



TERRAGEN, APOPHYSIS, THE GIMP

Fractal shores

Our exploration of the power of free software concludes with not one, but three, separate packages. Follow this walkthrough to discover how to recreate the fractal landscape above using the tools on the CD **BY CHRISTIAN HECKER**

FACTFILE

FOR
Terragen, Apophysis
The Gimp

DIFFICULTY
Elementary

TIME TAKEN
One hour

ON THE CD
• Full-size screenshots
• Terragen scene files for the registered and unregistered versions of the software
• Apophysis fractal file
• The Gimp layered file

ALSO REQUIRED
N/A

Over the next few pages, we'll create the fantasy landscape shown above. The image was originally produced as a commercial print, but we're going to recreate it without spending a penny on software! For this, we'll need the help of no less than three free applications. To begin with, we'll use *Terragen* to create the landscape itself. *Terragen* is a wonderful 3D fractal landscape generator that's capable of producing impressive, eye-catching vistas with stunning lighting effects and moody atmospheres.

The software comes in two editions: the free version included on the CD, and a more powerful commercial edition. Since we'll be working with the free version, we'll be somewhat restricted when it comes to adjusting quality settings. This means we can only use terrain files up to a specific level of detail, and our render output resolution is limited to 1,280x960 pixels.

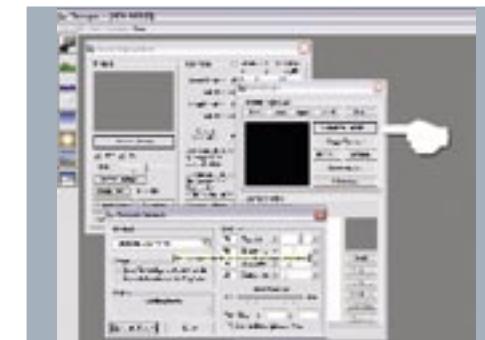
As soon as we've finished creating our landscape, our next action will be to fire up *Apophysis*, which is a simple-to-use fractal flame generator. Normally, *Apophysis* is used to create highly detailed, complex and beautiful standalone fractal images, but it

can also be used to create swirling nebulae for a space picture. For the purposes of our tutorial, we'll use it to create cloud trails that we can place in the sky above our landscape. *Apophysis* works like any other image-generating software, so this can be achieved with a minimum of fuss: there is a good selection of presets to play with, settings to modify the results, and a range of render-quality options.

When we've worked through the process of creating our fractal, we'll switch applications and begin to combine the landscape and the cloud trails within the open source image-editing application *The Gimp*. This is where we'll create our beautiful, unique sky effect. The great thing about *The Gimp* is that it's almost as powerful as *Photoshop*, which means you can unleash your imagination! It's a solid tool with which to manipulate photos, change colours, sharpen edges or soften and blur images. With our three applications at the ready, let's make a start.

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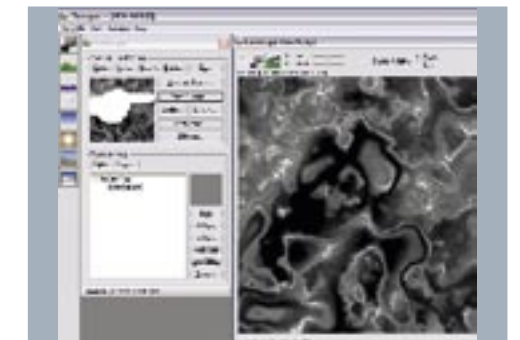
STAGE ONE | Creating the initial landscape



01 To create a terrain from scratch within *Terragen*, click Generate Terrain in the Landscape box. A window will open that allows us to configure our landscape. If we hover above the value fields, we can see information about what effect each option has. However, we have a pre-prepared terrain, 'ast513.ter', which can be loaded from the CD.

