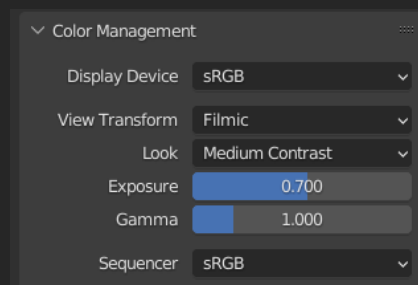
## Performance Settings

Enabling tiling and tile size set to 256 produced the quickest image rendering times.



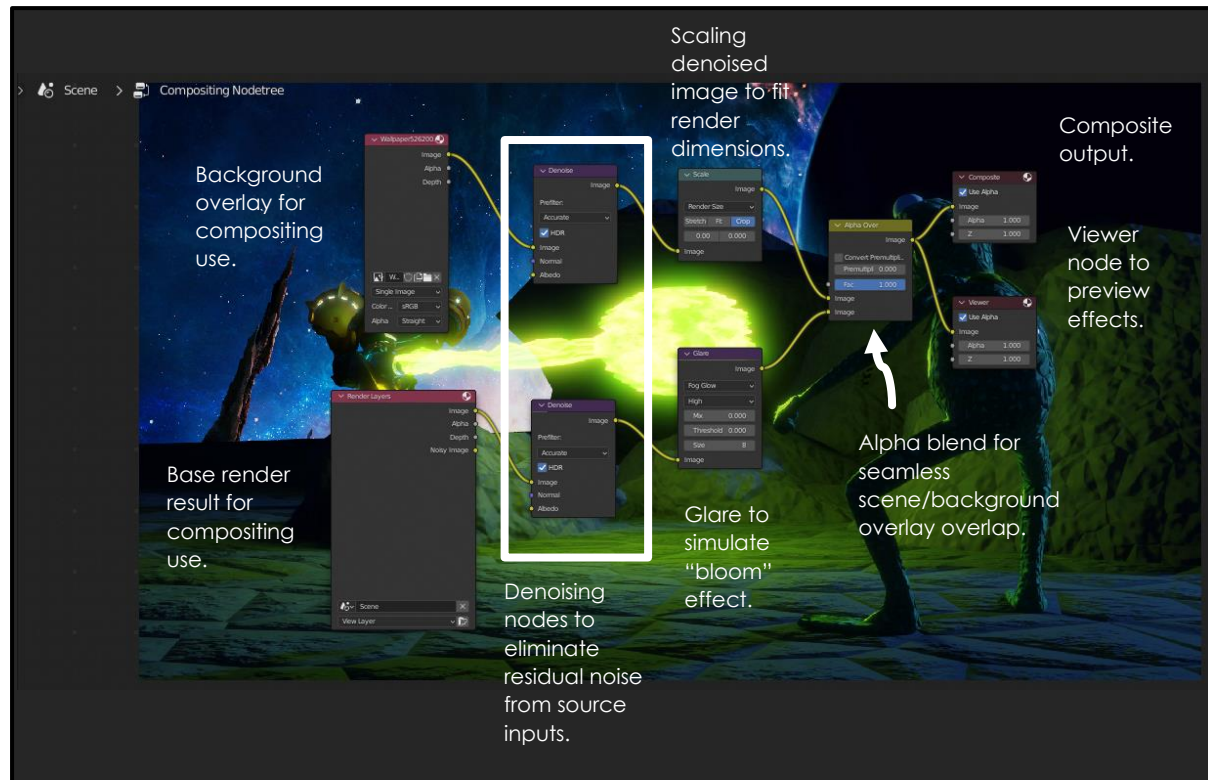
Settings enabled to increase rendering speed, with a small hit on scene building speed from the “Use Spatial Splits” checkbox. “Persistent Data” is effective on static scenes.

