0 A.D. a FLOSS Game

GrafikLabor 2019

by Stanislas Dolcini

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GAMES

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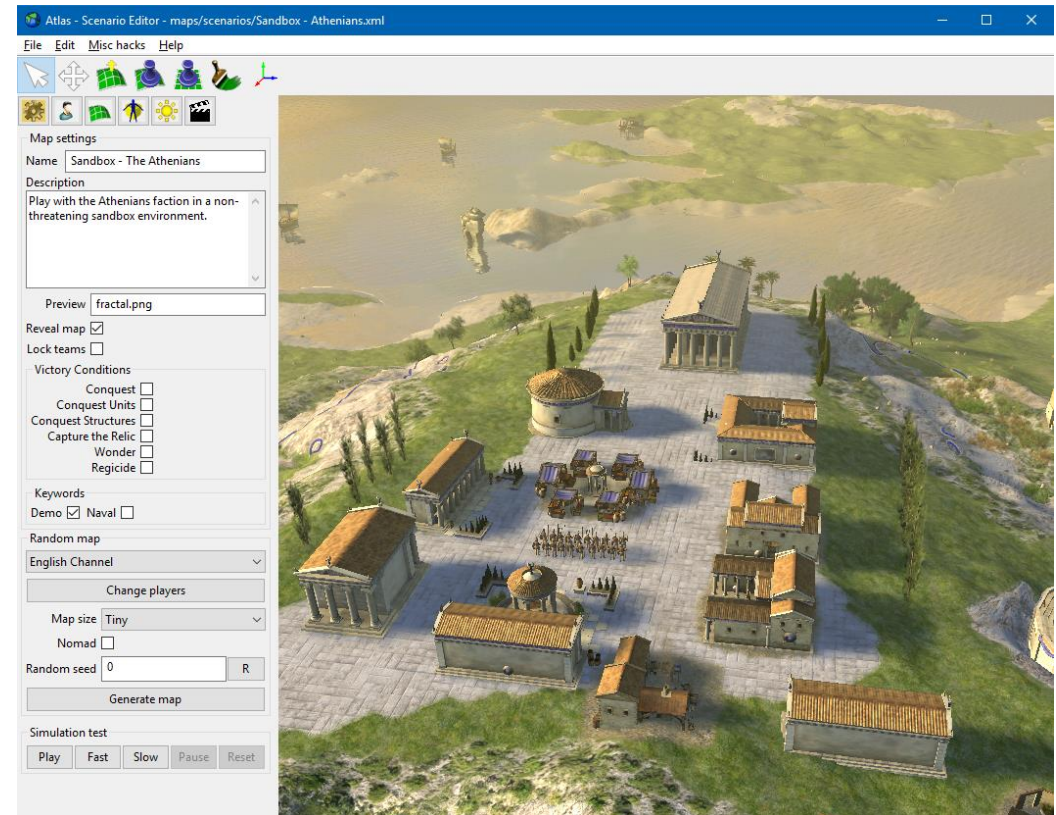4. General Tips

Presentation

What is 0 A.D.

- A historical, antiquity based, real time strategy game.
    - From a simple military base, grow, evolve, and beat your enemies.
- A Free Libre Open Source Software, multi-platform game.
- The game is in an advanced stage and already playable.
- Available on Mac OS, Linux and Windows on https://play0ad.com

History

- Started in 2001 by "Microsoft Age of Empires : Age of Kings fans".

- Made Open Source in 2009

- Last version Alpha 23b : Ken Wood (24th version)

What is new in A23

- New 3D Models

- New maps and game modes

- Mod.io an open source steam workshop

- Building range is now visible

- Diplomacy colors

- GDPR Compliance

- A new faction: the Kushites

Kushite Emblem by Lion.Kanzen and Sundiata, find more about the Kushites here:
https://wildfiregames.com/forum/index.php?/topic/21602-the-kingdom-of-kush-a-proper-introduction-illustrated/

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Technical details

- Homegrown game engine

- Game Languages:
    - C++
    - JavaScript (Mozilla Engine)