EXPERT TIP

File types
There are two important file types in *Terragen*, each of which is saved and opened separately. A TER file is the landscape model, while the TGW file represents the general set-up, such as camera data, water height, clouds, haze and the sun/lighting settings. The TGW file also includes the render settings for the final image. Since *Terragen* has a huge online community, you can find lots of pre-built atmospheres and terrains on the Internet, such as the terrain we'll make use of in the next step, which was created by Lewis Moorcroft (www.theartoflewismoorcroft.co.uk)



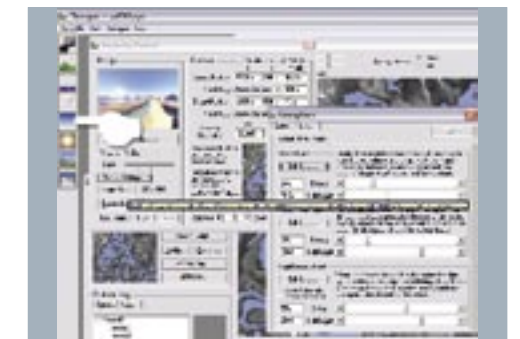
02 Click Open at top of the Landscape window to load in the ready-made terrain. With the help of the View/Sculpt tool, we can manipulate it. We can also use this tool to place our camera (switch between the cam and sculpt modes with the help of the two buttons at the top of this box).



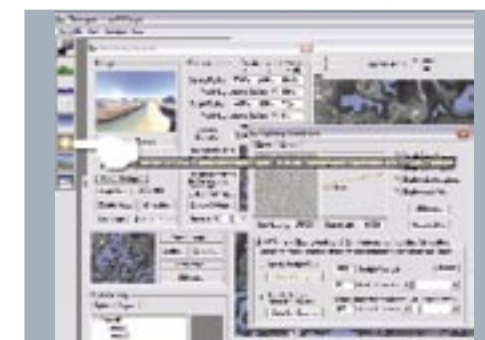
03 To progress with our terrain, we need to create a Surface Map. This tool is located beneath the terrain generator. To find out what each button does, briefly hover the mouse over it. Click on Child to add another texture layer, and double-click on New Surface to open the Surface Layer window. Here, we can edit the colour and behaviour of our texture.



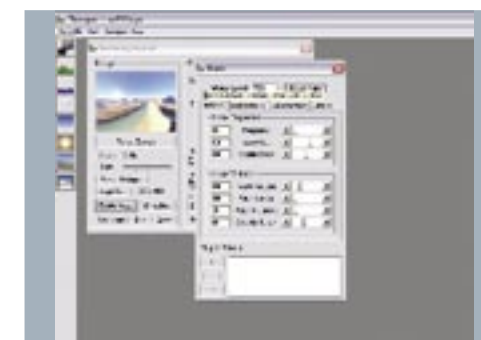
04 The Rendering Control dialog box allows us to adjust the quality of the render (see above for optimal settings). Click Render Settings, select the Advanced tab and type a number that represents one third of your installed RAM. Next, we can load our prepared world file (World File > Open World...), 'ast513.tgw', which includes the correct camera angle and atmosphere. Click Render Preview.



05 Lots of things have changed: there's a better Surface Map, and better water and atmosphere. Open the Atmosphere box (indicated above). The atmosphere is one of *Terragen's* strengths, with self-explanatory options. With the right settings, we can achieve wonderful sunbeams or glowing haze and fog. There are also plenty of atmosphere files on the Internet, so have a good look around.



06 Next stop, the Lighting Conditions dialog box. This has so many available options, we could write a whole new tutorial about them. All options affect the behaviour of the sunlight or the atmosphere; we can change the size of the sun with Sun's Appearance, or the quality of the light by using Realistic Sunlight Penetration System and Multi-directional Shadow Lighting.