## Colour Management Settings

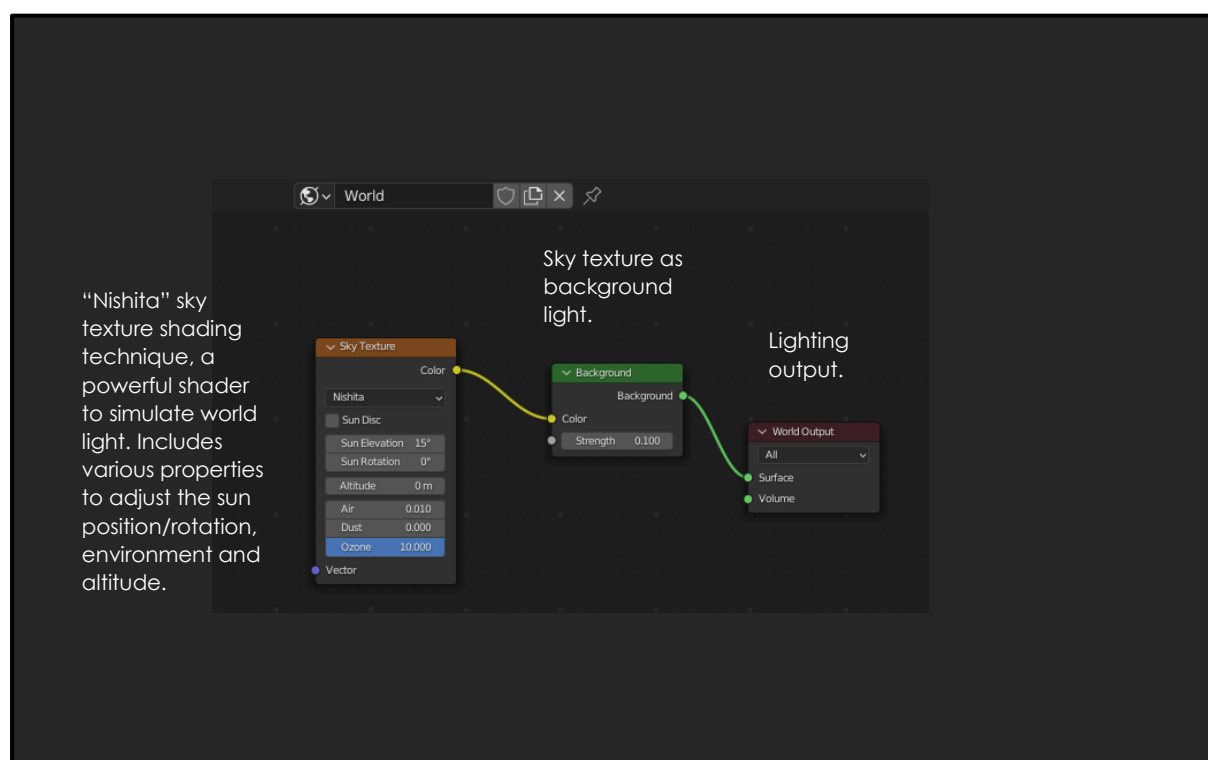


Colour management was adjusted to match the scene lighting with the background/overlay. Selected "Medium Contrast" and reduced exposure/gamma to 0.7 and 1 respectively.

