CASE STUDY: OSTRIV

MADE BY VIKTOR MYSKO

Where OSTRIV was made?

▶ **Ostriv** is a city-building game that puts you in a role of a governor of an 18th century town to challenge your creative skills and management abilities. Dive into the story mode and decide the fate of your country, or just build your cities for fun in sandbox mode.

June 1723 45 527.02

Forestry ?

Production limits:
Log   12
Wood   200
Firewood 200

Stored:
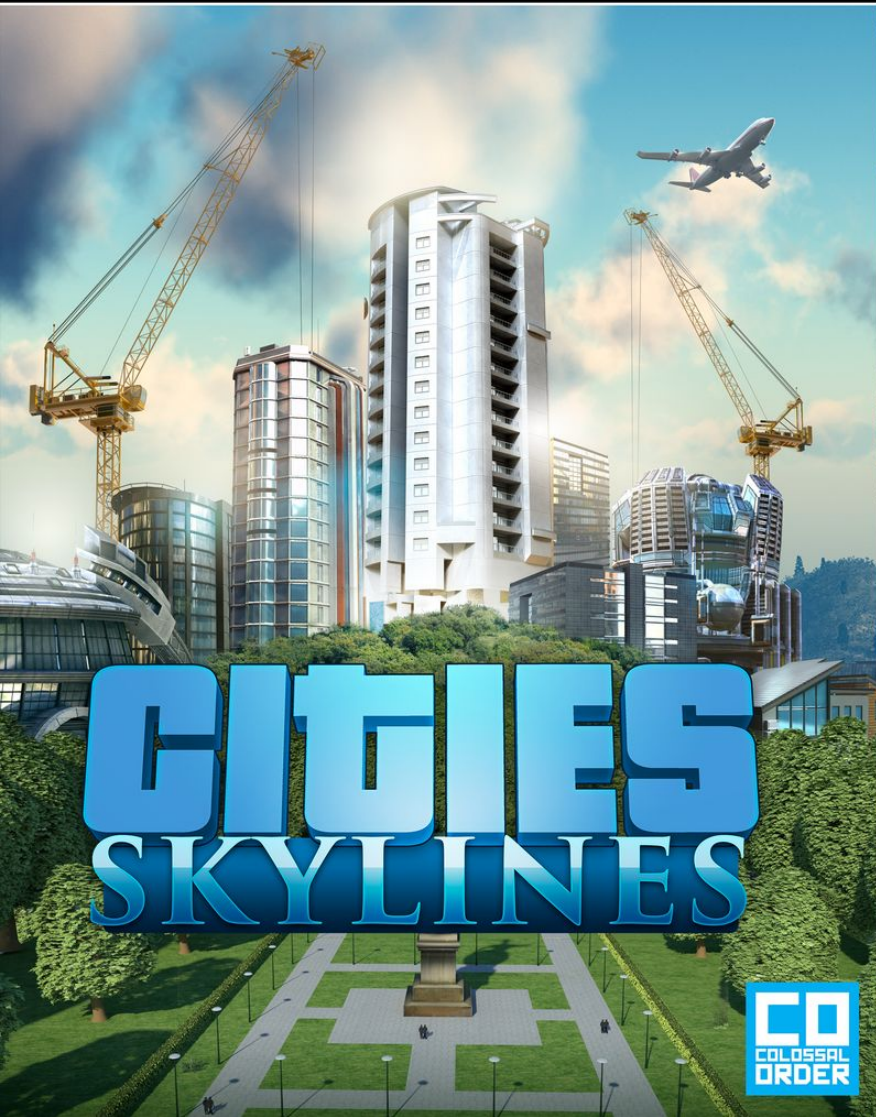Firewood 203
Wood 205
Log 10

Awaiting:
Log 1

Workers:

Demolish

Alpha 1

The top popular city-building games:

GAME REQUIREMENTS:

- Multicore processor
- **powerful gaming video card** that supports OpenGL 4.3+
- Integrated Intel video cards are not currently fully supported. Some Radeon cards may experience reduced performance at this point.

How it was made?

