Creating environments for storytelling - part 1 the terrain
Fall 2007 - JMG

This tutorial shows how to create a terrain for storytelling. The terrain is generated from several imaginary 2D maps in order to create environments for several chapters of a story. The same method can be used for terrains and architectures. We will also add interactivity using cameras moving on paths and interactive buttons in order to load and unload scenes as the viewer/player makes progress though the narration/game.

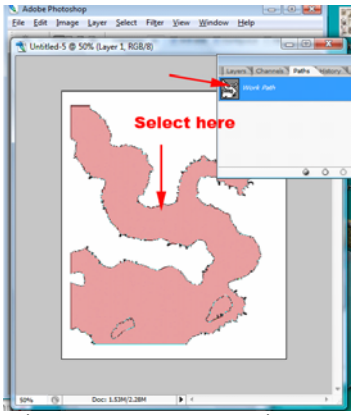
You can create an imaginary map outlining several zones: forest, open fields, city, village and castle. Each zone is divided by river and river bank that can be crossed by bridges or other devices by your character. The navigation between zones and the crossing will be the environmental element giving a background to your story.

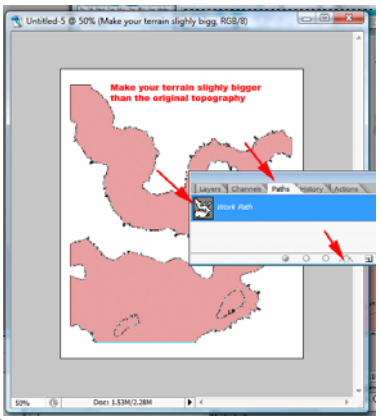
In Photoshop or Illustrator, create a Black and White image from a satellite image or a top view of a map. The following illustrations are adapted from maps created in Bryce. You can find more examples of grayscale topographies in Susan Kitchen's Bryce book.

The above imaginary 2D maps can be used for interactive storytelling. We will use the map of the river for creating a 3D landscape in Maya.

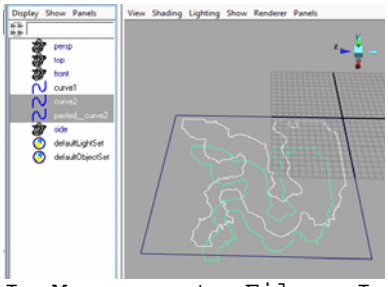
You can skip this Illustrator step.
If you want to refine and vectorize the contours of your drawing in Illustrator, go to File > Place, select your raster drawing - pixel based. Go to Object > Live Trace or select the Live Trace options below the top menu. Go to preset and test Live Trace until you get a simple but accurate vector image. Save the vector image. Please note that straight import from recent version versions of Illustrator does not work in Maya. That's why we need to go back to Photoshop in order to create the Illustrator file!!!

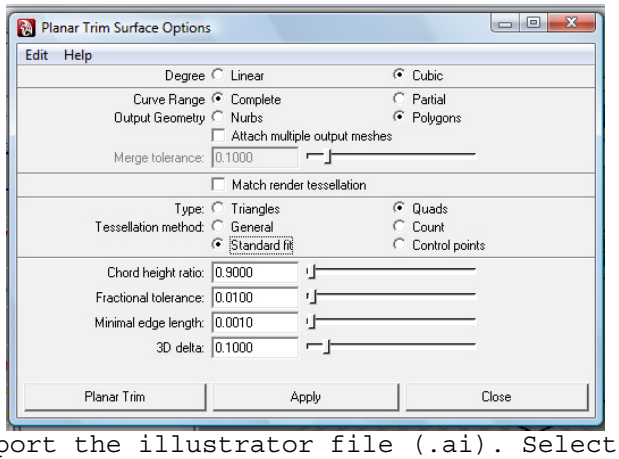
In Photoshop, open the drawing. Make sure that you include white areas all around your drawing. This is very important for lofting in Maya. Select the area that will appear as a void in 3D in Maya. For example you select the river (shown in red here) that will be a void area in the middle of the plateau - filled area (shown in white here).