## Compositing Settings

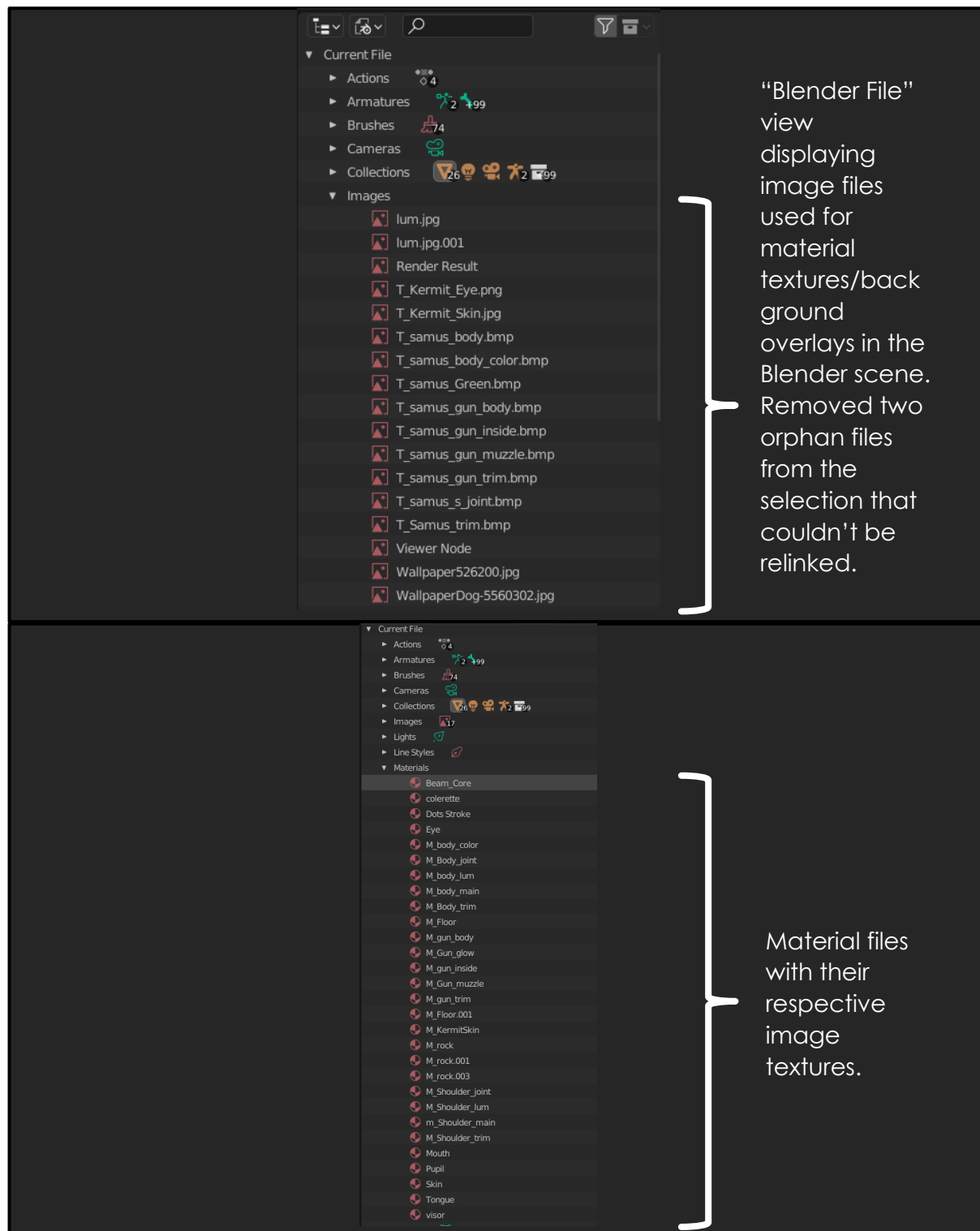


## World Lighting Settings



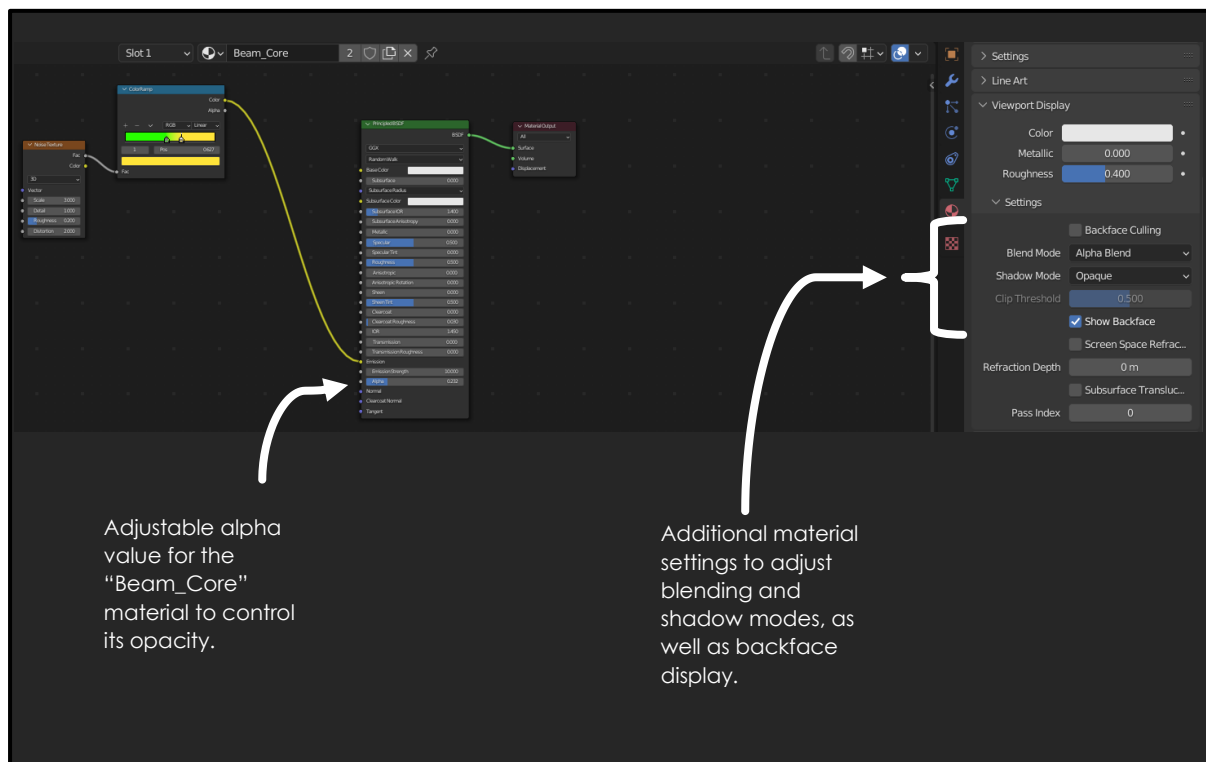
## Images/Textures Linkage

### Linked Images/Materials





## Alpha Channels/Opacity Maps



## Render Layers/Passes

The screenshot shows the 'Render Layers/Passes' settings menu. The 'View Layer' is enabled for use in image rendering. The 'Passes' section is expanded, showing the 'Data' category. The 'Include' list has 'Combined' and 'Z' checked, with a bracket indicating they are enabled by default. The 'Alpha Threshold' is set to 0.500, with a bracket indicating it affects the 'Z' pass. The 'Light' category is expanded, showing 'Diffuse', 'Glossy', 'Transmission', 'Volume', and 'Other' sub-categories. A bracket indicates that the 'Diffuse', 'Glossy', and 'Transmission' sub-categories are enabled to improve picture quality while respecting the 2-minute rendering time constraint.

View layer enabled for use in image rendering.

Use for Rendering  
Render Single Layer

Passes

Data

Include ☒ Combined  
☒ Z  
☐ Mist  
☐ Position  
☐ Normal  