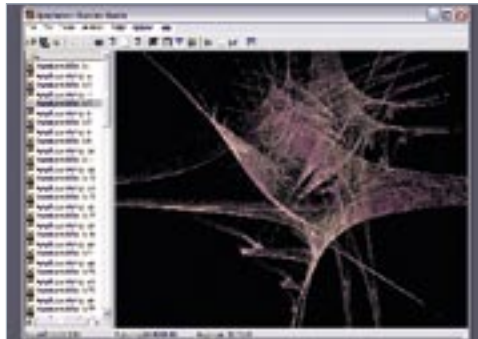


07 Open the Water dialog. Again, hover the mouse above the value fields for information about each effect. If you're using a registered commercial version of *Terragen*, avoid activating 'extra blended detail', which will effectively triple the time it takes to render without any noticeably significant results.

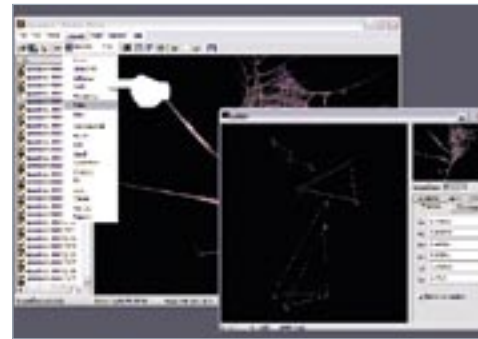


08 We've skipped the Clouds dialog box, because there are no clouds in the final image. If you've changed anything along the way, please reload 'ast513.tgw'. Let's render this big: Rendering Control > Render Image. Depending on CPU and RAM, this could take a while. Once the render is finished, save the image by clicking the button at the top left of the render window.

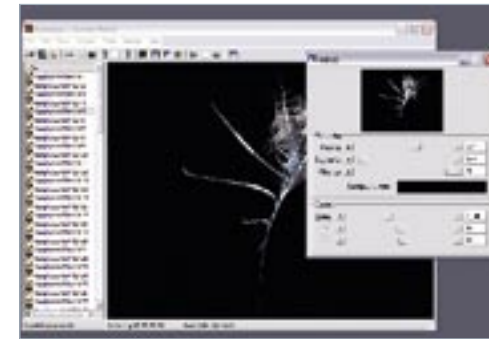
STAGE TWO | Creating a fractal



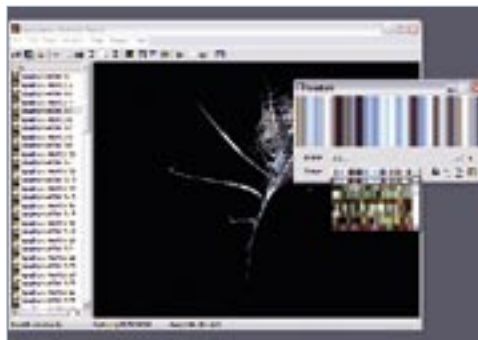
09 Launch *Apophysis*. Immediately, the program throws out a fractal. On the left is a list of fractal presets, which change with each launch of *Apophysis*. We can save CPU power (and time) by working with *Apophysis* in this smaller window, as maximising the window means re-rendering the picture.



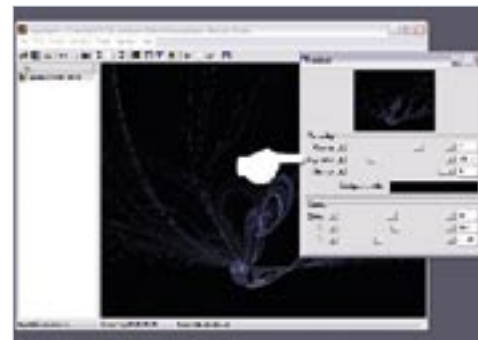
10 With the help of the Edit tool ([Ctrl]+[E]), we can modify angles, positions and colours of the currently displayed fractal. Simply drag the corners of the triangles to see immediate results. We could also use Variation. It's good to experiment with this setting to see what results we can achieve.



11 The next helpful tool is the Adjust dialog box ([Ctrl]+[A]). Here, we can alter general settings such as Brightness, Gamma and Vibrancy. In the lower part of the dialog, the camera set-up can be changed; we can zoom deeper into the fractal, or move the fractal itself into a better position if required.



