Beginning Vue: Tutorial #1- Creating a Tropical Shore Scene

> ➢ The first tutorial in the Beginning Vue series is one that illustrates the use of water effects, terrain materials and painting ecosystems. It will also present an example of placing a planet and an object into a scene. This will culminate in creating a tropical shoreline scene.
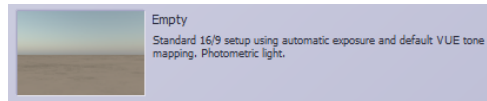

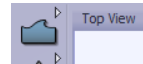*In these tutorials any text that calls for a specific action to be taken by the reader will be bulleted by a dart:* ➢

Any text without a dart bullet with be for explanation and clarification for what the reader is about to perform or clarification of what the reader has just performed.

1) Creating the Island Shoreline

➢ Create a new **Empty** Vue project:

Empty
Standard 16/9 setup using automatic exposure and default VUE tone mapping. Photometric light.

➢ Add a **Sea** layer using the default water icon:

➢ Make sure the camera is positioned somewhat above the sea level. Click on the **Sea** item in the **World Browser** to see its surface in the **Side View** display, if not, adjust the camera height.
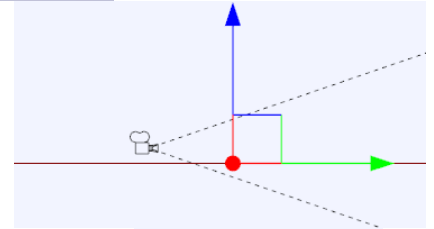
➢ Add a **Heightfield Terrain**, [icon] . Flatten the terrain with size gizmo or the global height handles.
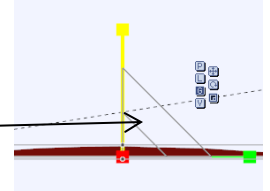
➢ Change the terrain material to **Rock** material – **Sand with Furrows** type:

Sand
Sand material with gently undulating furrows on flat surfaces.

➢ Position the camera to see part of the coastline of the terrain and water. The best effect is to be close enough to still see the furrows in the sand and pointed towards but not directly at the sun:
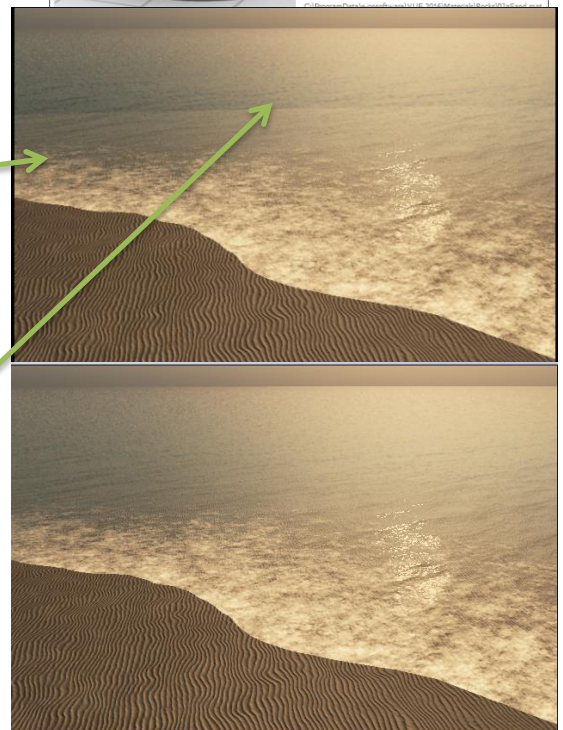
The coastal foam is clearly seen.

You can also see a faint change of colour at the edge of the terrain in the sea:
⋮
⋮

➢ ….so change the **ground** material to the same **Sand with Furrows** material as the terrain.

The terrain edge should disappear against the same colour ground plain.

➢ Right-click on the **Sea** item in the **World Bro**wser and then click on the **Edit Object** item in the displayed list.
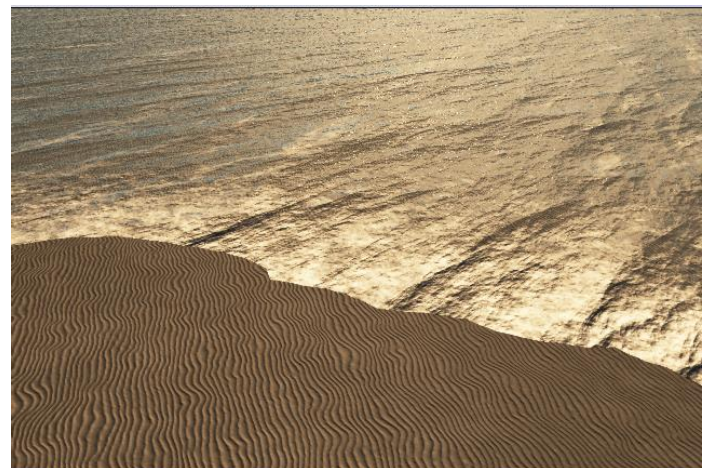
The **Water Surface Options** dialog will be shown.

➢ Leave the **Use global wave control** checkbox enabled and set the **Overall agitation** slider down to 10% (or enter 10%)
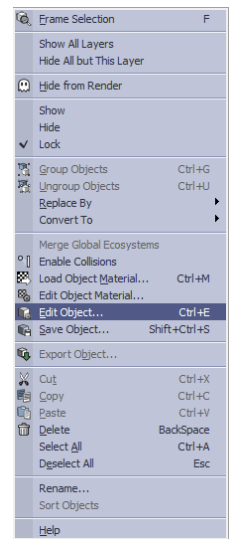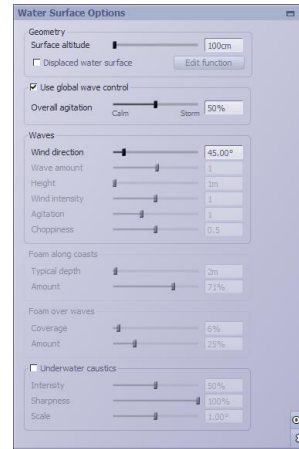
The sun's reflection shows the almost total calmness of the water.

➢ Now change the **Overall agitation** slider from 10% at the **Calm** side up to 80% at the **Stormy** side:


There certainly are more strong waves and foam but the direction of the waves seems to be wrong, going across the shore instead of to the shore.

In the **Waves** group of controls, the **Wind direction** control should be enabled even though the rest of the controls seems to be grayed out. Experiment with the angle of the Wind direction until it looks like the waves are moving correctly. (mine needed 45° to 134°)

➢ Then set the **Overall agitation** back to about 30%.
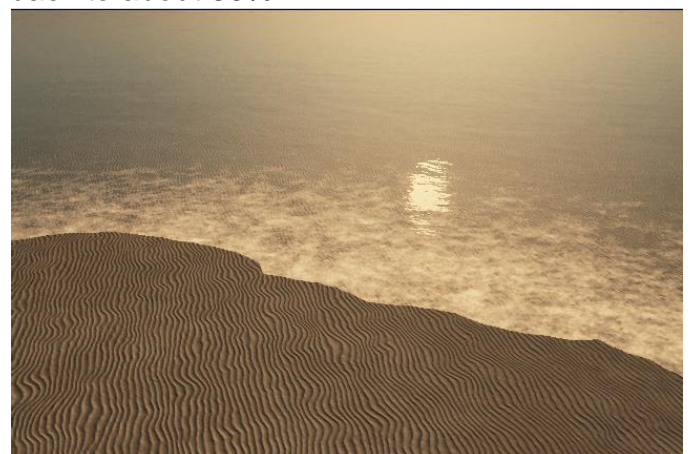
When you uncheck the **Use global wave control** box the various parameters that were globally controlled with the single slider are now open to be individually adjusted. As soon it is unchecked the wave surface will revert to the default settings but keep the previous direction.