- Assets: XML/JSON/

- Tools Perl/Python

- Build LUA (Premake)

- Multiplayer chat XMPP

- (Translation) PO files (transifex.com)

- OpenGL 2.0, GLSL 1.10 / OpenGL 1.0, ARB Shaders

- Third party libraries: Boost, Enet, Gloox, Iconv, ICU, libcurl, libpng, libsodium, libxml2, miniupnpc, OpenAL, Vorbis, Wxwidgets, nvtt, zlib, Fcollada, Spidermonkey SDL 2.
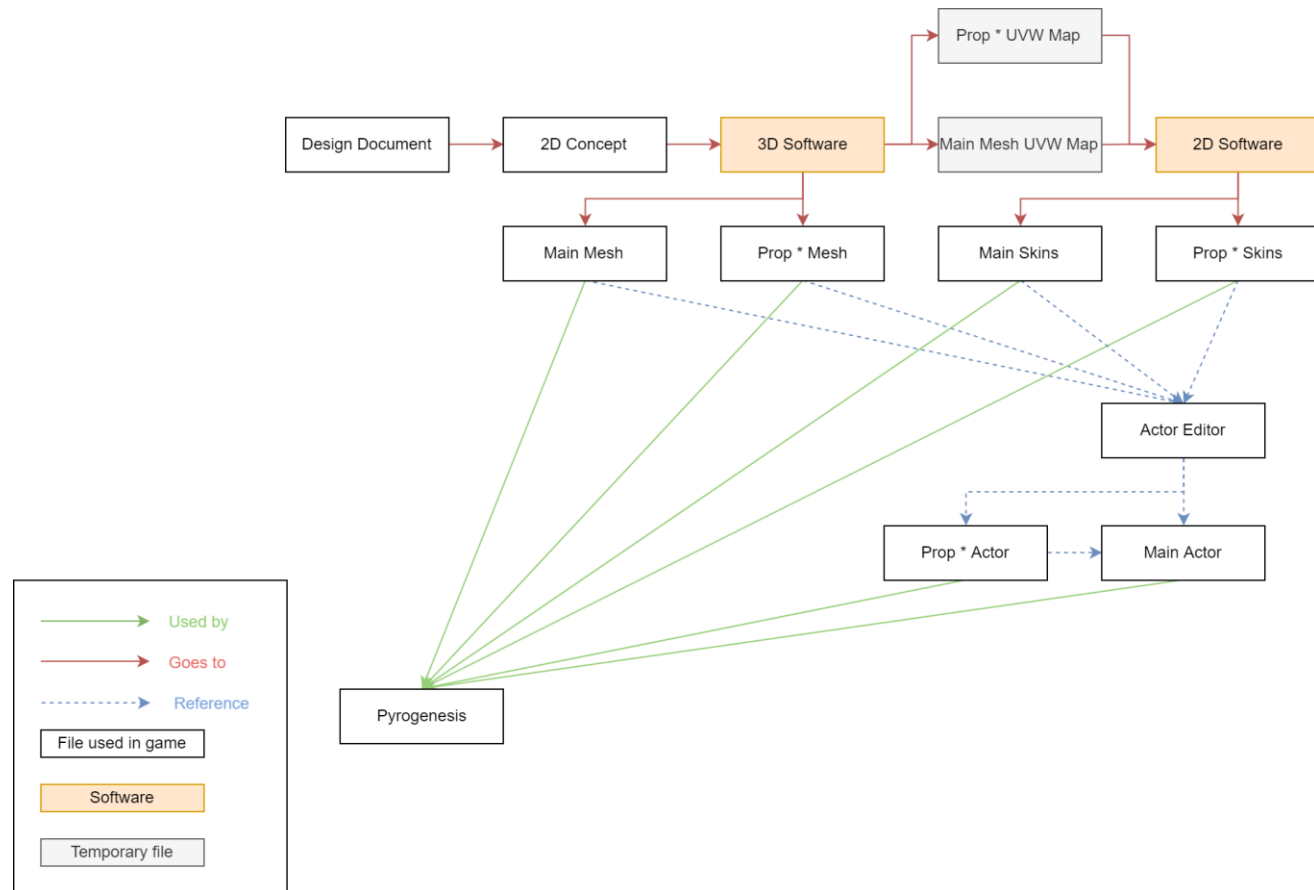

