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Massive frequently used keys:

ctrl - from and to connect nodes

alt - from and to connect nodes with a black connector

ctrl and **alt** - to disconnect nodes

Be aware - direction of connections matters!

alt-f - follows the agent in the camera

alt-g - creates a macro

enter - to go inside a macro

backspace - to go back out of a macro

delete - to delete a node

alt-c - to copy

alt-v - to paste

spacebar - to start/stop the simulation

alt-r - to reset the simulation

ctrl-a - to get the brain nodes in view (similar to space g in Houdini)

alt-s - toggle between shaded and wireframe

alt-i - display kinematics

shift-alt-g - to expand a macro

alt-x - to externalize (make a node inside a macro available)

ctrl-p – shortcut to place agents when bringing up an already defined scene

Command Line Options

- Run massive on linux from a terminal window – this is where any error messages will be displayed.
- Running massive from the directory your files are contained is best.
(you can just fire up massive, or run massive file.mas (don't forget to place agents – use the ctrl-p for place hotkey)
- Common flags listed below, see Appendices/Command Line Options in the documentation for additional flags.

massive -threads NUM to take advantage of multi-threading capabilities of your computer, where NUM is say 18 depending on your hardware. It defaults to 4 threads. (Thanks to Raiyan for pointing out this feature).

-bg r g b gives the viewport window a color background.

-res x y sets the viewport size

-gui no windows

Painting with Agents

Recently one of my students used paintbrushes for the first Exercise. This led to the natural question which is how do I get my agent to paint? using an output node – create a paint.r, paint.g, and paint.b channel values. Also paint.a (alpha) and paint.size. The key is to ensure that the **terrain is active** and under the Terrain menu, the **Texture map is checked on** (it uses an image, terrainname.tif that is generated).

You can also use the paint editor tool for agent placement (see documentation under “Painting”).

A Guide to Rendering In Massive

Currently this document is written with Massive running on Windows 7. This will be updated when the current Linux system has been fully tested.

VELOCITY:

Velocity is the “gpu built in renderer” in Massive. In order to render and get shadows you must have certain settings. This render should only be used as a temporary measure and is not acceptable for exercise/project submissions.

Please use the velocity_settings folder (_MATERIAL/MASSIVE/Rendering) to provide a quick test to ensure your display is working. Read in the file, hit ctrl P to place the spheres, and under the Camera tab select Render. The velocity render does have issues with some graphics cards and will not display shadows.

The following settings are important: (this is reviewed in a video version available in the materials folder labeled MassiveVelocityRecap.mp4)

On the Scene Page:

- Under your Key light, OpenGL tab: check that “**shadowmap**” and “**viewport shadow light**” are on. Still in the Key light, Render tab, ensure that “**on**” is on for the velocity pass.
- For all geometry (terrain and agent) check that under the render tab “**visible**” and “**cast shadows**” is on where appropriate.

In the body page:

- Ensure that the agent geometry has shaders assigned for the pass under the “**shaders**” tab.

In order to get multiple frames, simply go to the **Run** menu, pull down and select **Sim**. In Sim you will see a “**sim parameters**” tab. Toward the bottom in the OUTPUT section, push in the button “**pics**” and specify the full pathname to where you have created a “**Pic**” folder. (Since we are on Windows, you can click on properties for the folder to ensure you have the correct syntax). So for example the path could be:

H:/deborah/Desktop/Pic/a#.tif

You are likely to put your files in your own H drive directory, this is just an example. Start and end frames can be specified at the top. Make sure under the RENDER section you have the render selected. Then hit **go**. The frames will be sitting in your **Pic** directory.

So to recap:

1. Create a Pic folder
2. Under menu Run-Sim-Sim parameters tab- push in "pics" and specify full path name of folder (leaving the # to indicate the frame number)
3. Select start/end frame values, and render (in our case velocity)
4. Hit go, the files will be in .tif format in the Pic folder (see note on last page)

RENDERMAN:

The procedure to produce a renderman (prman) render is similar to the one above:

Please use the renderman_setting folder (MATERIAL/Rendering) to provide a quick test to ensure your display is working. Read in the file, hit ctrl P to place the spheres, and under the Camera tab select Render. The prman render should appear. If problems occur please email me.

The procedure to produce a renderman (prman) render is similar to the one above:

Create a Sim and Rib folder in the appropriate directory for your project.

Just as you checked that things were visible and shaders were assigned, you must also do the same for the renderman pass that is labeled in your render options.

On the Scene Page:

- Under your Key light, OpenGL tab: check that “**shadowmap**” and “**viewport shadow light**” are on. Still in the Key light, Render tab, ensure that “**on**” is on for the renderman pass and that “**raytraced**” is selected from the pulldown menu.
- For all geometry (terrain and agent) check that under the render tab “**visible**” and “**raytraced**” is on where appropriate.

In the body page:

- Ensure that the agent geometry has shaders assigned for the pass under the “**shaders**” tab. The dialogue box will bring up renderman shader options.