Wind intensity from 1.6 to .25:

Wave amount from 2.56 to .50 (wind intensity back to 1.6)

Foam along coast: Amount from 89% to 20% (wave amount still at .50)

Foam along coast: Typical depth from 2m to 10 m (wave amount still at .50)
(foam amount still at 89%)

➢ We'll finish by enabling the global wave control again and setting it to 25%

Terrain controls

The furrows in the sand are a bit strong and not realistic. The furrows can be seen continuing into the water and seen under the water. We'll reduce the depth of the furrows to reduce the contrast between the top and bottom of the furrow.

➢ Select the **Terrain** in the **World Browser** panel and right-click on the material ball in the **Object-Aspect** panel: then click on **Edit Material**.

➢ Or right-click the **Terrain** in the **World Browser** and select the **Edit Object Material** from the displayed listing

➢ The **Advanced Material Editor** window will be shown:
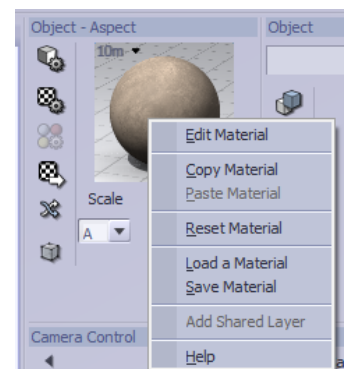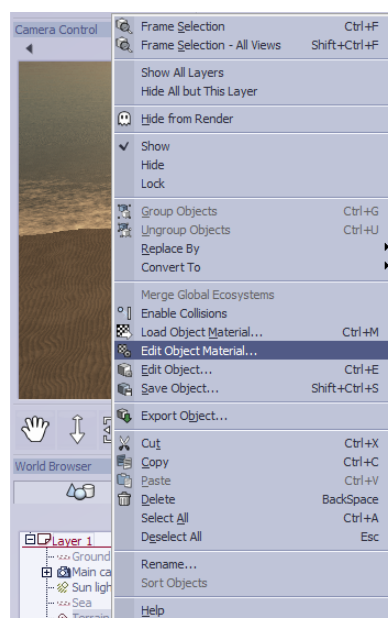
➢ Click on the **Bumps** tab at the center of the window:

➢ Change the **Depth** item from 9 to 2.

➢ Click **OK** to close the **Editor** window.
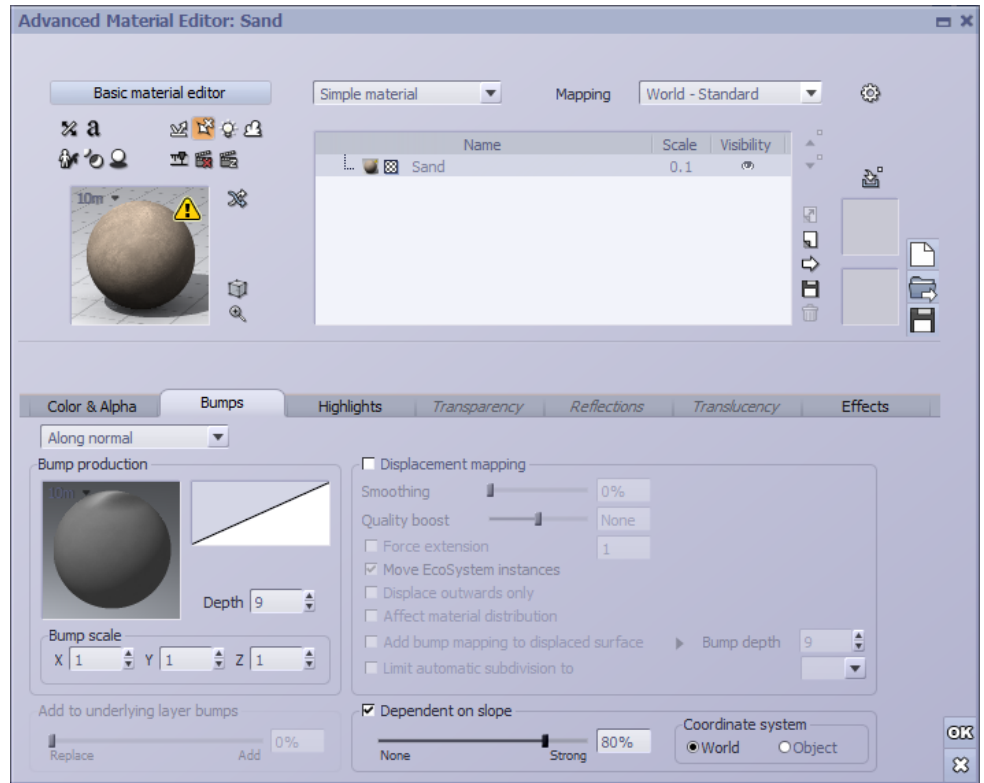
As a result, the furrows are less pronounced:

➢ Open the **Advanced Material Editor** again and change the **Bump scale** X and Y values from 1 to double the bump scale to 2. (don't change the Y value)


➢ ….. or change the **Bump scale** X and Y values to 3:

➢ Use the **Camera Back and Forth** control in the **Camera Control** panel to move the camera away from the terrain until the complete island in the sea can be seen.

2) Populating the island

Now we have a nice looking island with a foam edged beach all around it. But it looks a bit bare; with only sand on the island. The next thing we want to do is to populate the island with some tropical plants and trees. This will be done by adding a "layer" over the island and selecting some vegetation that we will then "paint" onto that layer.

So far we have mostly used the **Active Camera View** which is similar to the Render Preview window.
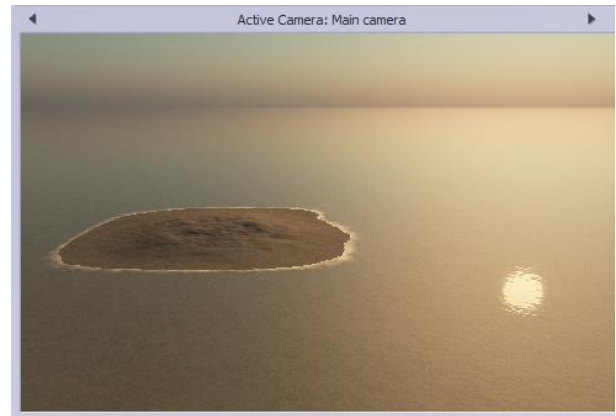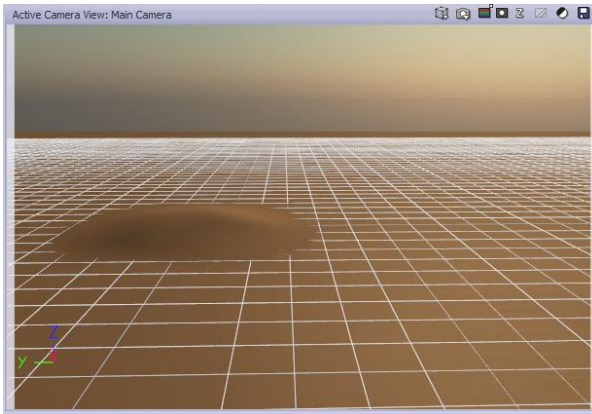
Now we will also be actively using the **Top View** as well.

