

Plop Mask

Large projects can take days to render. There could be a power outage or a computer freeze-out and the work is lost. Plop rendering “tiles” can be an option to keep things manageable, even to distribute the render job.

Long Render Times

Some renders can take days to complete: large documents, true ambience, soft shadows, soft IBL shadows, high rays per pixel settings and the like are render hogs. Network rendering can be an option if the home network features more than one computer. Unfortunately, the network render option does not honour true ambience (TA).



Above at left an example of a 19 hours network render, at right the correct 63 hour render (original width 3210 pixels).

Save Regularly

Bryce does not save regularly when rendering. If a power outage occurs or the computer freezes, or an inappropriate manipulation was made, the render is lost. One strategy is to stop the render from time to time and save the work, then resume the render. It is important to also save the Bryce file, not only the partly rendered image. When the render must resume after a crash, Bryce needs to know how far the render went, otherwise, it restarts it.

Plop Render

Another method is to plop render a part of the scene, save the picture, select another part to plop render, etc. The problem here is that it is difficult to get the whole scene without too much overlap or worse, holes. If the render is aborted for whatever unfortunate reason, the scene can be loaded from scratch and plop rendering can be continued. There is no need to save the Bryce file, saving the pictures suffices.

On the plus side is that the scene can be copied to other computers and each computer plop renders another part. This is a bit like manual network rendering.

Using a Plop Mask

The suggestion to plop render a large project came from my Bryce colleague and gifted artist *Marco Schneider*. After some experimenting it occurred to me that a mask may be helpful; much like the 100 x 100 pixel tiles network rendering uses for still images, but with a tile size the artist considers best suited for the scene.

The individual rendered images must be combined in a graphics application once all tiles are rendered and saved. True Ambience does not suffer from Plop render.

Masks

At first, I tried to open only parts of the image to render and black-out the rest. In this way, the whole document could be rendered. The caveat was that the borders of the open window were defocused and therefore the assembled image showed fuzzy lines dividing the parts.

The better solution is to create a mask in front of the perspective camera that shows the boundaries of the “tiles” to plop render. The plop render rectangle can be drawn along the borders of the mask, then the mask hidden, plop rendered and the image saved. Then the mask can be unhidden, a plop rectangle around the next “tile” drawn, the mask hidden, plop rendered and the image saved, and so on.

Plop-rendering over the Internet

If true ambience is not used, network rendering works great in a home network — a Home-Intranet. Rendering over the public Internet is possible but difficult to set up: firewall, routing NAT/PAT (network and port address translation) in the router. Bryce uses ephemeral ports and this does not make configuration easier. Because of this, a home network cannot be accessed to render over the public network, only one computer per location (IP address). I could make it work, so I know it is possible; interesting experiments, but not for the casual user.

With plop rendering using a mask with identifiable tiles, the Bryce file with the mask can be sent to colleagues via email or a storage space all parties can access. Who plop renders which tile can be mutually agreed upon. Once a party has done all the tiles assigned, the pictures can be uploaded or sent by email to the initiator to be assembled to the final image.



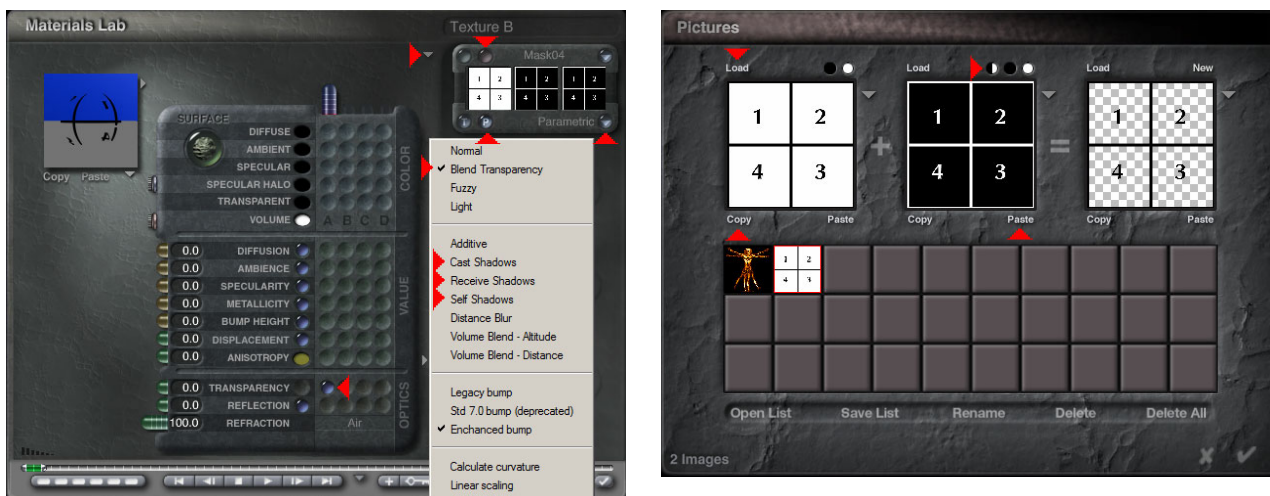
The example at left shows a 6 x 6 mask over a render. Tile 7 and 23 are shown red; at right a 4 x 4 mask with tile 6 marked in red. The plop render rectangle should include more than half of the width of the black square borders.