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XMPP

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0 A.D.'s Art Design Document

Pipeline	Textures and Texel density
Theme	Re-using assets
Polycount	Naming conventions

Pipeline

- Design Document
- Concept/ References
- Modeling
- Texturing
- Rigging/Animating
- Exporting
- Actor

More can be found at: https://trac.wildfiregames.com/wiki/ArtDesignDocument
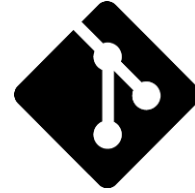
Theme

- Defining the theme
  - Cartoon
  - Realistic
  - Semi realistic
- Theme defines:
  - Exaggeration level
  - Colors
  - Concept/Reference sources

From left to right: Ponies Ascendant, Hyrule Conquest, 0 A.D Vanilla

Naming conventions

- Before doing anything, it is important to set the naming conventions for models, textures, and other files.

- Caps and spaces and specials characters are your enemies if you are using versioning and/or windows

- The most important thing about naming convention is

- You must take the addition of new models into account.

A bad example of file naming consistency.

Here you can have up to 99 different barrels with the same convention

Poly Count

- Defines the number of sub triangles making a mesh.

- Always keep polycount as low as possible
 - Do not model small objects, embed them in the texture instead.

- Always have a target polycount in mind for each type of objects.

- Max polycount per mesh in Pyrogenesis : 32768
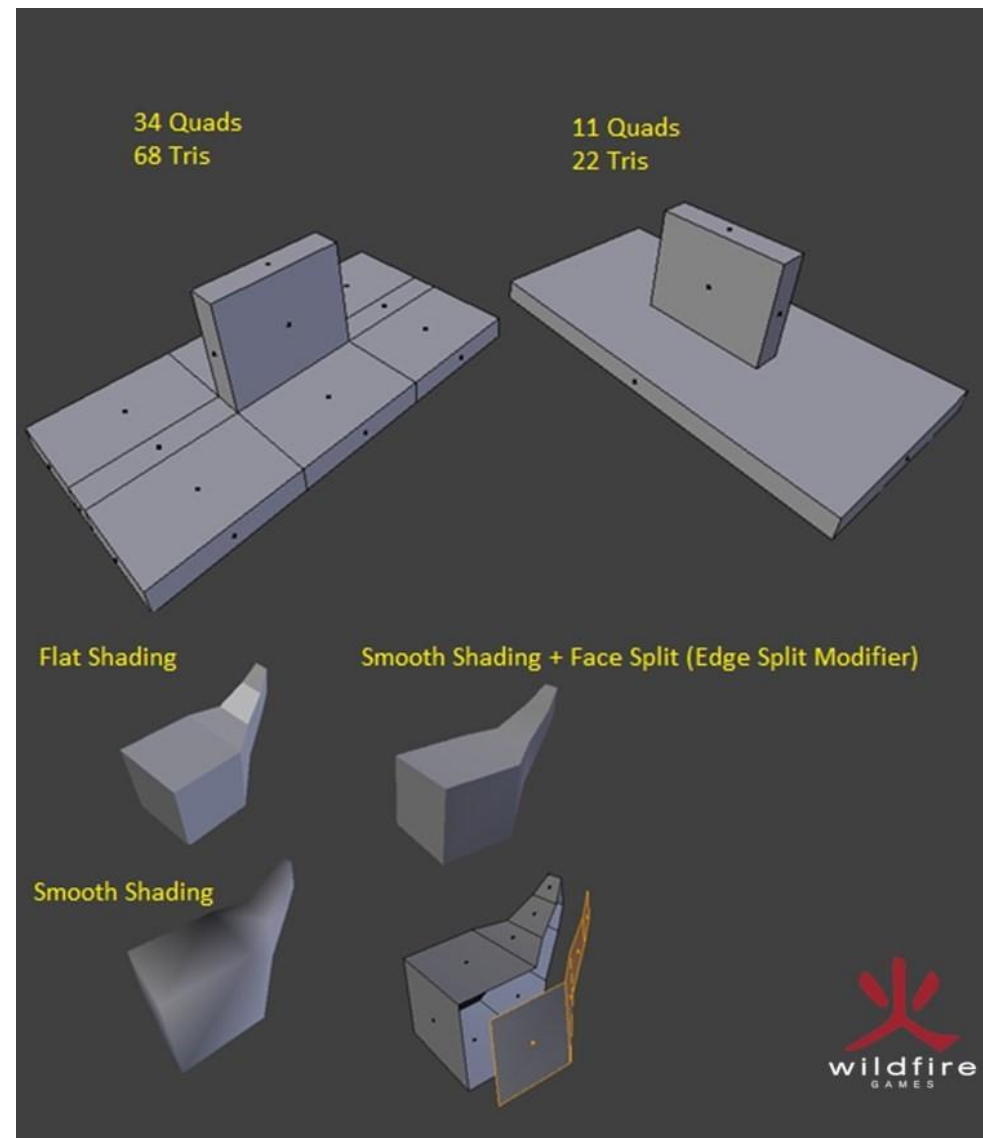
More tips by our previous Art Lead Enrique Keykens can be found at:
https://wildfiregames.com/forum/index.php?/topic/18340-lowpoly-tips/

