Master

WORLD TOOLS: Creating Vegetation
Step-By-Step Tutorial

Additional software:
- *EmfToPng* utility of the *BI Tools*
  NOTE: Copy **EmfToPng.exe** from directory *C:\Program Files\Bohemia Interactive\Tools\Visitor 3* to directory *<Your_Project>\Source*
- *Adobe Photoshop* or some software like this
- *MS Paint*

In the *World Tools* window:
1. Select *File->New Project*, or click LMB on *New project* button on a toolbar in the *WorldTools* window.
2. In the *Project information* section of the *Project Properties* dialog box set:
   - the **Preview Bitmap size**, by default 5120.
   - the **World size multiplier**, by default 2x.
3. Click on *Apply* button.
   NOTE: The red circle on bottom right will be green and in the status bar on bottom left you can see your world size.
4. Click LMB on the *Forest generator* button on a toolbar.
5. In the *Forest generator* dialog box:
   - Click LMB on *Load Forest mask* button.
   - Browse and open the mask image in *Open* dialog box (see *Creating A Vegetation Mask* tutorial).
     NOTE: You can use up to <u>256</u> colors per a mask and assign a many of object types per a color.
   - Click LMB on **Analyze image** button.
     Parameters of the color entry:
     - **Color [A=255, R=xxx, G=xxx, B=xxx]** is color identification.
       NOTE: You can identify the colors by their A-RGB identifications or by clicking on the mask.
     - **[xx,xx%]** is the probability for a vegetation object to be placed on a pixel of a color.
       NOTE: Value of <u>0%</u> means nothing placed (the color entry is grayed).
     - **(xx,xx% of total)** is the amount of a color on a mask.
       NOTE: If black and white colors are used, you would get two shades. But if more colors are used, more shades you will get.
6. Click LMB on the color entry, a *Placement probability* option will appear on top of the dialog box. This is the probability that one object could appear on a pixel of a color.
7. Set the value of the *Placement probability* 0.1 - 2% (you can use Right and Left Arrows keys).
   NOTE: The color entry turns to black.
   This is a probability for a <u>color</u> to have an object on it.
8. Click RMB on the color entry and select *Add object type* item from the context menu.
9. In the *Add object* dialog box:
   - Select a vegetation type from the drop down menu on the left.
   - Select a vegetation object.
     NOTE: If objects are not in the list you can add them by clicking on the *Object management* button on the toolbar in the *WorldTools* window.
     If you have renamed objects in the *Visitor 3* artificial/natural objects list you can add them by writing their names into *Custom object* tab in the *Add object* dialog box.
   - Set a placement probability of a vegetation object to value of 100%.
     NOTE: If you plan to assign several the vegetation objects per one color, you need set a percentage values of the objects so that a sum of their percentages will be equal to 100%.

<u>Example</u>: Assume, you have assigned two vegetation objects to one color. One object might have value of 10%, but another object need have value of 90%, and so on.

- Click LMB on the *Add object* button.

NOTE: The placement probability of an object can be changed by clicking LMB on the object.

NOTE: The percentage of the several objects defined in the color definition tells the mix of objects. If the color percentage is match they will be randomly placed on the color.

NOTE: The *World Tools* will try to determine what kind of object based on the required object distribution. If the sum of percentage is greater or less than 100% the percentages will be rescaled. Each pixel of a mask image represents a square on the map. Square size is shown on the bottom of the forest window.

If you increase percentages you will cover more pixels, but you can have only one object on each pixel of a mask, and on a square of a map, respectively. If the pixel on the mask image represents the square of 40m x 40m on the map (for a mask of 512m x 512m and a map of 20480m x 20480m) one object every 40 meters is too sparse, even if you raise probability of a color to 100% (each square will have an object, but squares are too big).

In this case, select the color entry and you will see on top of the forest window a *Maximum obj per pixel*. Increasing this value you can place greater than one object on each pixel of a mask.

The flag of the *Randomize obj number* tells the program that before attempt to placing the objects you set as maximum. It will randomize the pixel under evaluation and attempts to place a variable number on the pixel, instead of maximum objects (still with % probability placement set on the color).

10. In the *Forest Generator* dialog box:
    - Click LMB on *Simulation* button to see an amount of the objects that will be created
    - Clouse the *ForestSimulation* dialog box.
    - Click LMB on the *Create!* button.

    NOTE: You can do this with an *Export forest to Visitor 3 file* button on the toolbar on the *WorldTools* window.
11. In the *Summary* dialog box:
    - Click LMB on the *Export single file* button.
12. In the *Save As* dialog box browse to desired directory and save a file of the World Tools Export type.
13. Close the *Summary* dialog box.
14. Open *Visitor 3*
15. Open your project: *File > Open…*

    NOTE: Before import, be sure, you have the same objects in the project: *Tools > Nature Objects*…
    If a path or/and file name is mismatched with, change them in *Nature Objects Definition* dialog box.
16. Select *Scripts > Import Objects*
17. In *Import Objects* dialog box:
    - Click LMB on the *Browse* button next the *File name* field on the *Source file* section
18. In *Open file* dialog box:
    - Browse and open your ***.exp** file
19. Click *OK* button to close *Import Objects* dialog box