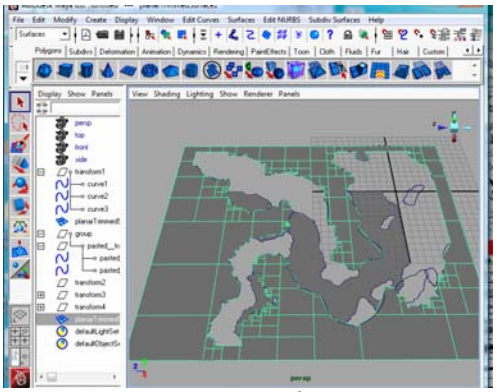


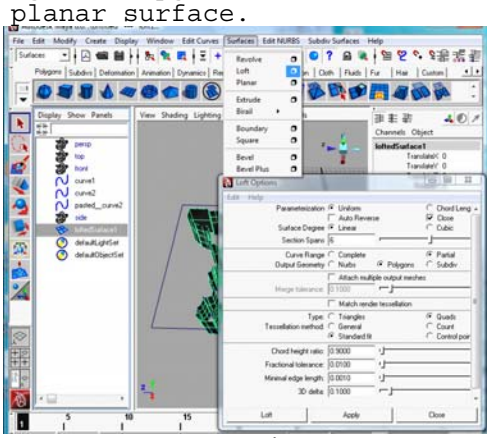
With your selection active, go to Paths, create a path.
Go to File > Export > Paths to Illustrator > Save as an Illustrator file.



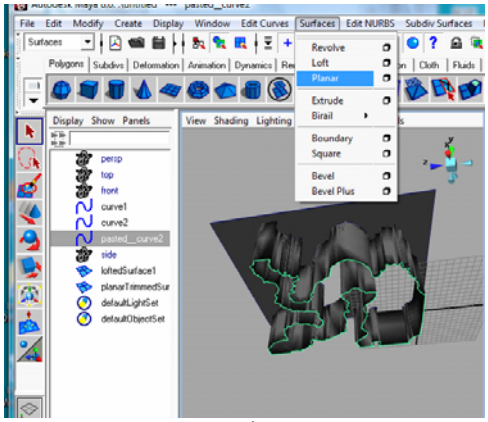
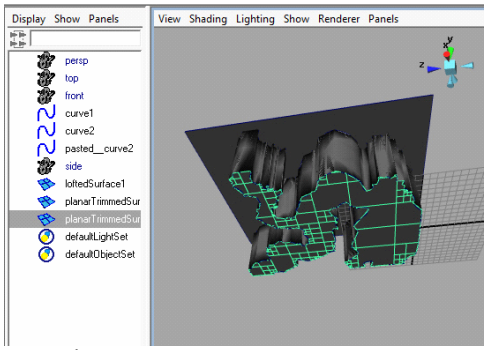


In Maya, go to File > Import the illustrator file (.ai). Select the river curve. Go to Edit > Copy/Paste or Duplicate the curve. Move the river curve down the Y axis (negative values) in order to create the contours of the river bed. SHIFT select the curve contours of the plateau + curve contours of the river (the duplicated curve) > go to Surface > Planar, check the settings > Polygons, Standard Fit. The plateau shows up as a horizontal planar surface.

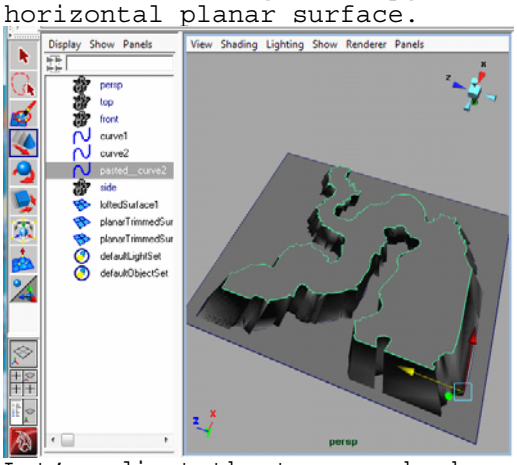
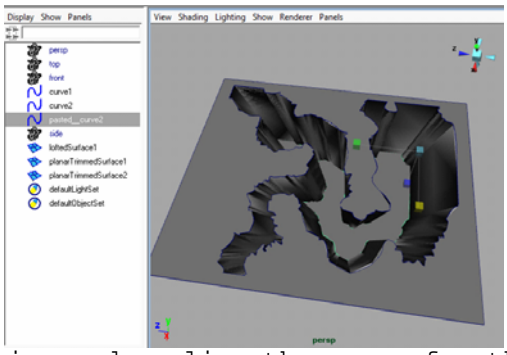