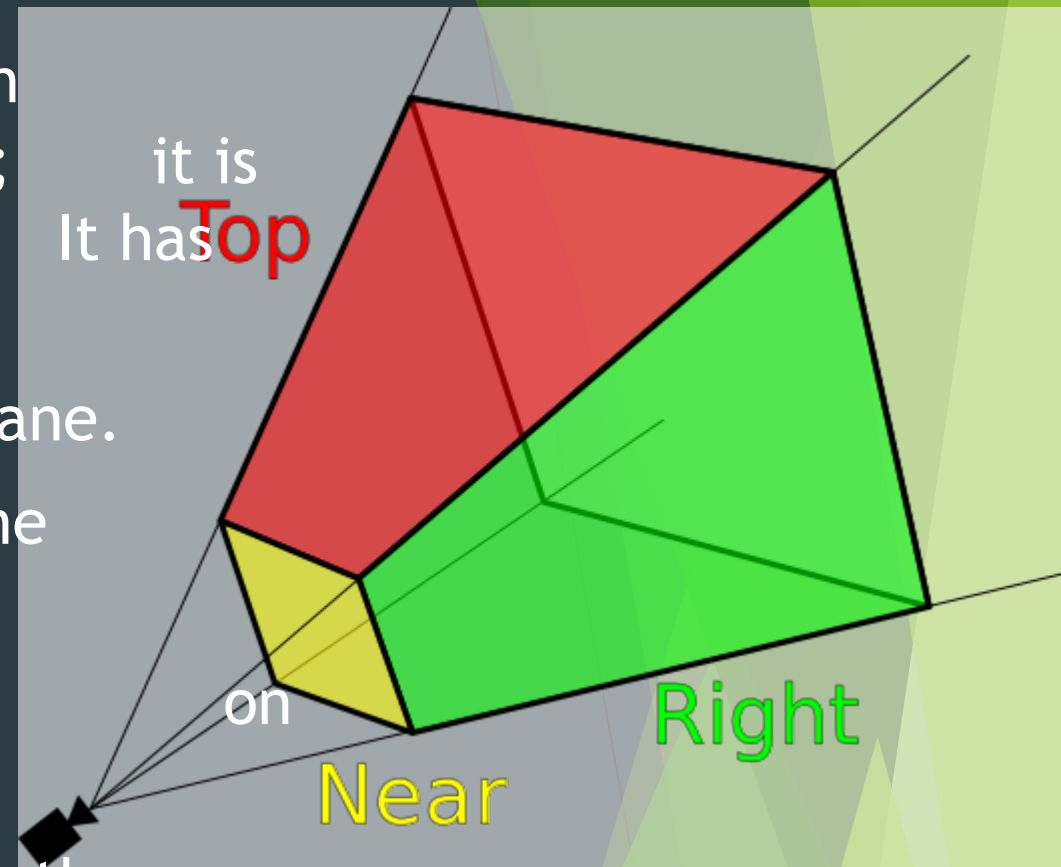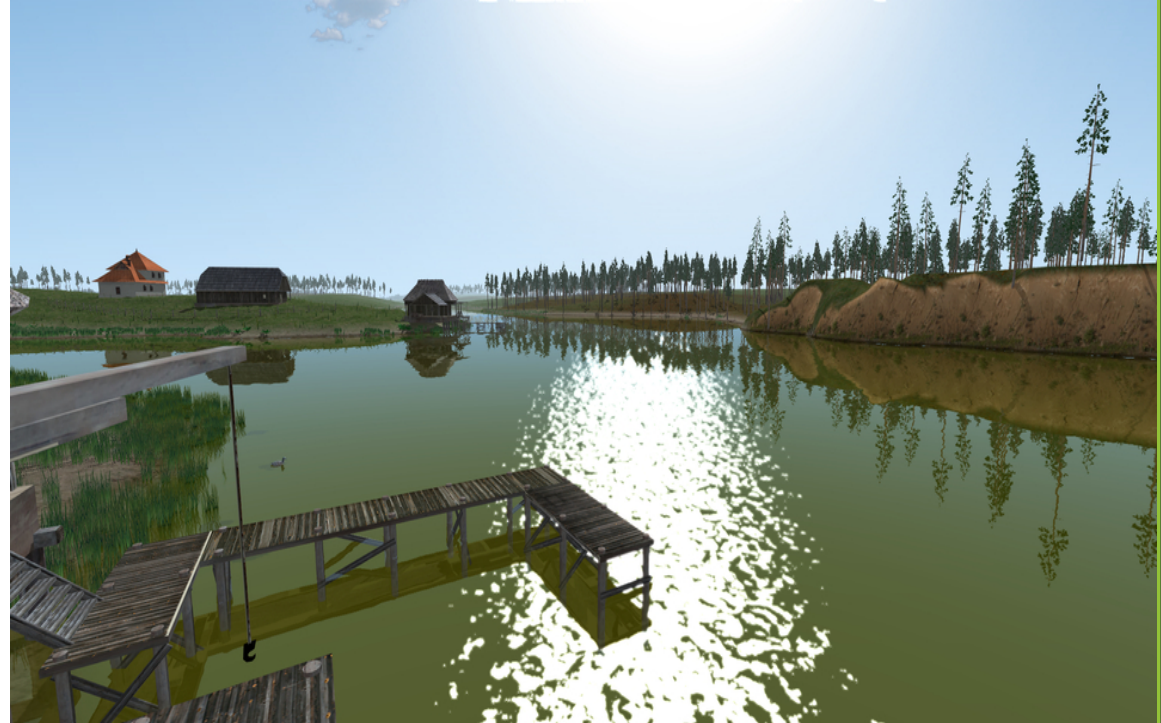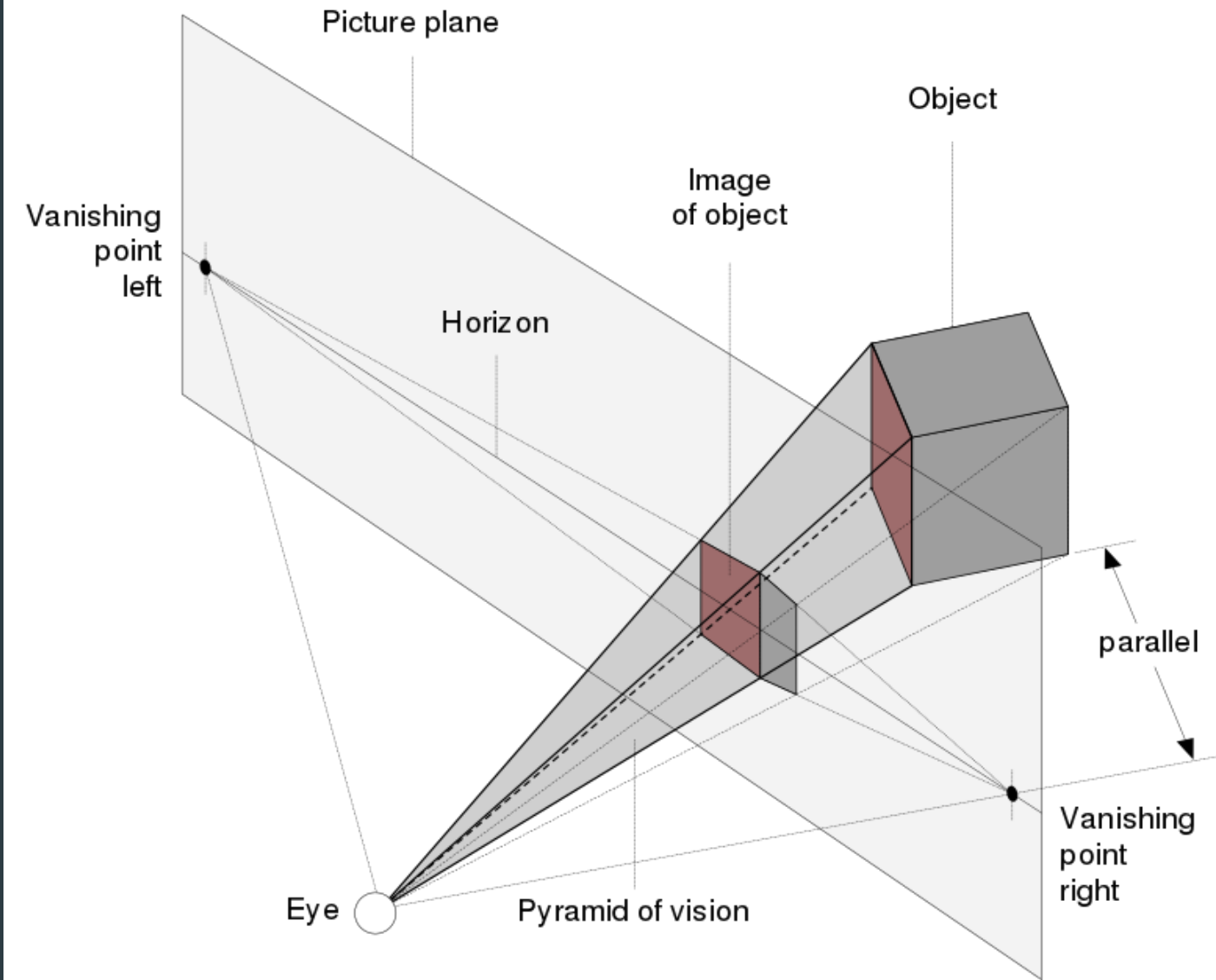> ▶ The whole game code base, models, textures, etc – all of that were made after more than 2 years of development

- Also there were prototyped plough construction (as well as some other vehicles) in carpenter's workshop, made fullscreen/window switch in options, made save-loading for building resources, somewhat optimized trees and plants rendering with **frustum culling**, and added some features to developer's animation tool…

- Yes, the developer made his own animation program and game engine

The view frustum – is the region of space in the modeled world that may appear on the screen; it is the field of view of the notional camera. It has those values:

▶ the view-plane normal – a normal to the view plane.

▶ the view-up vector – the vector on the view plane that indicates the upward direction.

▶ the viewing reference point – a point located on the view plane, and the origin of the VRC.

▶ the projection reference point – the point where the image is projected from, for parallel projection, the PRP is at infinity.

▶ the viewing-reference coordinate system.