A square mask is not mandatory, the mask can be resized for another aspect ratio, but this is really not necessary.

Creating a Plop Mask for Bryce

Masks can be drawn in any graphic application and the tiles identified by numbers or letters. The mask pictures can be used on a 2D-Face and put in front of the camera.

Create a 2D-Face and set the material in the *Materials Lab* as shown below at left. Never mind the colour swatches, just set a dot for Transparency. Click on the down arrow pointed to by the red right arrow on top to open the *Material Options* dropdown shown. *Enable Blend Transparency* and disable the *Cast, Receive and Self Shadows* options.



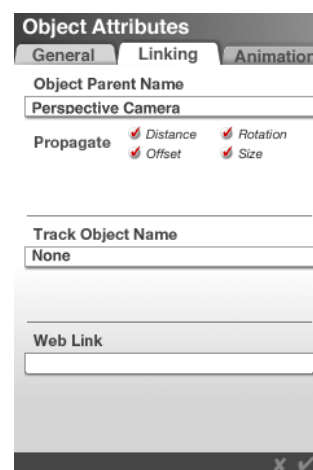
When putting a dot for *Transparency*, a random texture appears. Click on P (left up arrow) and open (down arrow) the *Pictures Lab*, shown above at right. Click on *Load* above the left image and navigate to the mask drawn in a graphics application. Here, a 4 x 4 mask is shown. Click on *Copy* and under the centre image on *Paste*. Then click on the black/white dot to invert the loaded mask. Everything black in the centre picture is transparent and everything white visible. Accept and back in the *Materials Lab* verify that *Parametric* and *Pict Interpolation* are selected, and then accept as well.

Keep the 2D-Face at the default size ($X=Y=20.48$, $Z=0$), default position ($X=Z=0$, $Y=10.24$) and no rotation, though this is not mandatory, it just makes things simpler. This would be the moment to give the 2D-Face a name, *2x2_PlopMask* for example. This mask can be saved to the *Objects Library* for later use.

Attach Mask onto Perspective Camera

Save current camera position and set camera to $X=Z=0$, $Y=10.24$ and all rotation angles to 0. The values given assume that the 2D-Face is at the default position and size. Z could also be set to -10.

In the *Object Attributes* for the 2D-Face, click on the *Linking* tab and select *Perspective Camera* as shown at right. If there are many objects in the scene, the list is long; however, the camera is listed on top.



Move the 2D-Face away from the camera (Z direction) until it just covers the longer side of the document. The 2D-Face can also be resized; moving it farther from the camera is usually good, though.

In the *Object Attributes*, *General* tab enable *Locked* to prevent the mask is moved inadvertently. Restore the saved camera position.

Once a square or rectangle for plop rendering is selected, open the *Objects Attributes* again and set it to *Hidden* for rendering. When the tile finished rendering, disable *Hidden* so another tile can be selected, then hide the mask again, and so on.

Plop Render

This option must be enabled. There is an icon at the lower right of the main working space. If it is not marked by a tiny red square, it is off. The picture at right identifies the control.

Also note the hand symbol almost at the corner. It is called the *Pan Tool*. Move the mouse pointer over it, press and hold the left mouse button and move the mouse. In the wireframe mode, the image can be moved around and the original position must be restored from the saved camera position.