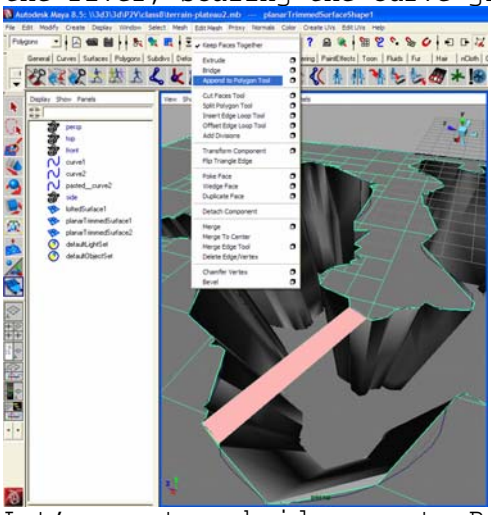
Let's create the river banks or the canyon depending how deep you place the river bed in relationship with the plateau. SHIFT select the curve contours of the plateau + curve contours of the river (the duplicated curve) > go to Surface > Loft, check the settings > Polygons, Standard Fit. The river bank shows up as a vertical planar surface.

Select the duplicate curve for the river bed > go to Surface > Planar, check the settings > Polygons, Standard Fit. The river bed shows up as a horizontal planar surface.

Let's adjust the topography by moving and scaling the curve for the river bed. Moving the river bed curve on the Y axis changes the depth of the river, scaling the curve gives a slope to the river banks.

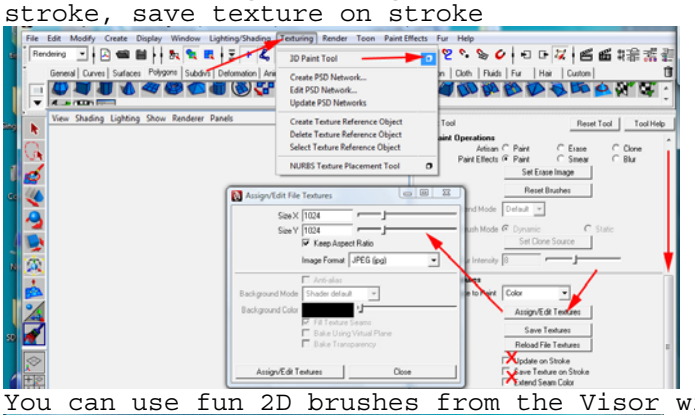


Let's create a bridge, go to Polygons > Edit Mesh > Append to Polygon Tool > LMB select two adjacent vertices on one side of the river + LMB select two adjacent vertices on the other side > press Enter in order to confirm the pink surface.

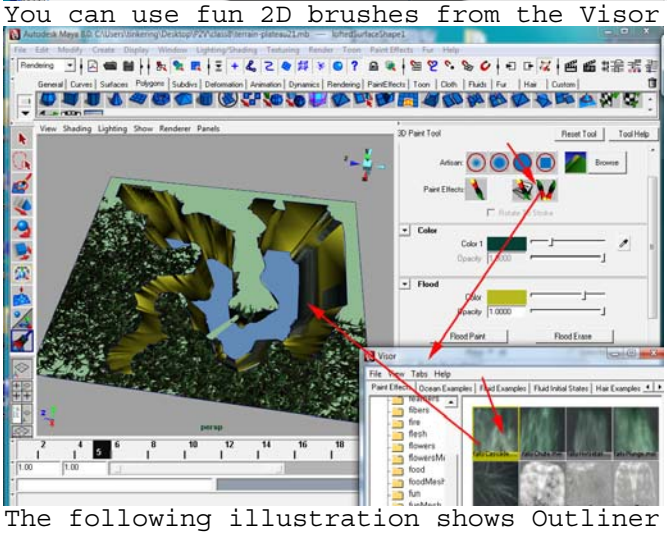
Let's decorate the terrain.