Picture plane

Object

Image
of object

Vanishing
point
left

Horizon

parallel

Vanishing
point
right

Eye

Pyramid of vision

As a first steps, basic clouds functionality added, improved grass textures, improved and optimized shadows resolution, and the most important: there's now a basic UI visible on screenshots
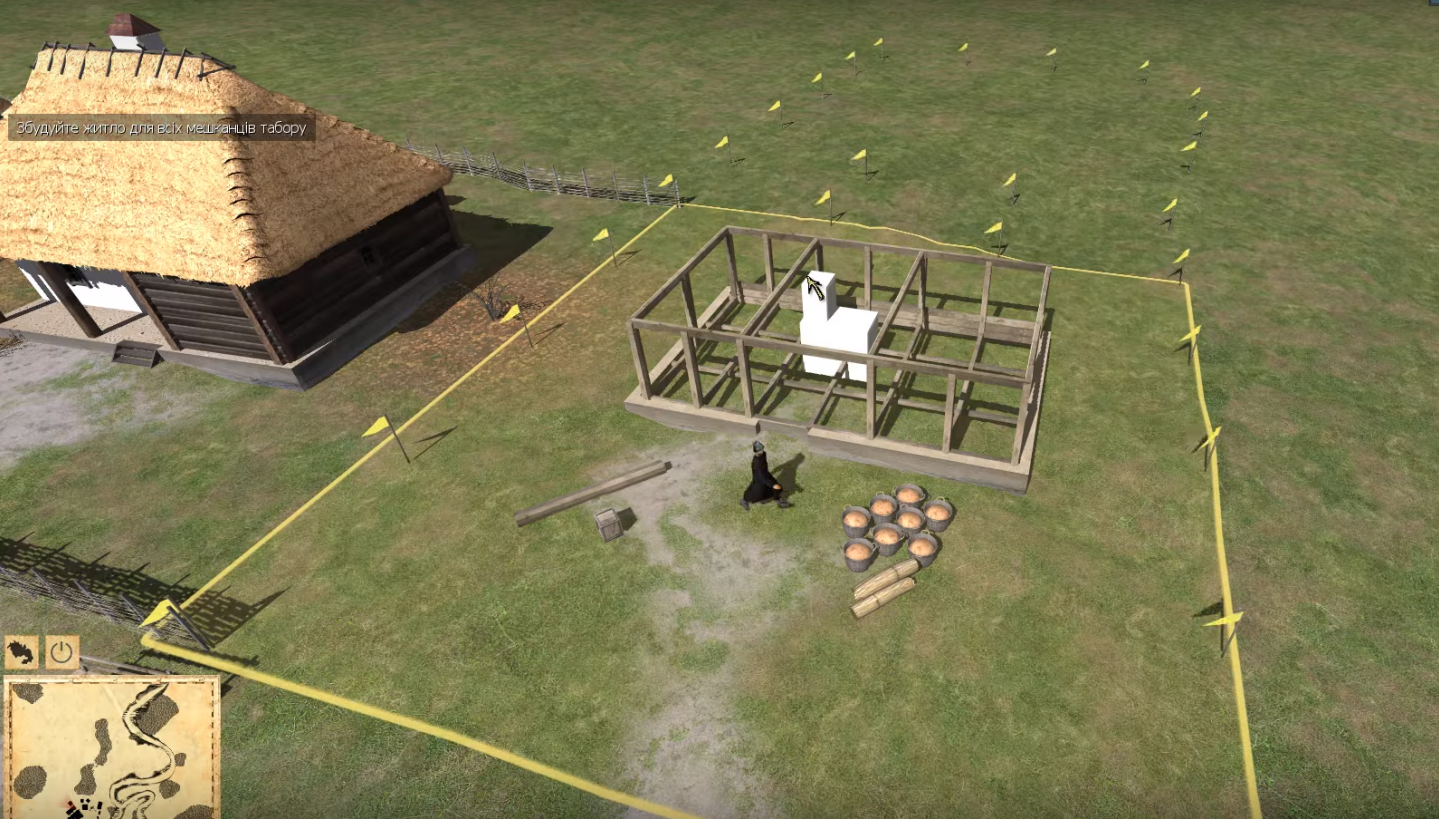
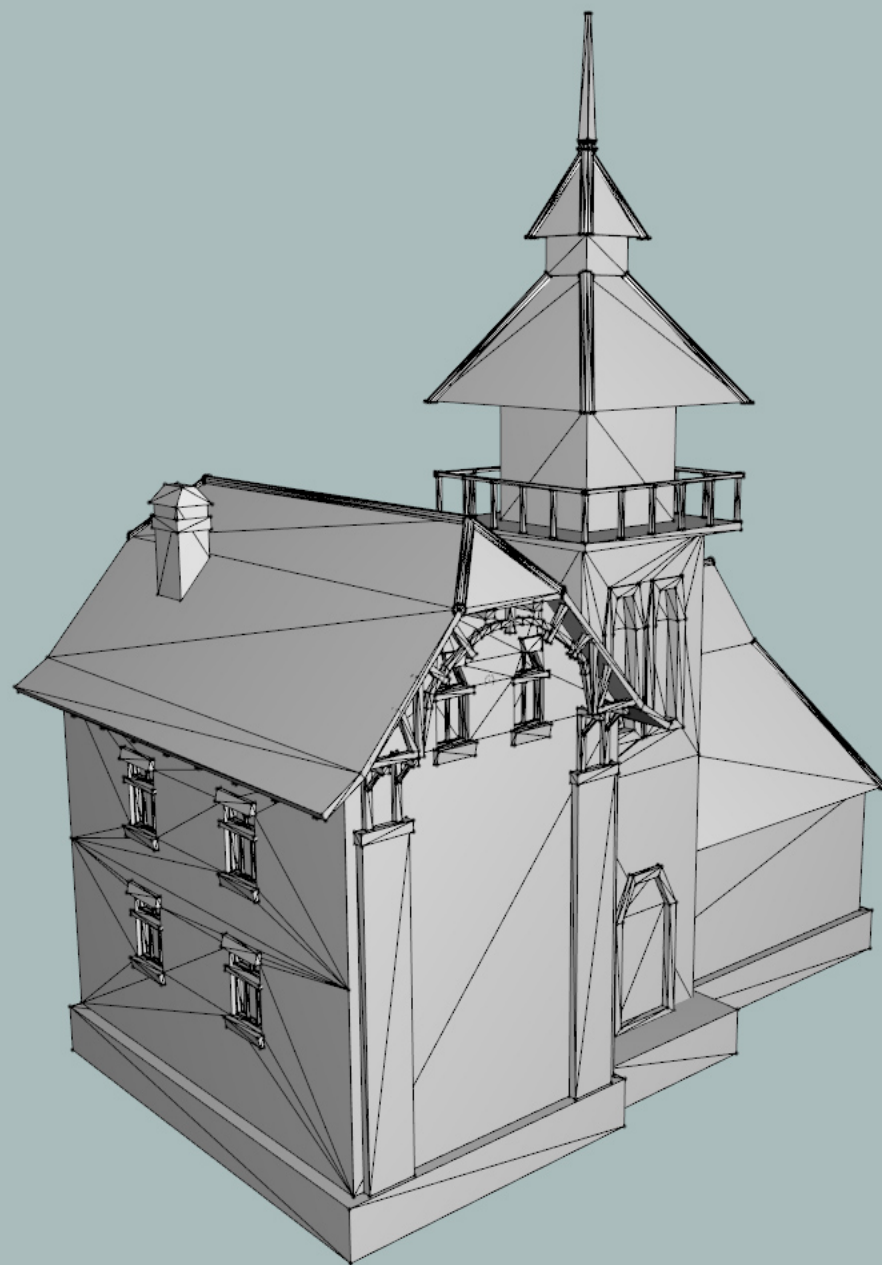For the first 2 month of active coding it was added textures of the winter

A LITTLE STEP BACK:

▶ The idea of the game appeared in 2003 when Eugeniy, the author of the OSTRIV started to build his own Half-Life maps with C++. That helped him to understand that all map consists of polygons.
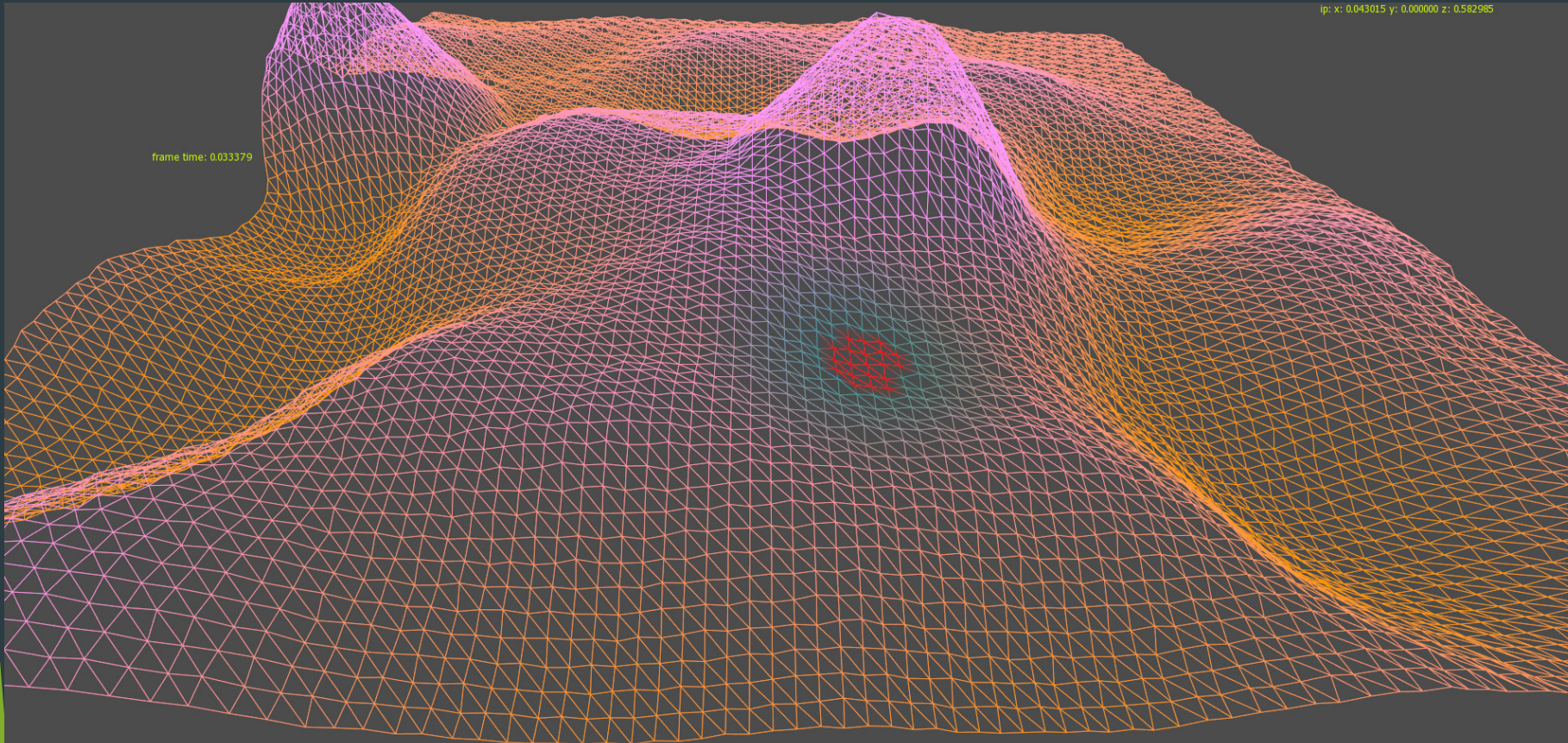
A LITTLE STEP BACK:

▶ For years the developer gained his 3-D graphics skills and collect them on his own technology. Including the model editor, in which he is currently making all the models for Ostriv:
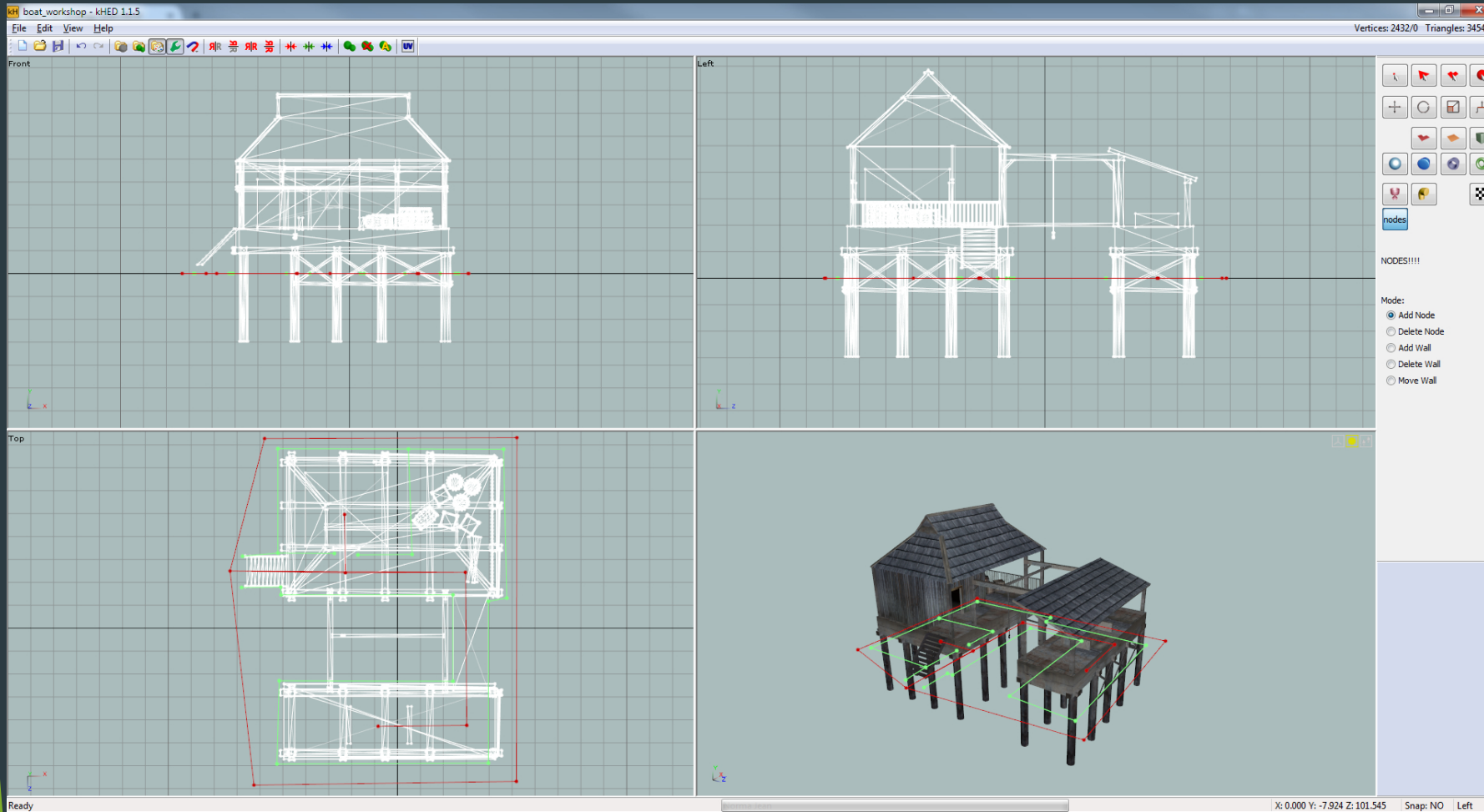
A LITTLE STEP BACK:

▶ So, in spring of 2014 the development of a new game started. Back then it had just a working title strategy.exe, and here's how it looked:

frame time: 0.033279

inner radius: 0.040000
falloff: 0.000000
ip: x: -0.008303 y: 0.000000 z: 0.595078

0.016724

WATCH & VARS:
eye: 3.607981 0.404072 -0.578607
best depth: 0.395599
zoom: 1.000000

Хата
Криниця
Ферма
Поле
Млин
Комора
Ринок
Рада
Намет
Намет-комора

26 безробітних

IDEA:

▶ Considering that Ostriv has much smaller scale than modern-city-building games like SimCity 4 or Cities: Skylines it's reasonable to pay more attention to details.