☐ Vector  
☐ UV  
☐ Denoising Data

Indexes ☐ Object Index  
☐ Material Index

Debug ☐ Sample Count

Alpha Threshold 0.500

Light

Diffuse ☒ Direct  
☒ Indirect  
☐ Color

Glossy ☒ Direct  
☒ Indirect  
☐ Color

Transmission ☒ Direct  
☒ Indirect  
☐ Color

Volume ☐ Direct  
☐ Indirect

Other ☐ Emission  
☐ Environment  
☐ Shadow  
☐ Ambient Occlusion  
☐ Shadow Catcher

"Combined" and "Z" data passes enabled by default.

Alpha threshold which affects the enabled "Z" pass for surfaces equal to or less than the threshold value.

Enabled light pass effects to improve picture quality while respecting the 2-minute rendering time constraint.

## References

Blender Foundation. (2022, October 24). *Format*. Retrieved from Blender Documentation:  
<https://docs.blender.org/manual/en/3.3/render/output/properties/format.html>

Blender Foundation. (2022, October 24). *Sampling*. Retrieved from Blender Documentation:  
[https://docs.blender.org/manual/en/3.3/render/cycles/render\\_settings/sampling.html](https://docs.blender.org/manual/en/3.3/render/cycles/render_settings/sampling.html)