The view shows the full terrain with the invisible points of the grid lines showing where the terrain has risen above the sea level.
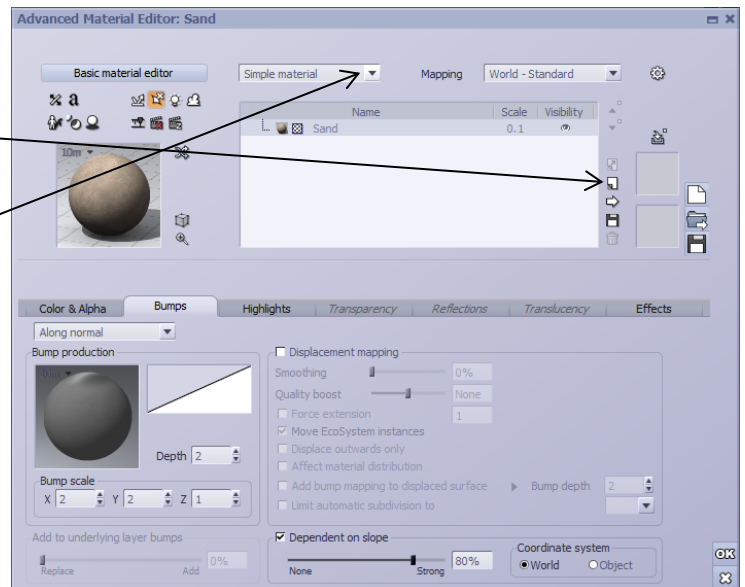
We will use this view as we populate the island with vegetation.
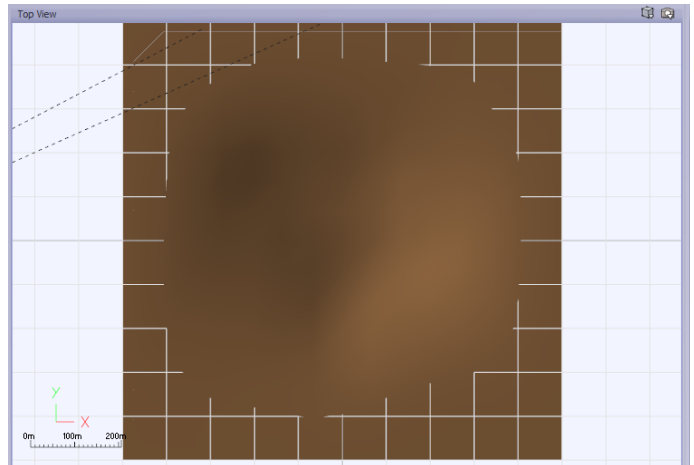
➢ Open the **Advanced Material Editor** for the terrain.

➢ Add a new material layer by clicking on this small icon:

➢ Now change the type of layer by selecting: **EcoSystem/Particles** from the list shown by this down-arrow:

A new lower panel is shown in the **Advanced Material Editor** to allow for populating and ecosystem:

➤ To select the trees we will add, click on the **Add Vegetation** icon at the bottom of the panel

A listing of the default common available tree species is shown under the **Trees** tab :
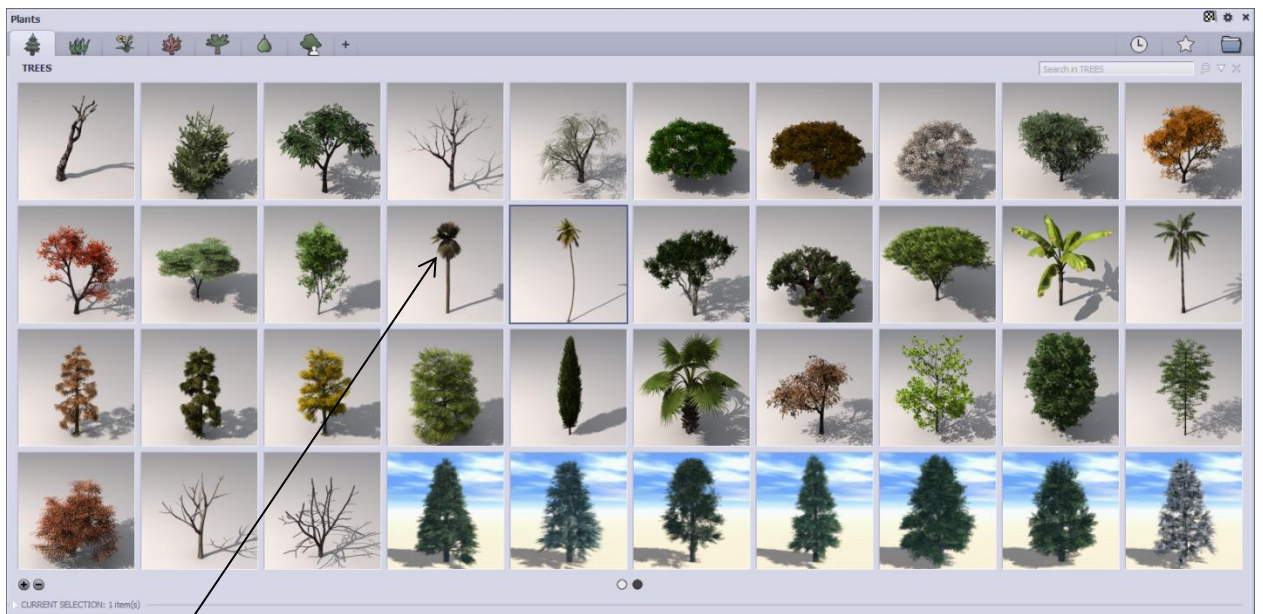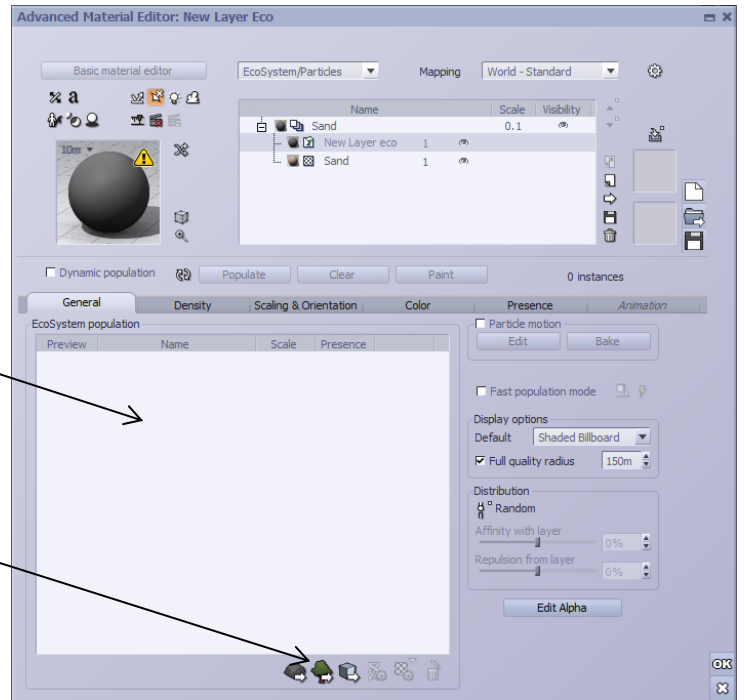
➤ Click on the **Coconut Tree** for our first tree.

It may take a couple of seconds to load but then an image of the **Coconut Tree** is shown in the **EcoSystem population** preview:

➤ Change the **Scale** of the coconut tree from 1 to 2. This will provide a base line to determine the actual size of the island.

➤ Click on the **Add Vegetation** icon a number of times to add: **Mexican Palm, Banana plant, Mexican Fan Palm** and the **Coconut Palm.** (click OK for any displayed warnings)