Texel density
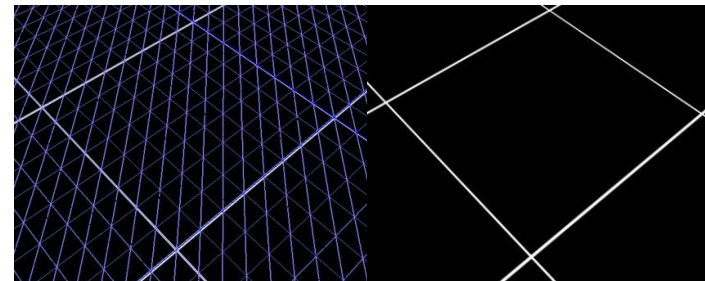
- Texel = Texture element
- Fundamental unit of texture space
- Textures on 3D objects are represented by texels in the same way images are represented by pixels.
- Texels are a container for pixels
- Texel Density in Pyrogenesis:
  - 1024x1024px = 16 x 16 units in Blender 8x8 units in the game
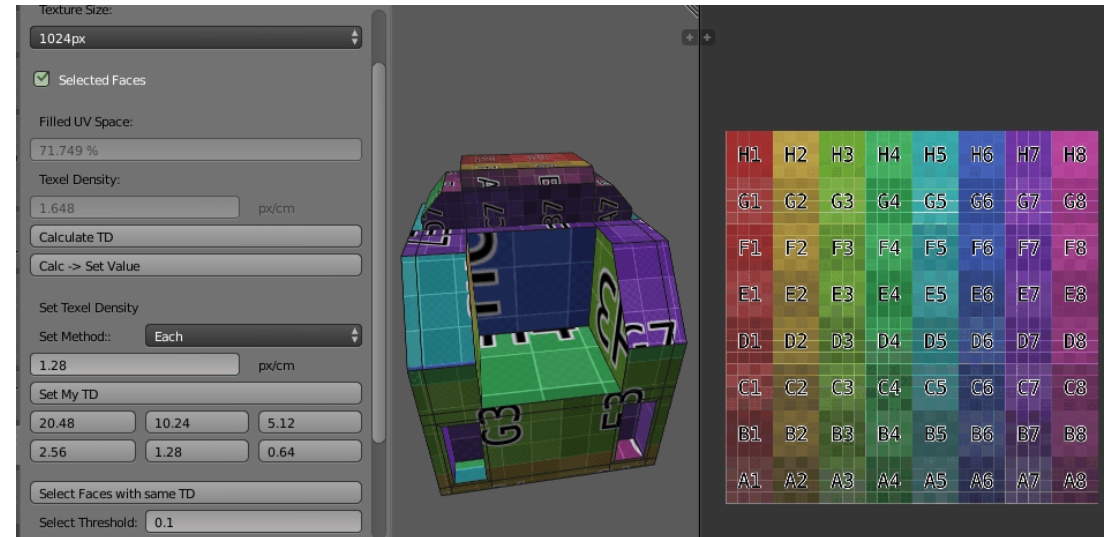
Blender Addon: Texel Density Checker 1.0.8
By Ivan Vostrikov : https://gumroad.com/l/CEIOR