12 Use [Ctrl]+[G] to open the Gradient dialog box. Here, we can change our fractal colours and adjust presets. We're even able to use self-made gradients. Unfortunately, it's almost impossible to give precise instructions for recreating the fractal we need for the cloud trails, so let's open the saved file from the CD, 'ast.flame'.



13 This is the same fractal used in the finished composition. It looks a bit dark right now, but we can brighten it up with help of the Adjust dialog that we used in step 11. Of course, we can save all of our fractals at any time simply by using [Ctrl]+[S] to save the fractal parameters. Now let's output a final render.



14 First, choose a path to save your rendered image (1) and select the Size for the render (2). The Rendering Options (3) define the quality of our render (suitable settings are indicated in the screenshot above). The settings marked (4) display how much RAM will be used for the render. Once the render is under way, the bar marked (5) will reveal how much time is left before completion.

STAGE THREE | Fitting it all together



15 It's time to fire up *The Gimp*! Load our two rendered images, select the window that contains our fractal and press [Ctrl]+[C]. Then click the landscape image and press [Ctrl]+[V]. We've just placed the fractal above the landscape layer. Rename the imported layer to 'Fractal' and name the *Terragen* layer 'Landscape'.



16 The Fractal layer is larger than the Landscape layer. The reason for this is that we need to stretch the Fractal layer to make it fit, and the large size will help us avoid visible layer edges. Select the Fractal layer, set its Mode to Dodge and use the Move tool [M] to move the fractal layer into a similar position to that shown above.



17 Unfortunately, we now have a layer edge, but we can stretch the Fractal layer to get rid of it. Left-click on the image for a submenu, then go to Layer > Scale Layer. Click on the chain icon to unlink changes in image Width and Height (otherwise, the Height will also be scaled in proportion), and change the Width from 1600 to 1865. Click Scale and the edge will disappear.

STAGE THREE (Continued) | Fitting it all together



18 We can use the Eraser tool [Shift]+[E] to get rid of those parts of our Fractal layer that don't look so good. Right-click the Brush window and create a new brush. This will offer much more flexibility than using a preset brush. *The Gimp* will switch into a menu that allows us to freely modify it. Use the settings in the image above to get the best results.



19 When working with the Eraser tool, it's easy to erase too much, so use the History function to undo any errors. At first, we'll remove those parts of the Fractal that show up in front of our mountains. Feel free to remove anything that you think doesn't look right. If the brush is too big, scale its Radius down to a value between 25 and 40.



20 We have the freedom to erase what we want. The results of our Eraser work should look something like the image above. The sky part is almost done and it looks great! It's now time to add a slight reflection of our sky effect to the water.



21 Adding the reflection is quite a simple process. First of all, create a copy of the Fractal layer: go into the layer palette, right-click the Fractal layer and Duplicate it (ensure you've selected the 'Fractal copy' layer in the palette). Go back to the image itself and turn it around vertically (Layer > Transform > Flip Vertically).



22 With the Move tool [M] still active, we can move 'Fractal copy' down to the right position. We can also use the arrow keys to move the layer (use [Shift] to move the layer faster). Once we've placed the 'Fractal copy' layer in the right position, remove all of those parts that show up above land. Finally, change the Opacity of the layer to 50%.



23 To complete our image, let's deepen the shadows. First, save the image [Ctrl]+[Shift]+[S] as a JPEG and then reload it into *The Gimp*. We think it's better to use Levels to add contrast to images, as it offers much more control over dark and bright colours. In the Levels dialog box (to launch it, follow the screenshot above), the Auto option delivers nice results, but to get the best results, try

it manually by moving the sliders to alter the brightness and contrast. The left slider is for shadows, the middle one is for general brightness/darkness, and the right one is for the highlights. Altering the levels will dramatically alter the appearance of the image. And that's it! We also recommend that you go online to check out the variety of resources at your disposal, especially for *Terragen* and *Apophysis*.