➤ Change the **Scale** of all the plants to 2
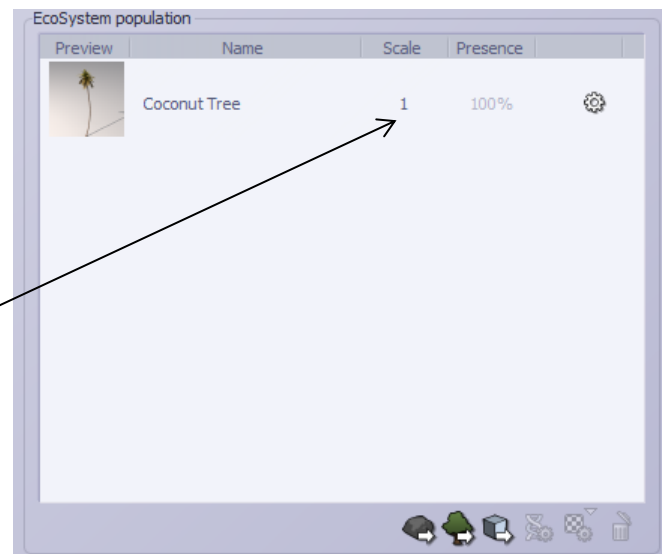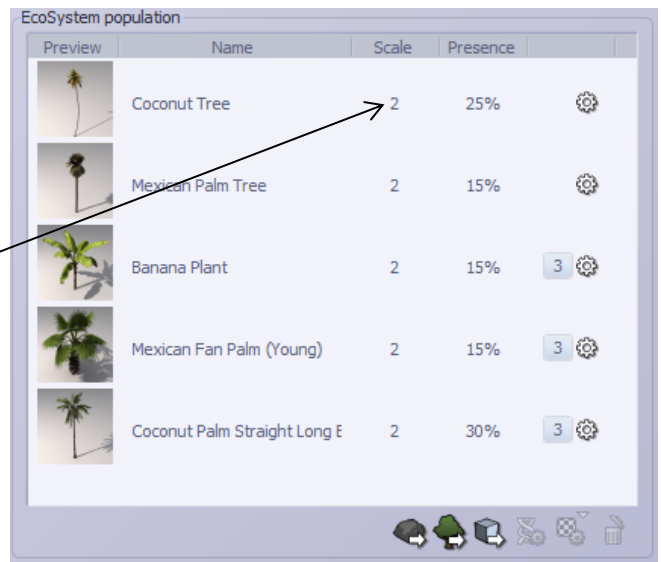
➤ Change the **Presence** of the Coconut Tree to 25% and Coconut Palm to 30%

The "three" [3] beside three of the tree types means that there will be three different variations of the plant populated.

There are a couple of different ways to do the actual populating of the vegetation. The greatest control is exercised by "painting" the vegetation onto the terrain.

➤ Make sure that the **Dynamic population** is left unchecked.
➤ Then click on the [**Paint**] button to open the painting dialog.
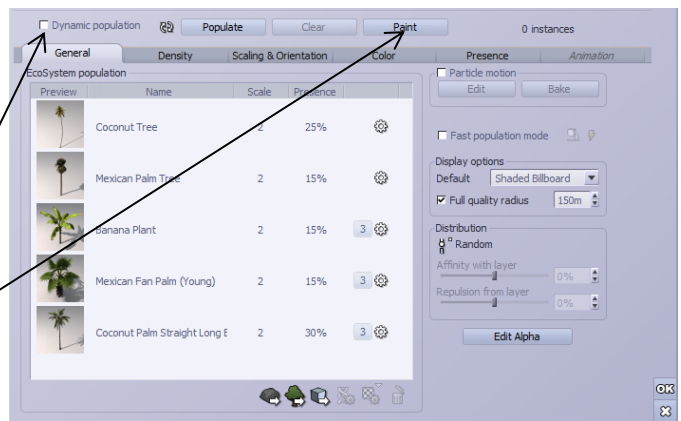
There are a number of controls in the **EcoPainter**.
In the first row of icons.

➤ Be sure that the default icons of **Restrict to underlying**

objects [icon] and **Paint mode On/Off** [icon] are both

active, shown in orange highlight.

➤ Then be sure that in the next; **Brush presets** group of

icons, that the **Populate** icon; [icon] is active with a white border around it.

For now, leave the **Global settings** of **Brush radius**, **Brush flow** and **Fallof**f as they are.

➤ Increase the **Additional parameter** of **Limit density** from 50% to 70% to make the island jungle a bit denser.
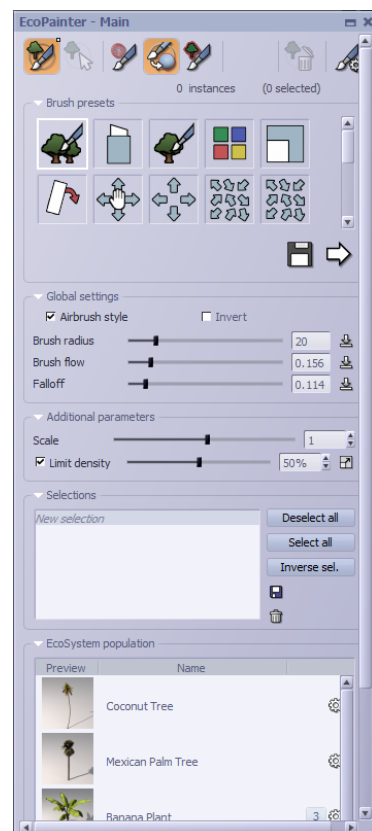
➢ Click somewhere on the **Top Veiw** display window to make it active. When the cursor is in the Top View it will change to a paint brush as you move it and a red circle will surround it.

➢ With the circle somewhere within the terrain area of the Top View, hold the left mouse button down and move the cursor over the terrain area.

Small dots of green will appear, showing where vegetation plants are being painted on the terrain.

Try to stay within one circle's width away from the edge of the terrain so that not trees are planted in the water and a sandy beach is maintained.
Once the left muse button is released, the populated trees will appear in the **Front View** and **Side View**:
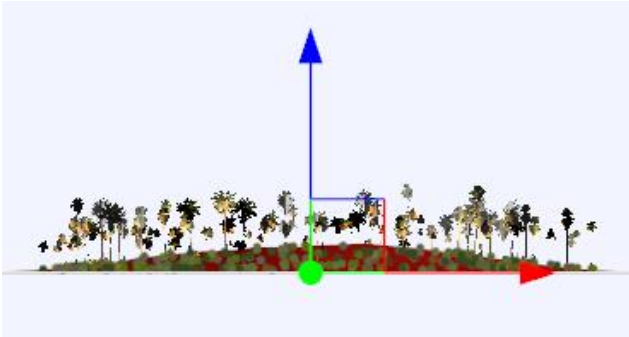
➢ You can release the left mouse button to stop populating and press it again to continue populating.
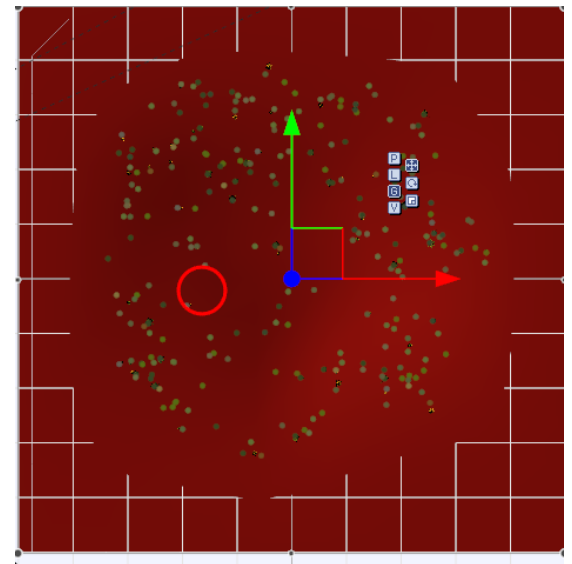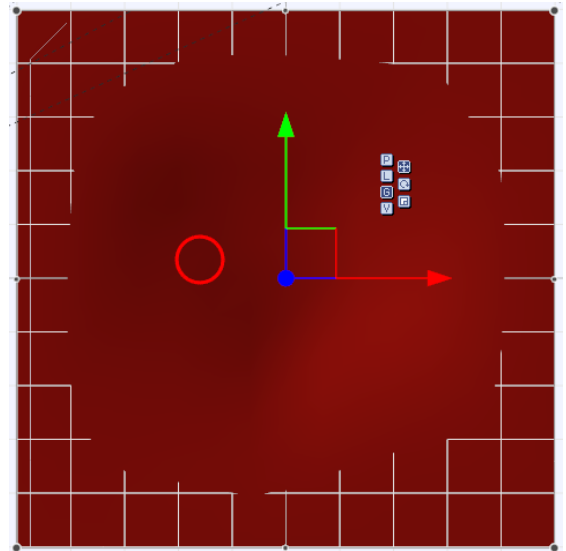
While you are in population painting mode you can still perform a render of the scene to assess it.
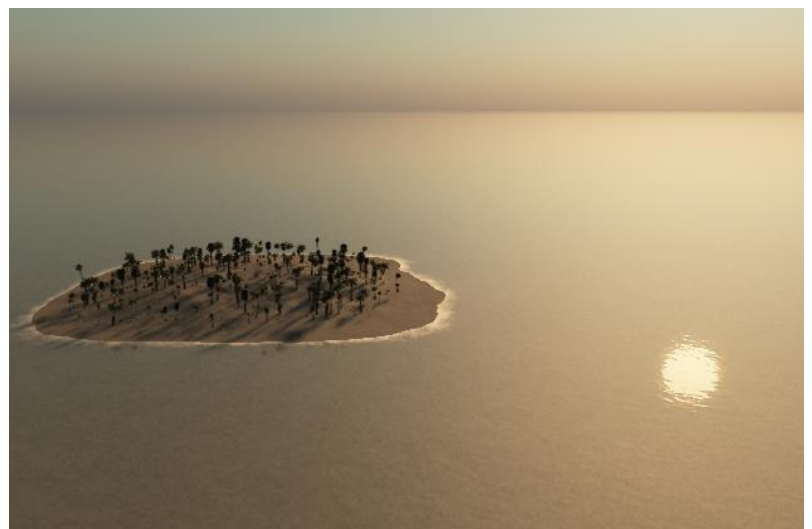
Then you can continue adding more vegetation, maybe increase the density setting and add more trees to the center of the terrain.
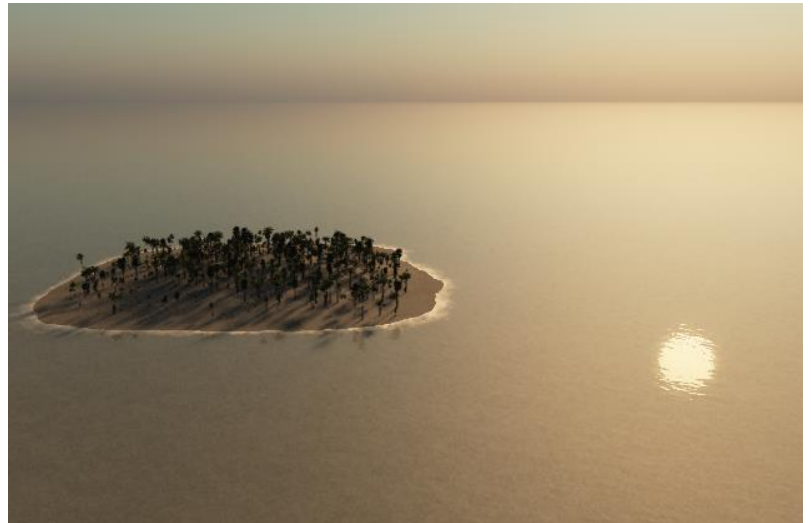
Since the population painter is restricted to placing plants onto the terrain, there should be no chance of placing any trees out into the ocean.