Textures

- Try to keep your Texel density constant
  - Exception: Very small objects might look better with a higher Texel density.
- Always use more saturated colors than in the reality
- Textures should be Power of 2
- Use texture atlases to save memory
- Max texture size in Pyrogenesis: 4096x4096px

The britonnic structures' texture atlas.

Re-using assets

- Try to make reusable props (barrels, crates..)
- Saves time for a building set,
- Ensures that the building are consistent throughout the set.
- Allows for engine optimizations such as Instancing.
- If done correctly allows for more visual variety by just swapping props.
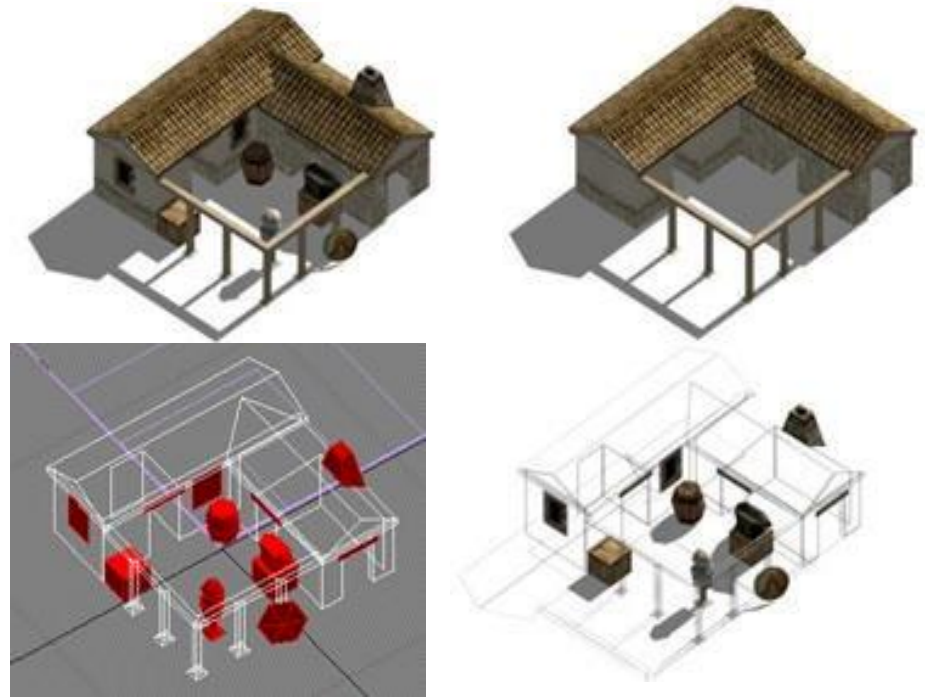
Athenian house model.