Creating A Vegetation Mask

1. In *Adobe Photoshop* window, select *File > Open*.
2. In the *Open* dialog box, browse to and open an ***.png** image of a layer mask.
1. In *Adobe Photoshop* window, on the left toolbar, click LMB on the *Quick Selection Tool*.
2. Select all the areas of certain color.
3. Click RMB on the image.
4. In the context menu, select *Fill* item.
5. In the *Fill* dialog box: in the *Contents* section, select the *Color* item in the drop down list.
6. In the *Color Picker (Fill Color)* dialog box, set each of the RGB parameters: R, G, and B color to value of 255.
7. Click *OK* button to close the *Color Picker (Fill Color)* dialog box.
8. Click *OK* button to close the *Fill* dialog box.
9. In *Adobe Photoshop* window, inverse the selection: *Select > Inverse*.
10. Click RMB on the image.
11. In the context menu, select *Fill* item.
12. In the *Fill* dialog box: in the *Contents* section, select the *Color* item in the drop down list.
13. In the *Color Picker (Fill Color)* dialog box, set each of the RGB parameters: R, G, and B color to value of 0.
14. Click *OK* button to close the *Color Picker (Fill Color)* dialog box.
15. Click *OK* button to close the *Fill* dialog box.
16. In *Adobe Photoshop* window, deselect the locations: *Select > Deselect*.
17. Save the image as ***.bmp** file under the name, for example, *locations*.
18. Run the *MS Paint* software (for *MS Windows XP*): *Start > All Programs > Standard > Paint*.
19. In the *Paint* window, open your file *locations*: *File > Open*.
20. Save it as <u>monochromatic</u> ***.bmp** picture
21. Save this ***.bmp** picture as ***.png** image
22. Run the *Visitor 3* software.
23. In *Visitor 3* window, open a project, from which the layer mask was got: *Project > Open …*
24. On the toolbar, click on the *Ground/Sea* button.
    NOTE: You might use the *Terrain Types,* the *Terrain Subtypes*, or the *Textures* filter as an alternative. Be sure, the *artificial objects* and *roads* are showed on the screen
25. Select *Export Map as Image …*
26. In *Save As* dialog box, save the image as ***.emf** file under the name, for example, *objects*:
    NOTE: The *Visitor 3* saves an image with the standard X and Y values of the *Terrain grid* size, for example: X: 512, Y: 512.
    Set the X and Y to the values of the *Terrain size* in meters + bright of the *Blue Line*, for example: 5130x5130, where the *Terrain cell size* of 10m. The X and Y values have to be up to four digits in length as height limit. Otherwise, the image will be not saved.
27. Exit the *Visitor 3*.
28. Convert the file from **EMF** to **PNG** format: select the ***.emf** file, hold down LMB on and hover it on **EmfToPng.exe** utility.
29. Run the *Microsoft Office Picture Manager* software:
    Start > All Programs > Microsoft Office > Microsoft Office Tools
30. In the *Microsoft Office Picture Manager* window, open the *objects**.png***
31. Crop the blue lines at the left and at the bottom of the image as that it has dimensions of your map project, for example, 5120x5120.
32. Save the cropped image *objects**.png***
33. Exit the *Microsoft Office Picture Manager*.
34. In the *Adobe Photoshop* window, create a new image: *File > New*

35. In the *New* dialog box:
    - In the *Name* field, define name of the new image
    - In the *Height* field, set the value to, for example, 5120
    - In the *Width* field, set the value to, for example, 5120
    - Click *OK* button
36. In the *Adobe Photoshop* window, save the image as, for example, *background***.png**
37. Select mode for this image: *Image > Mode > RGB Color*
38. Open the cropped image *objects***.png**
39. Select mode for this image: *Image > Mode > RGB Color*
40. Click on tab of the image *objects*.
41. Select the image *objects*: *Select > All*.
42. Copy the image *objects*: *Edit > Copy*.
43. Click on tab of the image *background*.
44. Paste the image *objects* as layer into the image *background*: *Edit > Paste*.
45. Click RMB on the *Layer 1*.
46. In the context menu, select the *Blending Options* item.
47. In the *Layer Style* dialog box, in the *Blend if* section, select the *Blue* item from the drop down menu.
48. Set the right marker of the *This Layer* option to the left so that the objects and roads are still viewed, for example, to the value of 127.
49. Click *OK* button
50. In the *Adobe Photoshop* window, save this image as, for example, *objects_co***.bmp**
51. In the *Paint* window, open the file *objects_co*: *File > Open*.
52. Rename this image to, for example, the *objects_bw***.bmp**
53. Save it as monochromatic ***.bmp** picture
54. Save this ***.bmp** picture as the *objects_bw***.png** image
55. In the *Adobe Photoshop* window, open the *objects_bw***.png** image
56. Select mode for this image: *Image > Mode > RGB Color*
57. Open the *locations***.bmp** image
58. Select mode for this image: *Image > Mode > RGB Color*
59. Click on tab of the image *objects_bw*.
60. Select the image *objects_bw*: *Select > All*.
61. Copy the image *objects_bw*: *Edit > Copy*.
62. Click on tab of the image *locations*.
63. Paste the image *objects_bw* as layer into the image *locations*: *Edit > Paste*.
64. Click RMB on the *Layer 1*.
65. In the context menu, select the *Blending Options* item.
66. In the *Layer Style* dialog box, in the *Blend if* section, be sure the *Gray* item is set in the drop down menu.
67. Set the right marker of the *This Layer* option to the left so that the objects and roads are still viewed, for example, to the value of 254.
68. Click *OK* button
69. In the *Adobe Photoshop* window, save this image as, for example, *mask***.bmp**
70. Exit the *Adobe Photoshop*
71. In the *Paint* window, open the file *mask*: *File > Open*.
72. Save it as monochromatic ***.bmp** picture
73. Exit the *MS Paint* software