But it might be possible to place some trees onto the terrain that is under the water surface by mistake:

➢ To remove particular plants you don't want in the scene, click on the **Select EcoSystem Instances** icon at the top of the **EcoPainter** dialog.
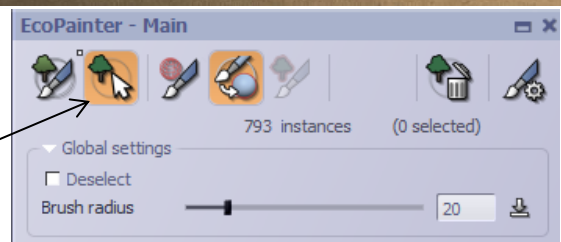
➢ Then zoom in a bit on the **Top View** to get a closer look at the trees you wish to remove
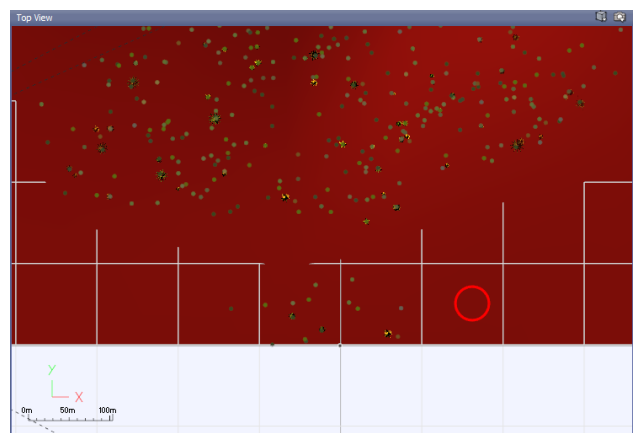
➢ Now when you hold the left mouse key down and move the circle cursor around, each instance of a plant that contacts the circle turns red to show it has been selected.

➢ Once all the desired plants have been selected, simply press **Delete** on the keyboard to delete them.
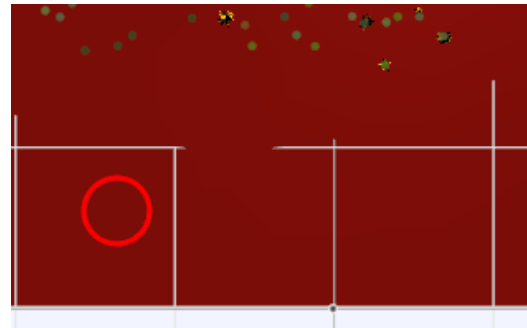
The rendered scene shows the unwanted trees removed.

Now close the **EcoPainter**, change the name of the **New Layer eco** in the **Advanced Material Editor** to **Jungle** and click on **OK** to close it.

3) Adding a Simple Planet

➢ To add a planet to the scene, click on the planet icon: on the left of the main screen.

A moon (by default) is shown in the scene and the moon object.
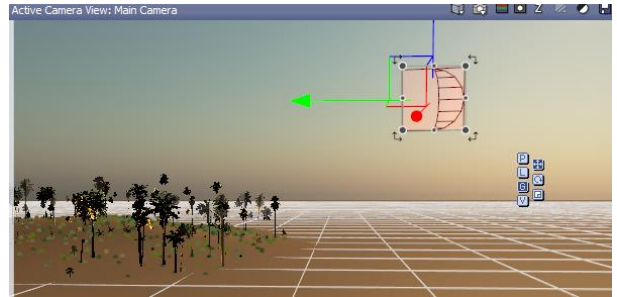
➢ Using one of the global sizing handles, resize the planet to about 3x the original size. Then move it toward the left side of the sky
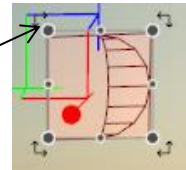
The phase of the planet can be adjusted as well. Given that the sun is situated just off screen to the right the **Phase** should not be adjusted as full with the slider at the center, but it could be adjusted a bit closer to the center for a fuller moon.

The moon's **Brightness** and **Softness** can be left at their default settings
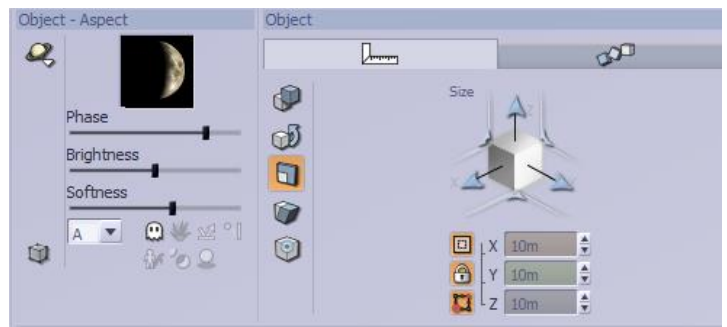
4) Adding objects to the island scene

Vue comes with many objects and plants that may be loaded into a scene. We have already done this with a number of plants. Vue objects that are plants usually (but not exclusively) have the suffix .veg (for <u>veg</u>etation) in their file name. Most other Vue objects have a .vob (for <u>V</u>ue <u>Ob</u>ject) as the suffix in their file name.