Working for a free software project as an artist

A wide range of possibilities

Sharing is caring

A wide range of possibilities

- Everything is doable
- No time restrictions
- No high priority tasks.
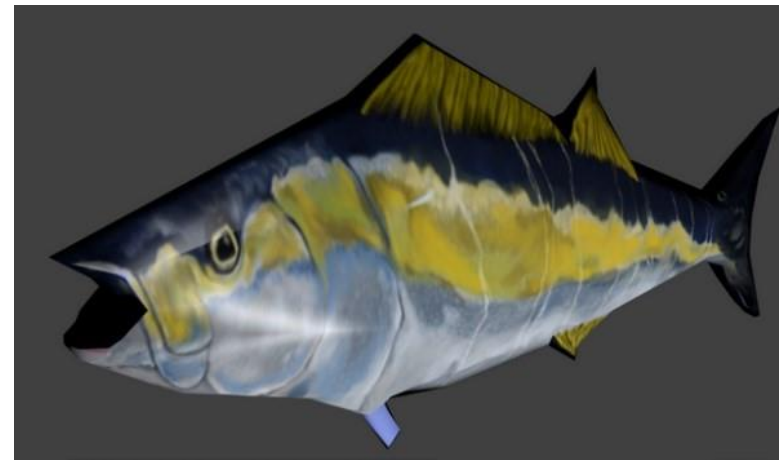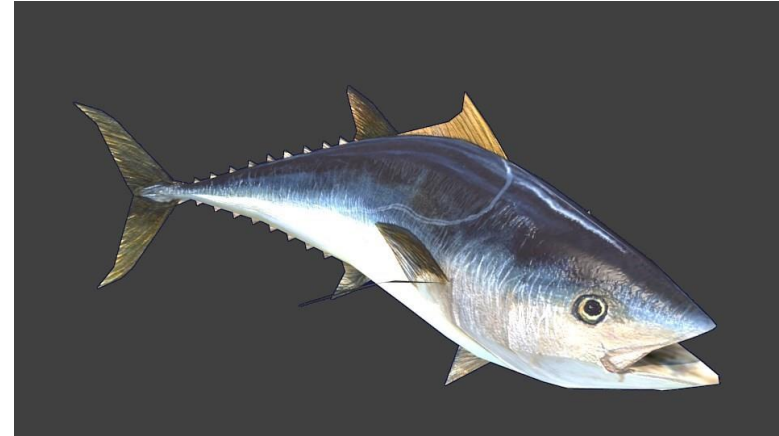
Tuna models by Enrique, and Marion

Sharing is caring

- If everyone shares his/her models/materials/textures the overall quality will improve.

- Share resources tutorials to help other people improve.
  - They will figure things that you did not even think of.
  - They might point out flaws in your workflow.

Procedural CC-0 PBR wood shader: https://www.blendernation.com/2017/10/20/procedural-cc-0-pbr-woodshader/#jp-carousel-74456

With great power comes…

- Reviews
  - Always give constructive criticism
  - Your goal is to bring the best out of every contributor
- Self Evaluation
  - Make sure you are not lowering the quality standard to save time.
  - It is okay to make mistakes.

blue-staple.tumblr.com

Practice makes perfect

- To improve you need to practice.