▶ For example: feature of plowing field, which for some reason never had attention from city-building games:

IDEA:

▶ Obviously, city-building games fans are people with high self-actualization needs. With this in mind, it will be added as much as possible tools to customize the appearance of buildings. One of the new features – buildings colors. Now the player can choose their own colors for painted walls:
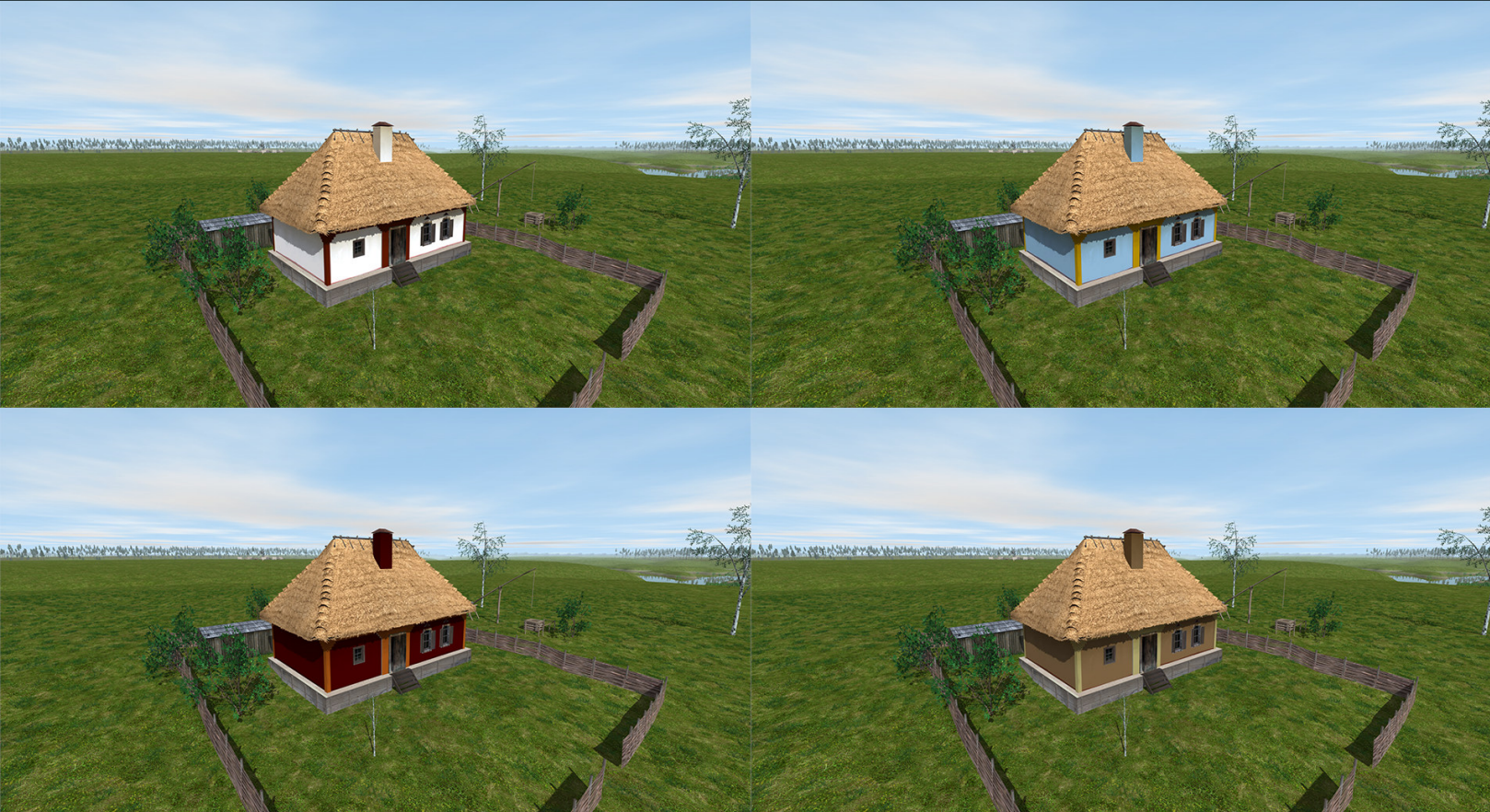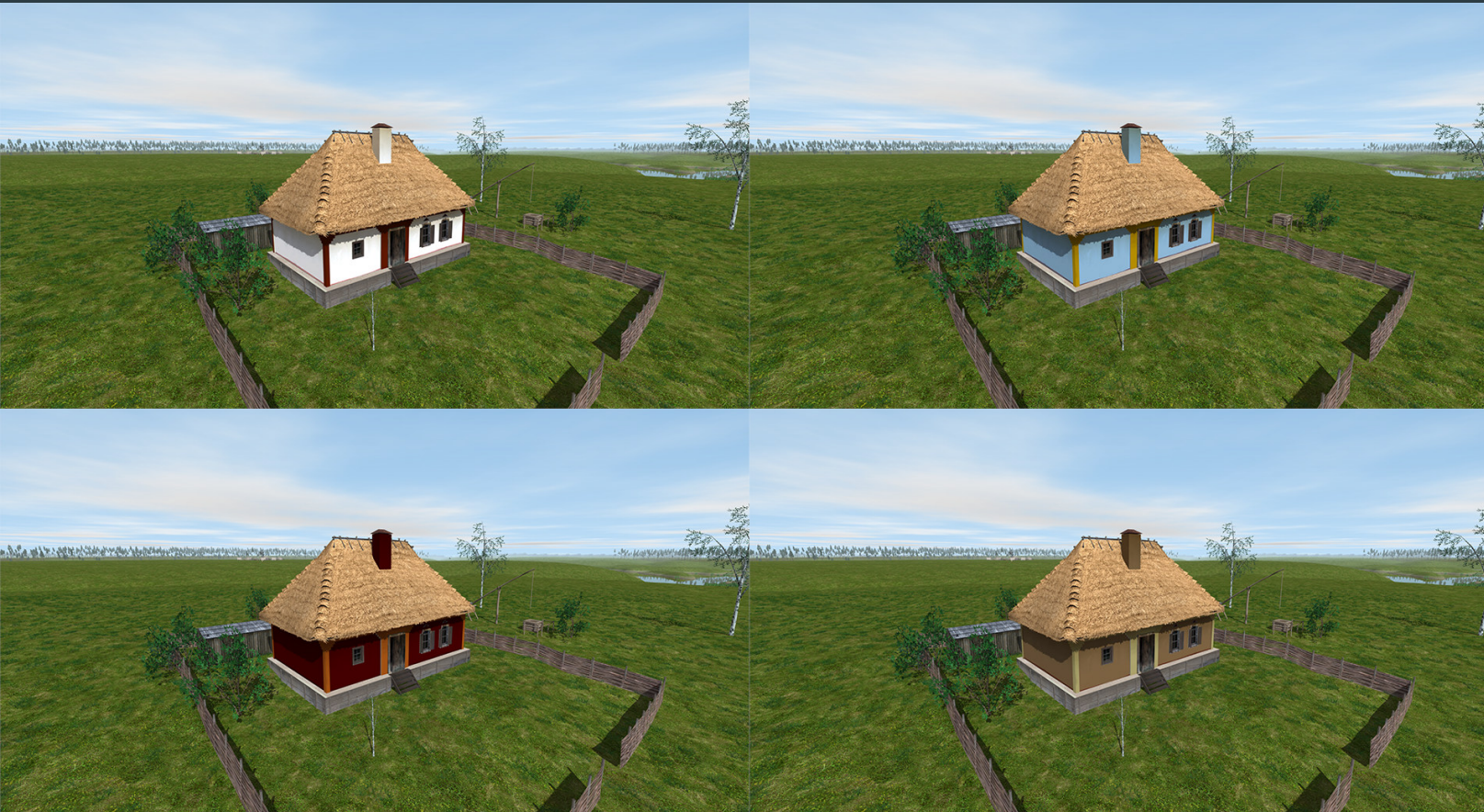
IDEA:

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The regions of painted surfaces are defined in a separate texture map together with the specular reflection map, which will also be available for mod creators. Later, it will be added the ability to apply ornaments on the walls, which will be selected from the list of available patterns.

SEASON CHANGE:

▶ For each tree model there's three visible textures and three texture maps for scattering, color transition timing, and a distance-field for growth in spring. There's also a particle system which is activated in autumn to simulate falling leaves.
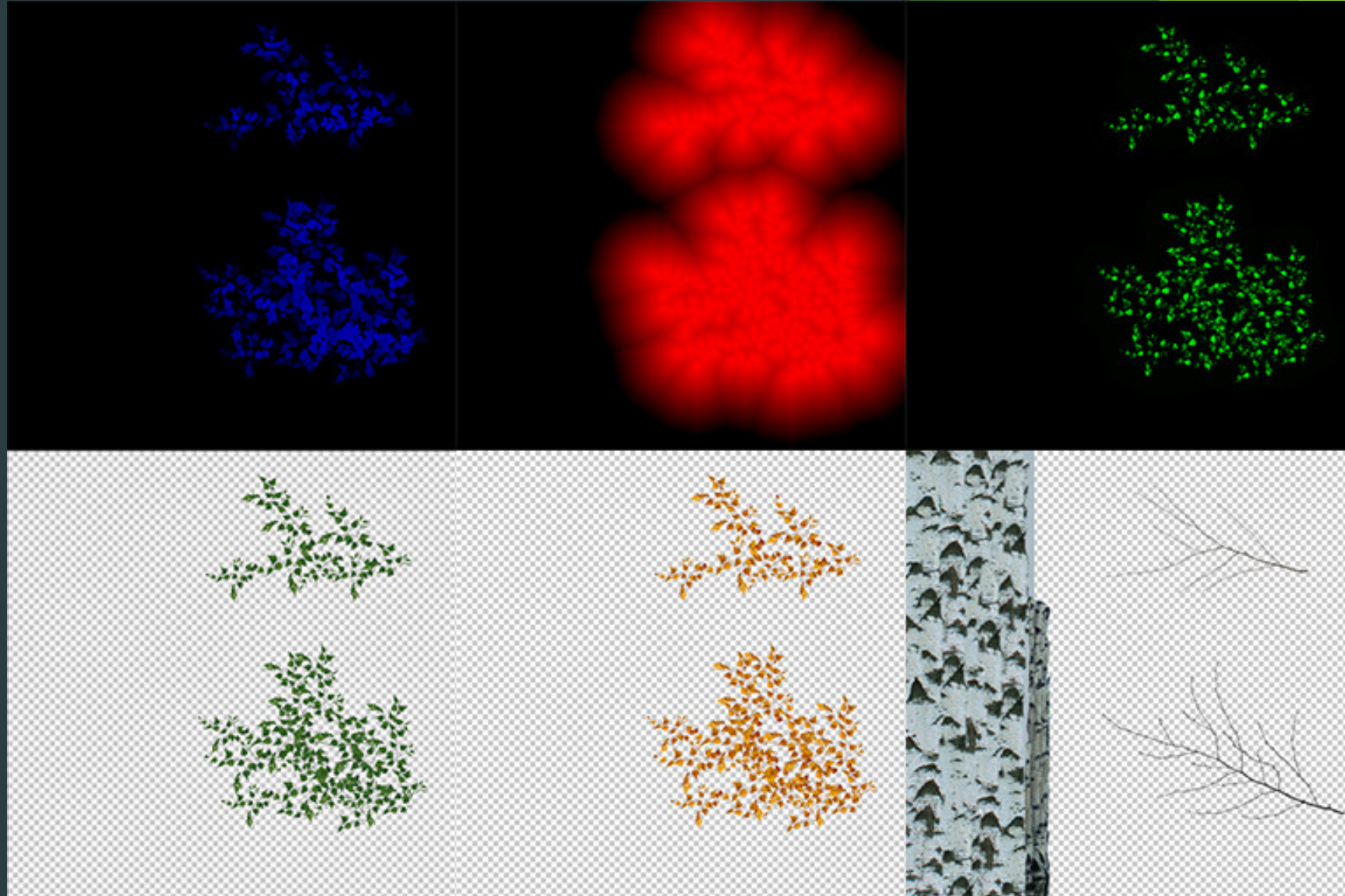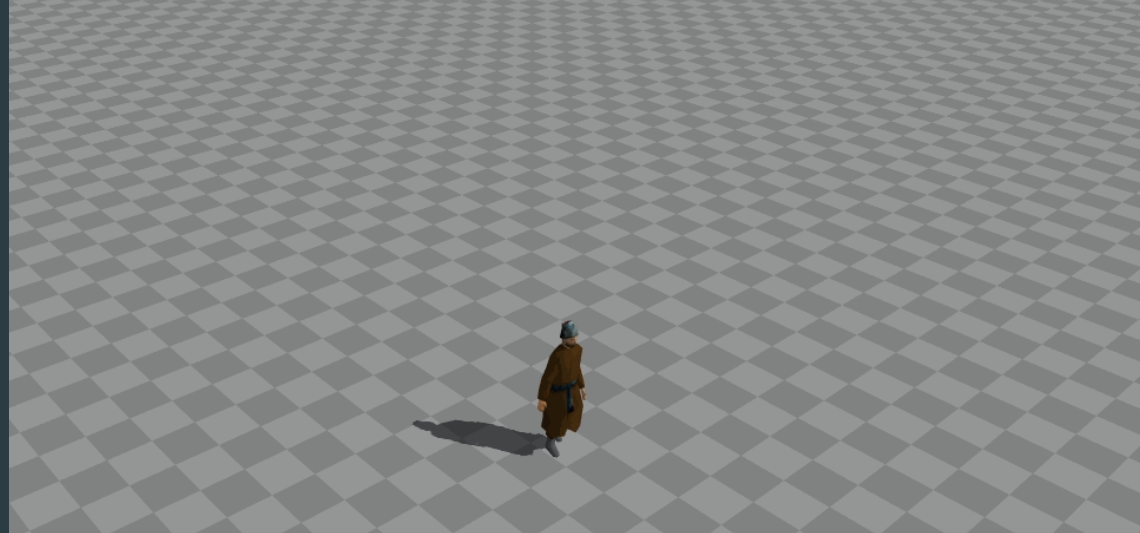
ANIMATION:

► Game developer made his own tool for long-awaited animations. Also a lot of changes have been made to character rendering code about animation and about their look in general. It was made a system, which generates all the citizens variety: clothes, faces, hats etc. There's also different clothes for different seasons.