One such object, imported from Poser and saved in my personal folder of imported or created .vob objects is Christopher Columbus's Santa Maria ship. We'll add it to the island scene here.

➢ Left-click on the **Load Object** icon in the left side panel to show a listing of available objects:
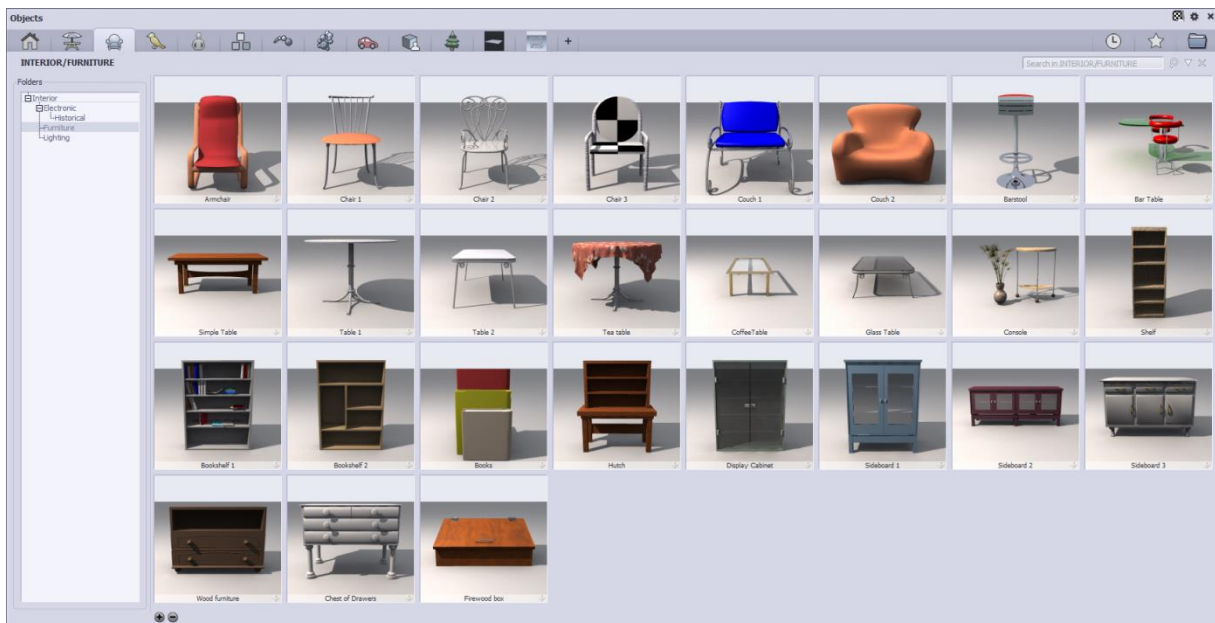
There are many tabs across the top of the list covering various families of objects. The plus sign at the right side allows you to **Add** your own folder of objects. To the left of this is my folder of .vobs:

From this folder I will select the Santa Maria, at the right.
When the object is brought into the scene, it will be brought to the center of the current **TopView**, **Side View** and **Front View**, where-ever that places it into the current scene:
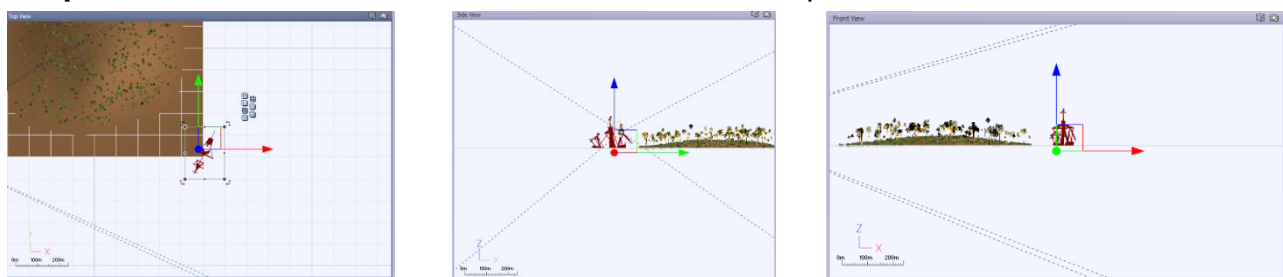
As you can see, some size and position adjustments will have to be made on the object. Firstly, Vue has a **Drop Object** button that will drop an object or vegetation to the surface of any underlying plane, be that water or terrain.

➢ Make sure that the object (Santa Maria in this case) is selected and then click on the **Drop Object** button in the left panel. Now the ship is just touching the water surface:

But still the ship is too large and should sit a bit deeper into the water. Some resizing and repositioning will be needed.
In the currently active view (Top View in this case) there are a number of controls available to move, rotate and resize an object.

Object placement controls

In the active view, when the object is selected, a frame appears around the object. The frame contains global sizing dots and rotational arrows at each frame corner.

- When the cursor is on any sizing dot, it changes to show a diagonal, four-directional arrow indicating that it can be dragged to resize the object.
- When the cursor is on a rotational arrow it also changes to a rotational arrow to indicate that it can be dragged to rotate the object.
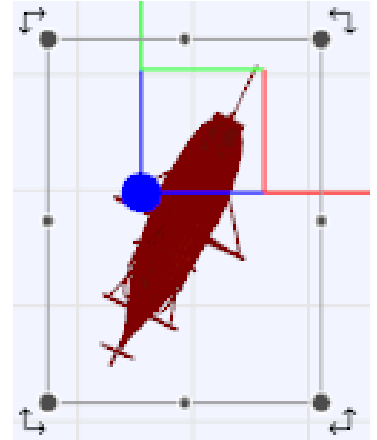
The frame also has unidirectional sizing dots midway along each of the four sides that allows for resizing that is restricted to either the horizontal or vertical axis.

- When the cursor is on any of these dots it changes to a bi-directional arrow that indicates which way the object can be resized.

The frame also can be used to position the object without rotation or resizing it.

- When the cursor is placed anywhere inside of the frame it changes to a four directional arrow indicating that the object can be dragged to a different position.

Using the side or front view:

- Globally resize the ship to look a reasonable size compared to the island trees.
- Use the frame to lower the ship slightly into the water instead of on top of it.
- Use the top view to rotate (if necessary) and place it into the right area of the scene.

5) Rendering the final Image

➤ To create a final image or "render" the scene, right-click on the **Render** icon above the Vue display:

The **Render Options** window will be displayed:

There are a vast amount of render parameters that can be set but the simplest settings to create the image are the following:

➤ Set the **Preset render quality** to **Final**
➤ Set the **Render destination** to **Render to screen**.
➤ Choose an **Aspect ratio** for your desired image width to height ratio.
➤ Set a screen resolution for the image, the higher the longer render time but better image quality.

Render Options

Preset render quality
- ○ OpenGL   Edit
- ○ Preview
- ● Final
- ○ Broadcast
- ○ Superior
- ○ Ultra
- ○ Path Tracer   Edit
- ○ User settings   ➡ 💾