- Do different things

- Take breaks

- Pay attention to details, they make all the difference

- Use the tools you are the fastest with

New desert cliffs by Lordgood: https://www.deviantart.com/lordgood

Some other tips

- Watch as many tutorials as you can

- Do not be afraid to pay for tutorials

- Use add-ons

- Keep learning
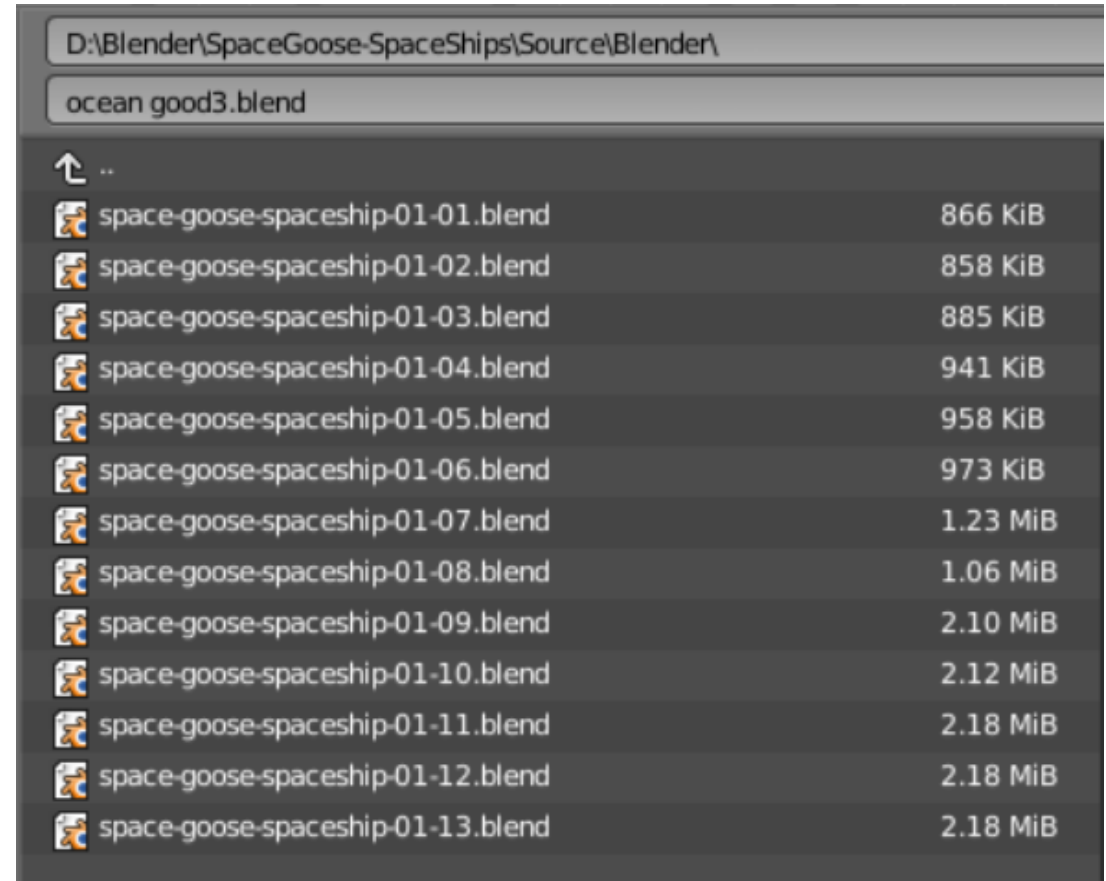

New temperate 0 A.D. flora by BigTiger

Organization

- Keep lossless files around
- Use incremental saves.
- Save often
- Use directory workspaces
  - References
    - Subfolders
  - Source
    - Blender
    - Gimp
  - Import
    - Textures
    - Meshes
  - Export
    - Textures
    - Meshes
    - Renders

D:\Blender\SpaceGoose-SpaceShips\Source\Blender\

ocean good3.blend

⬆ ..

space-goose-spaceship-01-01.blend	866 KiB
space-goose-spaceship-01-02.blend	858 KiB
space-goose-spaceship-01-03.blend	885 KiB
space-goose-spaceship-01-04.blend	941 KiB
space-goose-spaceship-01-05.blend	958 KiB
space-goose-spaceship-01-06.blend	973 KiB
space-goose-spaceship-01-07.blend	1.23 MiB
space-goose-spaceship-01-08.blend	1.06 MiB
space-goose-spaceship-01-09.blend	2.10 MiB
space-goose-spaceship-01-10.blend	2.12 MiB
space-goose-spaceship-01-11.blend	2.18 MiB
space-goose-spaceship-01-12.blend	2.18 MiB
space-goose-spaceship-01-13.blend	2.18 MiB

On blender, use F2 to open the save menu, then press + and press enter.

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Set deadlines and objectives

- It will never be perfect

- Deadlines make you more productive

- (Optional) Set consequences if you do not achieve your goal.

Thracian tower by Stanislas Dolcini

Contributing

Open positions

Where to start

Open positions

- Art
- 2D/3D, Animation, Environment
- Programming
- AI, Engine, Maintainers, DevOps, Reviewers
- Documentation
- Translations
- Map Making

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Where to start

- On the forums
  - https://wildfiregames.com/forum
- On the wiki
  - https://trac.wildfiregames.com
- On IRC
- #0ad-dev on QuakeNet.org

Thank you for your time