ANIMATION:

▶ Added resources models to be shown while storing or transporting

▶ more convenient coastline snapping
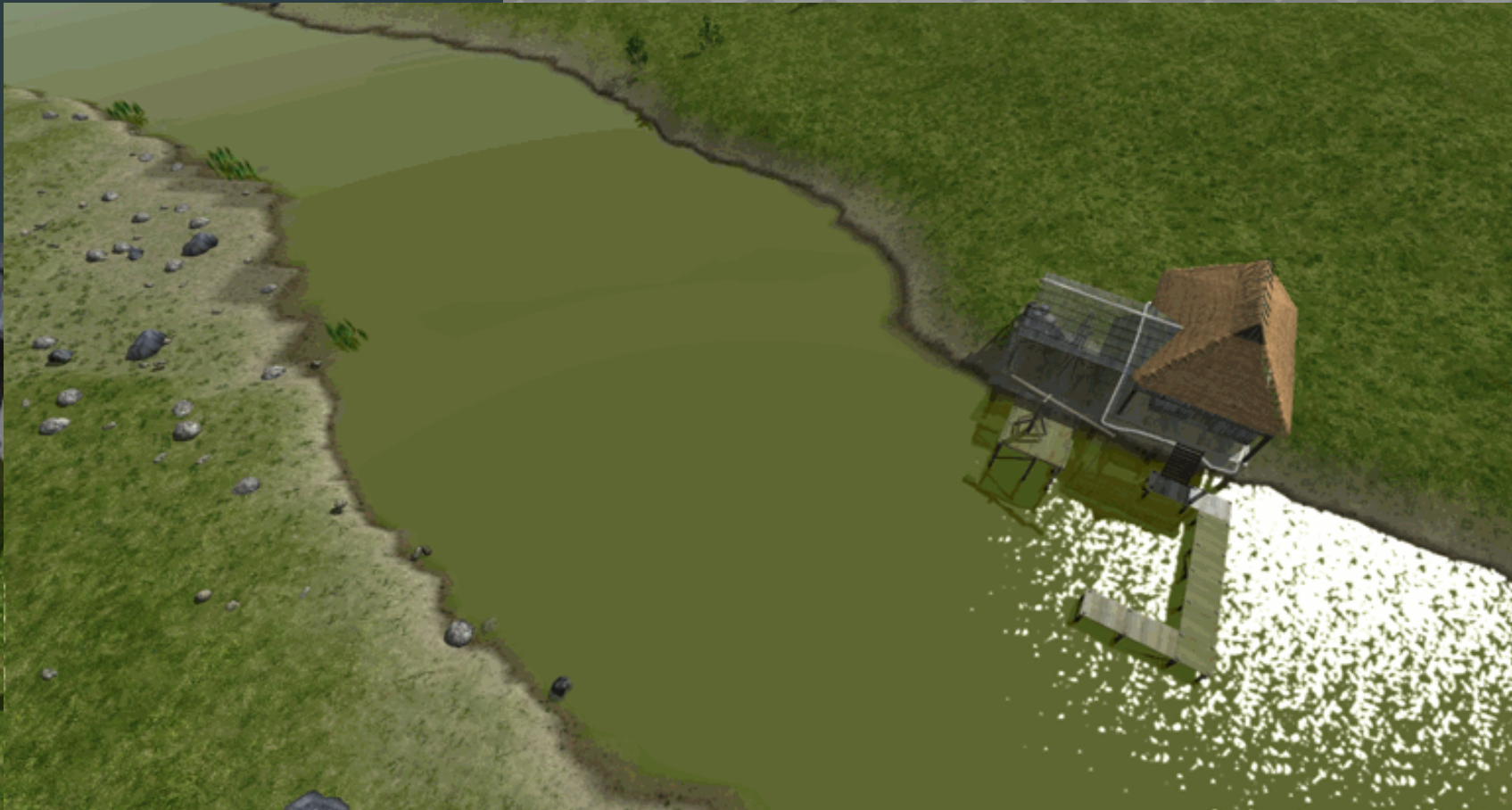
ANIMATION:

- improved frustum culling for terrain mesh (got a couple more FPS)

- improved quality of minimap rendering

- got normal mapping working:

ANIMATION:

- A tool to view any agent's current path. Priceless for debugging, and I think just nice looking for players who want know everything

ANIMATION:

▶ UI for farm fields: can now control crop rotation from one place, add up to 6 rotation slots, change field priority by drag-and-drop

Demolish

Farm ?