Renderer
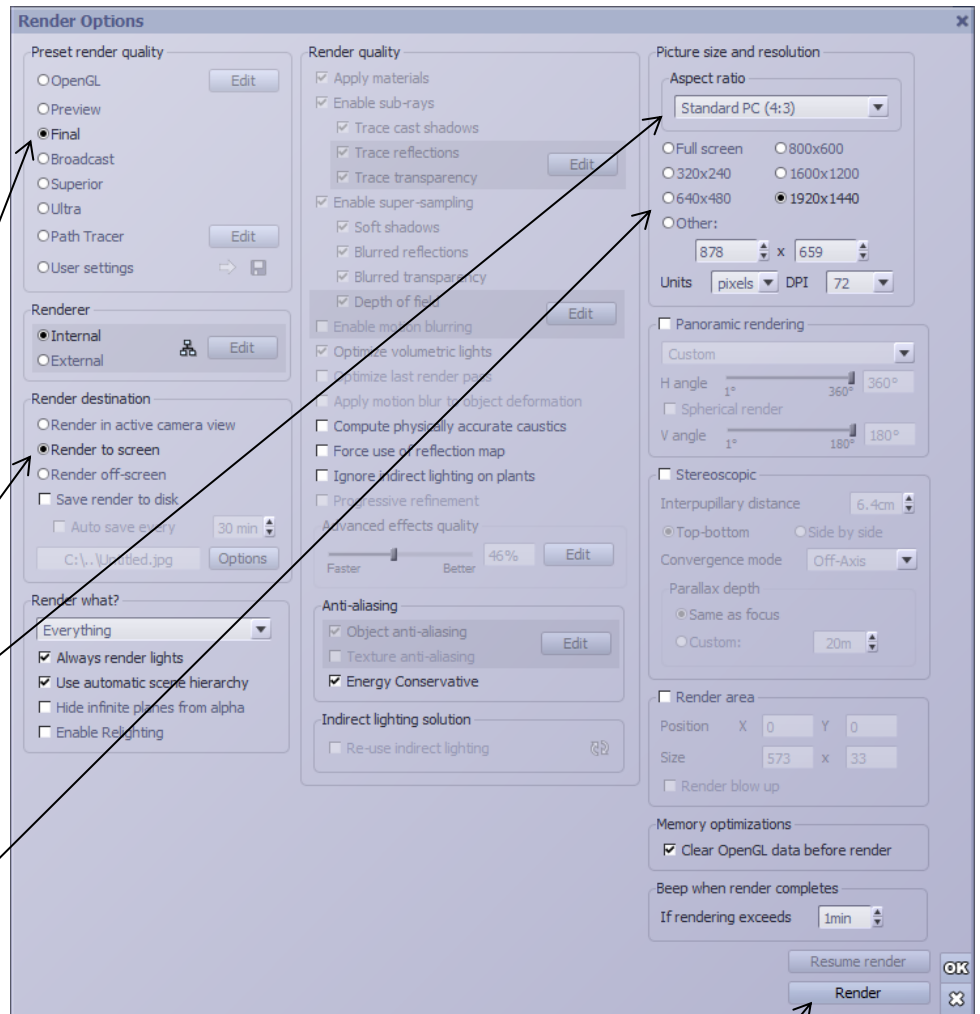- ● Internal   Edit
- ○ External

Render destination
- ○ Render in active camera view
- ● Render to screen
- ○ Render off-screen
- ☐ Save render to disk
- ☐ Auto save every   30 min
- C:\..\Untitled.jpg   Options

Render what?
Everything
- ☑ Always render lights
- ☑ Use automatic scene hierarchy
- ☐ Hide infinite planes from alpha
- ☐ Enable Relighting

Render quality
- ☑ Apply materials
- ☑ Enable sub-rays
  - ☑ Trace cast shadows
  - ☑ Trace reflections   Edit
  - ☑ Trace transparency
- ☑ Enable super-sampling
  - ☑ Soft shadows
  - ☑ Blurred reflections
  - ☑ Blurred transparency
  - ☑ Depth of field   Edit
- ☐ Enable motion blurring
- ☑ Optimize volumetric lights
- ☐ Optimize last render pass
- Apply motion blur to object deformation
- ☐ Compute physically accurate caustics
- ☐ Force use of reflection map
- ☐ Ignore indirect lighting on plants
- ☐ Progressive refinement
- Advanced effects quality
  - Faster ——————— Better   46% Edit

Anti-aliasing
- ☑ Object anti-aliasing   Edit
- ☐ Texture anti-aliasing
- ☑ Energy Conservative

Indirect lighting solution
- ☐ Re-use indirect lighting

Picture size and resolution
Aspect ratio
Standard PC (4:3)
- ○ Full screen   ○ 800x600
- ○ 320x240   ○ 1600x1200
- ○ 640x480   ● 1920x1440
- ○ Other:
  878 x 659
Units pixels DPI 72

☐ Panoramic rendering
Custom
H angle 1° 360° 360°
☐ Spherical render
V angle 1° 180° 180°

☐ Stereoscopic
Interpupillary distance 6.4cm
- ● Top-bottom   ○ Side by side
Convergence mode Off-Axis
Parallax depth
- ● Same as focus
- ○ Custom: 20m

☐ Render area
Position X 0   Y 0
Size   573 x 33
☐ Render blow up

Memory optimizations
☑ Clear OpenGL data before render

Beep when render completes
If rendering exceeds 1min

Resume render   OK
Render   ✕

➤ Once the render parameters are set, click on the **Render** button on the bottom of the **Render Options** window to initiate the rendering process.

While the rendering is in progress an information window will be shown indicating the image **Resolution** that was selected.
It will update the progress of the current render and the approximate time left in the render process.
At any time the **Space** key can be used to hide the **Rendering** preview window and the **Esc**ape key or **Abor**t button and be used to abort the rendering process.

Resolution: 1920x1440

Render in progress: 47%   Abort

Time left: 0h01'

Hit Space to hide, Esc to stop
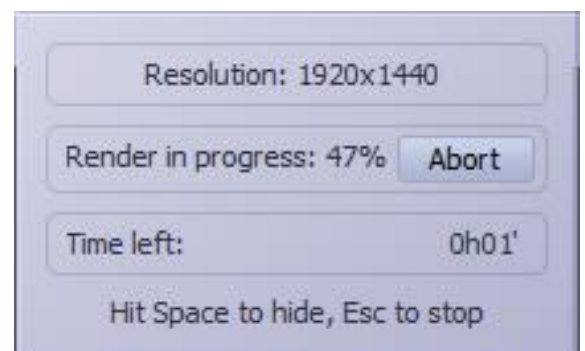
Once the render process is completed a Post Render Options window will appear allowing you to adjust parameters such as exposure, colour correction, lens flare and exposure filtering.
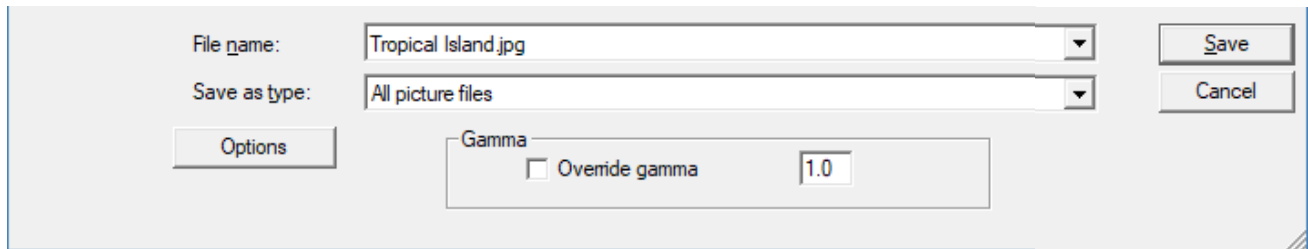
➢ Click on **OK** to close the **Post Render Options** window.

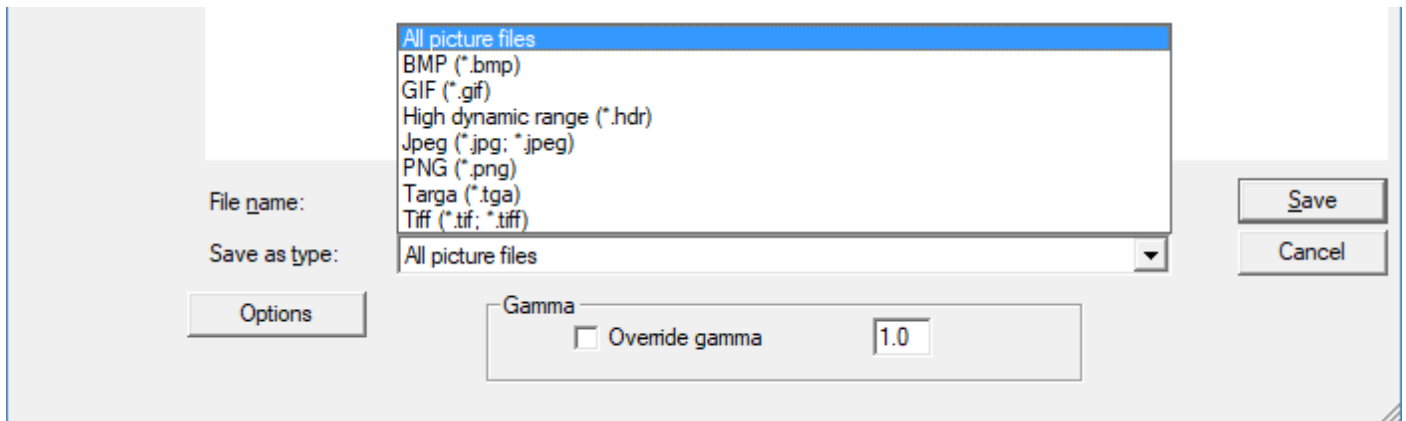➢ Once the rendering process is completed, right-click on the image to open a save options window.