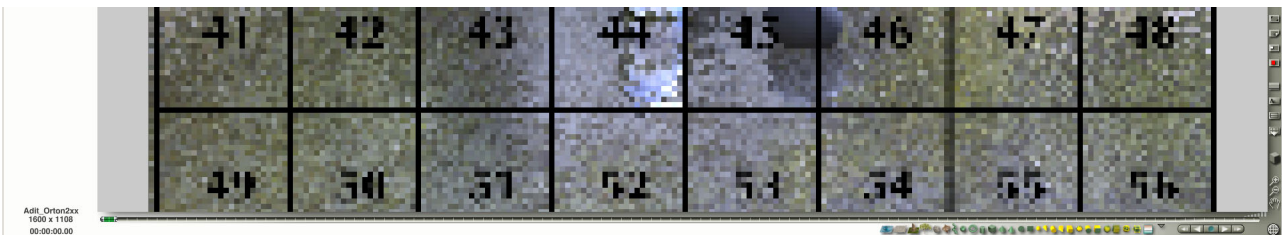


If the rendered or partly rendered picture is shown, it can be moved if it is larger than the work space. The camera position is not changed.

An alternative way is to press and hold the *Space Bar*, the mouse pointer changes to a hand symbol. Press and hold additionally the left mouse button and move the mouse. This works exactly the same way for wireframe and image mode as when using the hand symbol.



Above the Bryce workspace with an image rendered one pass so the mask and picture can be seen. An 8 x 8 mask is used – which is ridiculous because the complete image renders in less than 5 minutes.



The document exceeds the size of the workspace vertically and in order to access the lower part, it had to be moved up using the hand symbol.

Below, tile 28 has been plop rendered. The square selected is a bit larger than the borders.



Here are the steps, starting with the mask not hidden and after the first render pass:

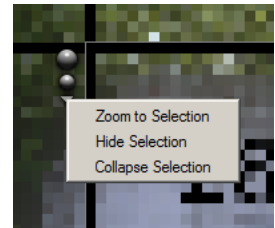
1. Draw a rectangle that includes more than half of the tile borders thickness.
2. Press the [Esc]-key.
3. Hide the mask.
4. Press [Esc]-key.
5. Plop render.
6. Save image, either *File > Save Image As ...* or *File > Export Image...*
7. Press [Esc]-key.
8. Un-hide mask.
9. Press [Esc]-key.
10. Back to step 1, repeat until all tiles are rendered.

When all tiles are rendered and the images saved, assemble the tiles in a graphics application. If you render all tiles on one computer, the last saved image will be complete.

The un-rendered part has still the mask lines visible. If you are not confused by what parts are already plop rendered, steps 2, 3, 4, 7, 8 and 9 above can be skipped after the first tile.

Plop Options

Clicking on the top big button starts the render in the rectangle. The render can be stopped by clicking anywhere in the picture. The render can be resumed when clicking on the smaller button below the top one. Clicking on the down arrow opens the options as shown at right. *Zoom to Selection* is useful when setting up the scene, but not when rendering.



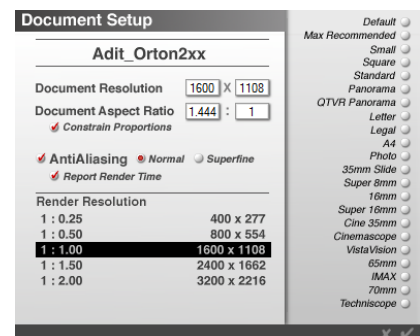
Hide Selection makes the rectangle and buttons disappear. The same happens when Bryce is minimised and then maximised again. In both cases, it can be made to reappear by switching off, then on, the *Plop Render on/off* Option (shown on top of the previous page).

Collapse Selection gets rid of the rectangle and buttons for good. When a new rectangle is drawn, the previous one disappears anyway. The rectangle and buttons do not appear in a saved or exported image.

Document Size versus Workspace

Adjusting the distance from the camera or the size of the mask gets difficult if the final render is much larger than the workspace. There is more than one possibility to manage this.

The *Document Setup* dialogue shown at right can be accessed from the *File* menu or by the keys [Ctrl]+[Alt]+[N]. If *Constrain Proportions* is enabled, *Document Resolution* can be halved and *Render Resolution* set to 1:2.00.



The *Document Resolution* can also be set to a value that fits the workspace, adjust the mask, and then set it back.