IMPORTANT preparation of the scene: Please keep in mind that each part including plateau, river bank and riverbed needs to have a different Lambert shader.
RMB on each part and select Assign New Material > Lambert.
For example:
plateau > lambert 1 > texture 1 ,
river bank > lambert 2 > texture 2,
river bed > Lambert 3 > texture 3

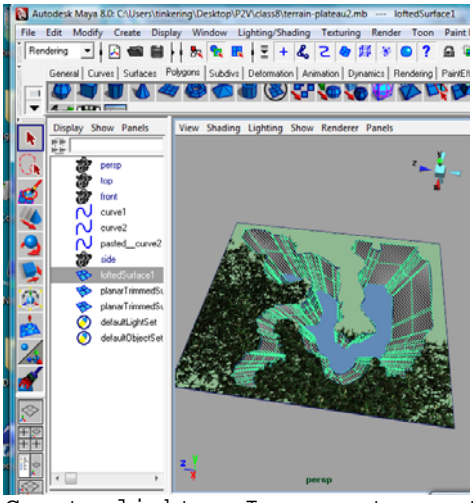
Now let's paint the terrain, go to Texturing > 3D Paint Tool > scroll down the settings > Assign/Edit Textures > 1024 by 1024, check update on stroke, save texture on stroke



You can use fun 2D brushes from the Visor window. Enjoy…

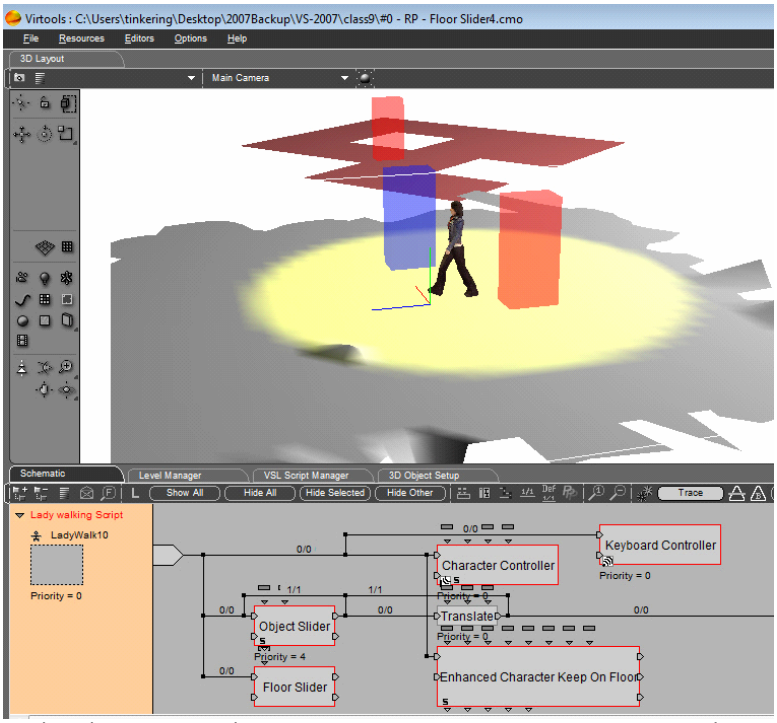


The following illustration shows Outliner with the curves used to generate the terrain and three polygonal objects: the plateau, the river bak, the river bed.



Create lights… I suggest creating two or more terrains. Export your terrain as 3D Entity in Virtools.

The next step will be to add one or several interactive characters walking on the terrain and also interactive cameras moving on paths. We will cover this in t of this tutorial.



This illustration shows how to use the terrain for interactive animation. The next step is a character walking on a terrain with a set of standard BB.

1- Object Slider keeps the character from walking across objects located on the terrain (for example blue and red boxes or trees)

2- Floor Slider keeps the character from falling from the edges of the terrain

3- Enhanced Character Keep on Floor keeps the character on the surface of the terrain

4- Character Controller manages the character's animations

5- Keyboard Controller manages default inputs from the keyboard's numeric pad.