➢ Then click on **Save Picture** to open the standard Window's safe file dialog.
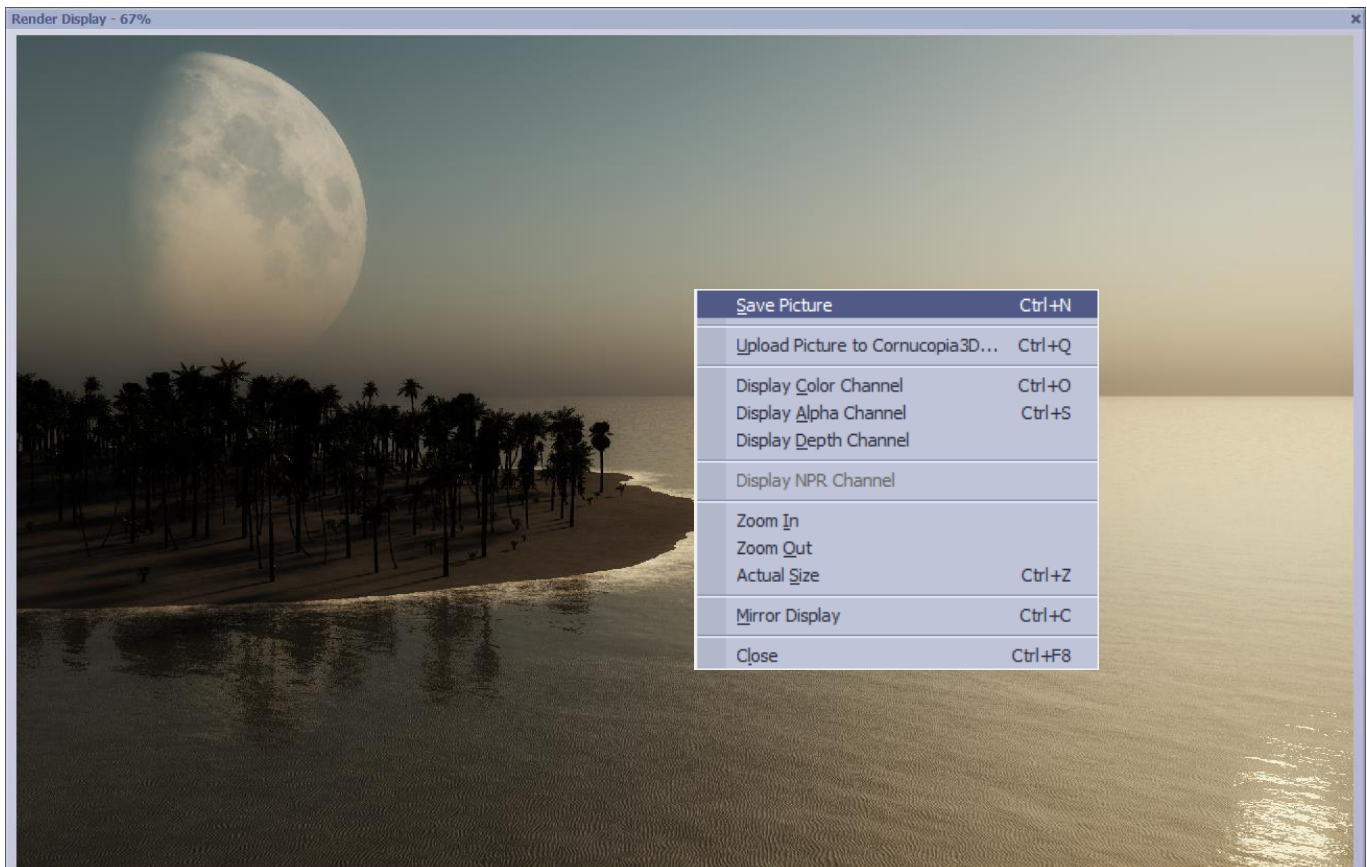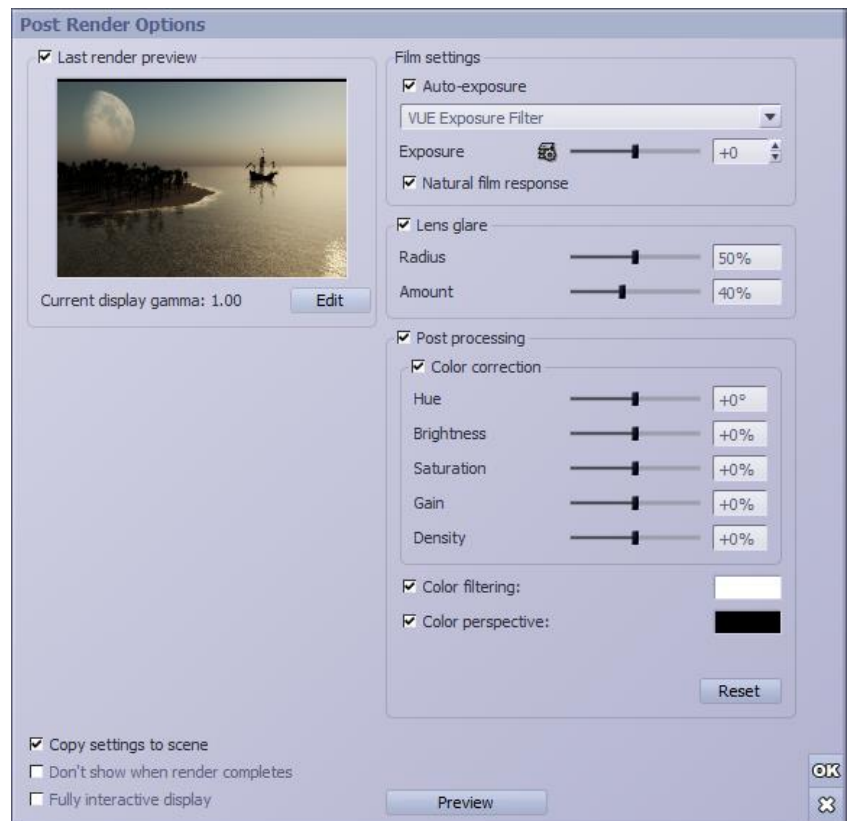
In the bottom of the File Save dialog you can enter the picture's **File name** which will have a .jpg extension by default making the image a JPEG file type.

| File name: | Tropical Island.jpg | ▼ | Save |
| Save as type: | All picture files | ▼ | Cancel |

Options

Gamma
☐ Override gamma   1.0

If you click on the down-arrow to the right for the **Save as type** text box, you can choose from among a number of standard image file formats to save the file instead.

All picture files
BMP (*.bmp)
GIF (*.gif)
High dynamic range (*.hdr)
Jpeg (*.jpg; *.jpeg)
PNG (*.png)
Targa (*.tga)
Tiff (*.tif; *.tiff)

| File name: | | | Save |
| Save as type: | All picture files | ▼ | Cancel |

Options

Gamma
☐ Override gamma   1.0

This concludes the **Beginning Vue** tutorial #1