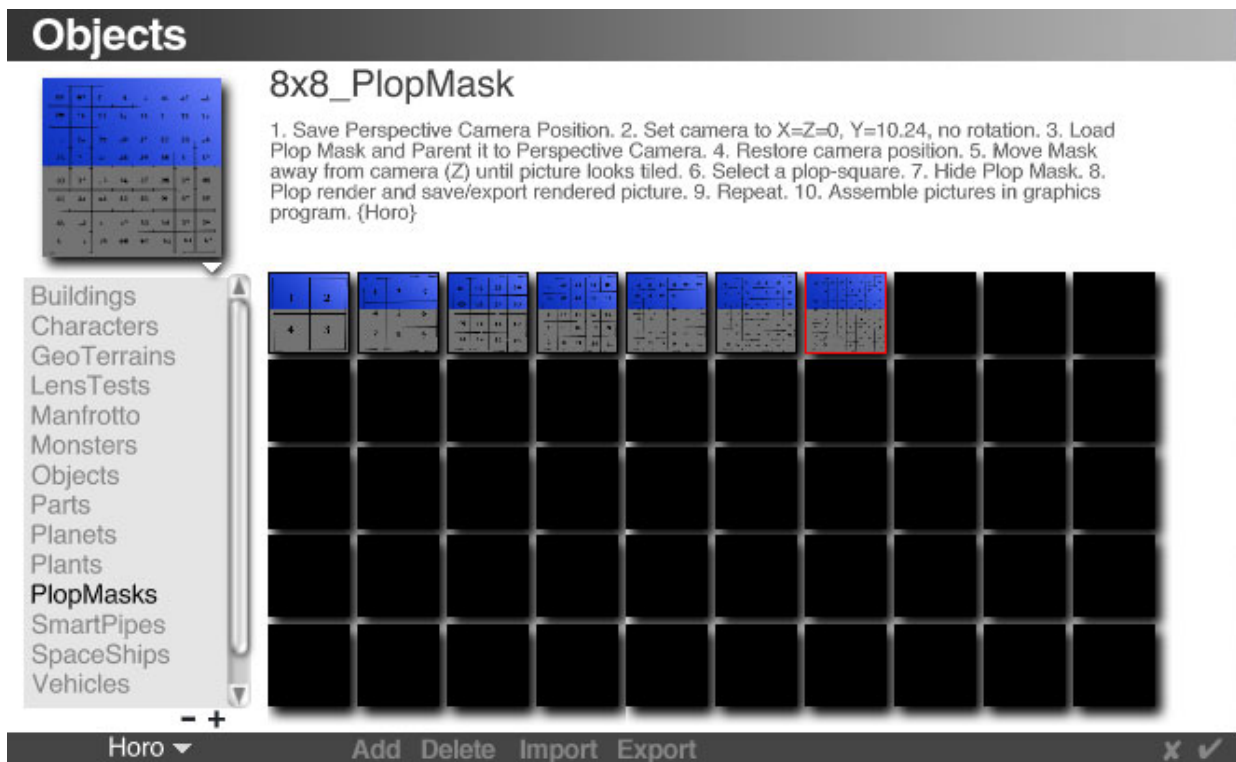
Above the hand symbol on the lower right of the workspace are two magnifying glass symbols. Clicking on the one with the minus (-) in it makes the picture smaller and the one with the plus (+) bigger. The easier way is to use the [+] and [-] keys.

Wrapping-up

After having experimented with plop rendering using a mask I think it is a usable method. It is quite easy to set up and straight forward to use. Even in just a one day render it reduces the risk of losing hours of render time if something goes awry. Knowing roughly how long a “tile” needs to render helps estimating how many of them can be included to keep Bryce rendering overnight. Using a 2 x 2 mask means risking ¼ of a render is lost when bad luck strikes, not the complete one.

If you do not want to draw masks, you are welcome to use the ones I made: 2x2, 3x3, 4x4, 5x5, 6x6, 7x7 and 8x8 all put in an object library. For all masks, a tile is 200 pixels square so the 2 x 2 mask is 400 pixels square, the 8 x 8 1600 pixels square. All tiles are identified by numbers.

<https://horo.ch/raytracing/resources/obj/objPlopMasks.zip> (198 KB)



Unpack and copy into <drive>:\<bryce>\Presets\Objects\<your folder>\ then you can access them directly from the *Create* menu. As an example, my case:

D:\Raytracing\Renderer\Bryce\Bryce71\Presets\Objects\Horo\PlopMasks.obj

More documents, links to videos and resources: <https://horo.ch>