Order a plough

plough: yes

1. ☑Active >

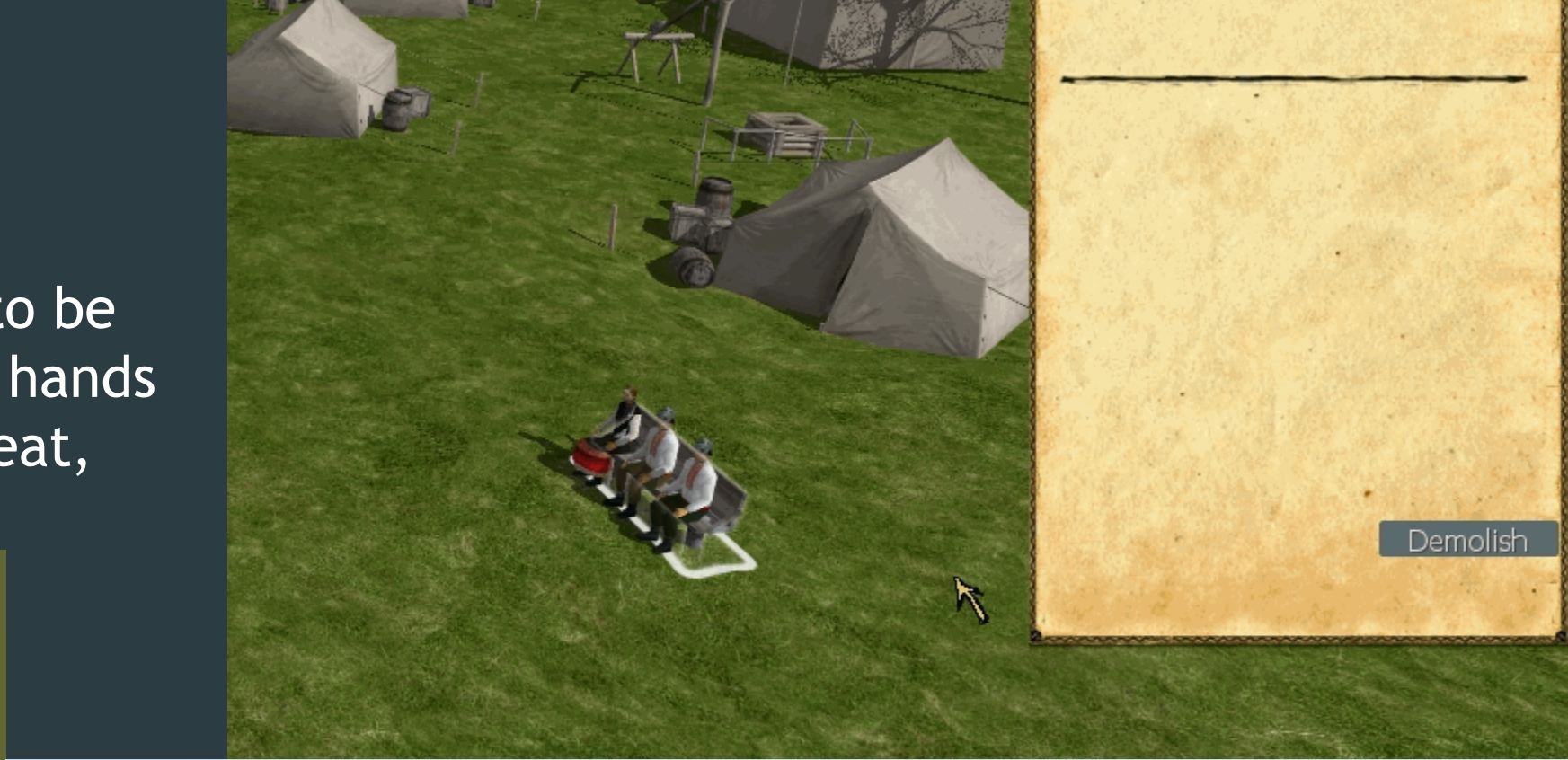2. ☑Active >

3. ☑Active >

4. >

ANIMATION:

▶ UI for farm fields: can now control crop rotation from one place, add up to 6 rotation slots, change field priority by drag-and-drop

Demolish

Farm ?

Order a plough

plough: yes

1. ☑Active >

2. ☑Active >

3. ☑Active >

4. >

ANIMATION:

▶ Some resources models to be displayed on carts and in hands (fish, thatch, potato, wheat, flour, nails, hay)
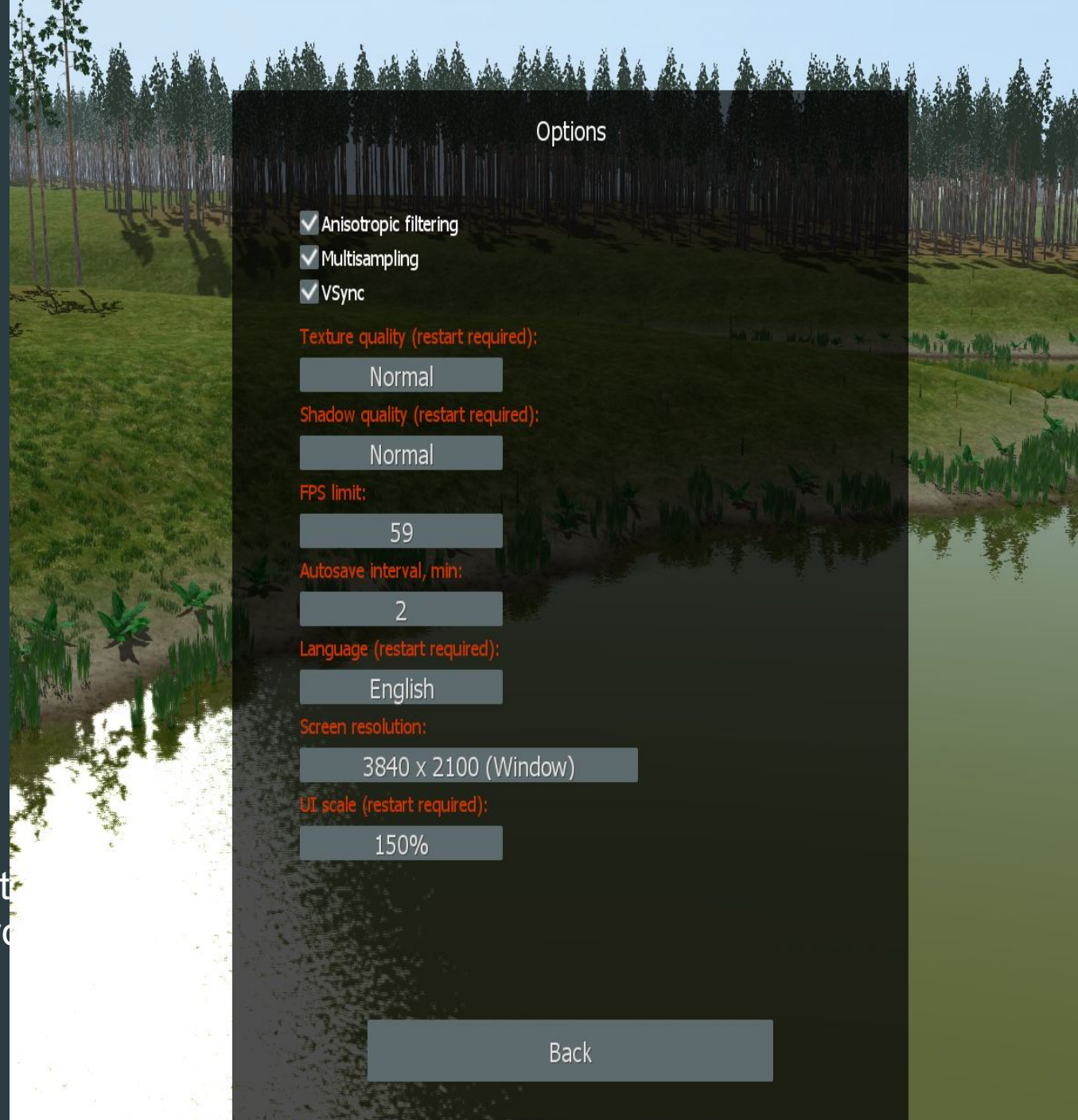
Demolish

998.55

ANIMATION:
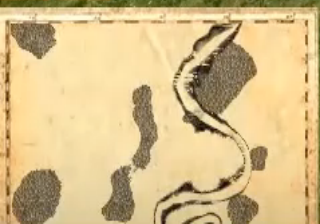
▶ New, unique path finding algorithm

ANIMATION:

In 3D computer graphics, **anisotropic filtering** is a method of enhancing the image quality of textures on surfaces of computer graphics that are at oblique viewing angles with respect to the camera where the projection of the texture

With multisampling, each pixel at the edge of a polygon is sampled multiple times. For each sample-pass, a slight offset is applied to all screen coordinates. This offset is smaller than the actual size of the pixels. By averaging all these samples, the result is a smoother transition of the colors at the edges.

const
to avc

Options

☑ Anisotropic filtering
☑ Multisampling
☑ VSync

Texture quality (restart required):

Normal

Shadow quality (restart required):

Normal

FPS limit:

59

Autosave interval, min:

2

Language (restart required):

English

Screen resolution:

3840 x 2100 (Window)

UI scale (restart required):

150%

Back

Збудуйте житло для всіх мешканців табору

ANIMATION: trails

A unique system of trails. If citizen run to often on the same piece of earth, the trail will appear.

I think, it was made by ACO – ant colony optimization

THANK YOU!