In order to get multiple frames, go to the **Run menu**, pull down and select **Sim**. In Sim you will see a “**sim parameters**” tab. Toward the bottom in the OUTPUT section, there are two buttons to push is, the “**Sim**” button and the “**Rib**” button. This produces the sim and rib files that are essential to produce the render. Specify the full pathname to where you have created a “Sim” and a “Rib” folder. In in the following manner:



This was Sim\
Now it has the full pathname in front of Sim\

(pics should NOT be chosen, that is only for the velocity render)

This was Rib\a#.rib (prman.dll)
Now it has the full pathname in front of \Rib\a#.rib

if you forget to select this, you will be missing your rib files specified in your render options window! (output ribs)

IN ADDITION: Under Options/Renders

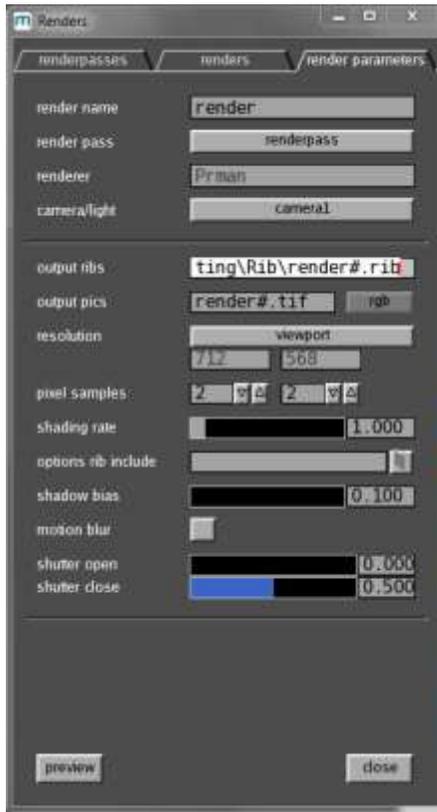
Hint: Do **not** put spaces in your folder names, if you do, your pathnames will not work in renderman.

The dialogue box must have the pathname specified for the following:

output ribs – shows .\Rib\render#.rib – change this to have a full path

shadow bias – SET THIS TO A SMALL VALUE – the default is 10

This is the default value chosen for the premade agents and is not appropriate for our objects. **Set this to .1** (Don't set it too low ie. .01 is NOT a good choice – you may start to see “lines” on a flat terrain).



This was .\Rib\render#.rib
append a path to the folder
you have created

This was 10.0 by default
set it to an appropriate
value for your world space

Once you are ready with these settings, go back to the Sim window and, with the render selected, hit go.

This will create three things in the folders you have defined:

In the **Sim** folder:

frame.10.apf
frame.11.apf
frame.15.apf

In the **Rib** folder:

a0010.rib
a0011.rib ...
a0015.rib

Also :

render.0010.rib ...
render.0015.rib

As well as a_terrain1.rib

The render.0010.rib ... render.0015.rib files are the master files, and they reference the other files to produce the image.

In order to start prman, copy over the script that is in the materials folder to this folder (mrender.bat). You can also run it from a CMD window and specify the pathname.

Then simply type mrender.bat and this will produce the resulting render.0010.tif ... render.0015.tif files in your directory. Not here we have 10 to 15 as that is what the start and end frames are in the sim window.

So to recap:

1. Create a Rib and Sim folder
2. Under menu Run-Sim-Sim parameters tab- push in "sim" and "rib" and specify full path name of folder (leaving the # to indicate the frame number)
3. Specify under Options/Render/render parameters the output ribs file path
3. Select start/end frame values, and **select the render**
- 4. Save your files!**
5. Hit go, the files to render will be in the Rib folder
6. Copy the script from MATERIAL/Rendering/MassiveRenderScript
mrender.bat into your Rib folder. Run the file and the resulting tif file will be produced.

NOTE: save agent and scene (.cdl and .mas) – the rib and sim files refer to the files so if you want your sim render to look like your preview render you need to make sure the files are up to date. It's a good habit as you are working in Massive to save your agent and setup as you go, and save versions that work.

Using Textures in Renderman Renders:

If you are using textures on your spiders you need to do the following:

Renderman requires textures to be in tex format. Instead of referring to the tif file, you must use a tex file. To do this you must use a shader in renderman, such as paintedplastic, that allows you to specify textures.

1. You can create the .tex file by using txmake. If you are in Windows you can go to a CMD window (from the startup menu) and select **txmake filename.tif filename.tex** when in that directory (cd to that directory). This produces the required .tex files.
2. In Massive, in the diffuse tab, where you have the texture filename.tif, double click on this and alt-c to copy the full pathname.
3. Go to the shaders tab now, and select paintedplastic - it brings up a dialog box. At the bottom you will see texturename. Paste the filename you have copied into that box but change the extension to .tex.

In addition, there is now a tutorial by Dave Kin on how to use shaders/textures easily in Massive. Please see documentation in the dropbox folder.

[Advanced Topics in Renderman:](#)

If you want to use motion blur – simply click the button in the render options window and turn up samples.

Depth renders – to obtain the z depth information the preview render works fine, however the resulting file from the sim is not readable by other programs such as nuke. It is necessary to combine the render into an rgbaz file. This can be achieved by running the following script X to add the appropriate lines in your rib render files. This file can then be imported into nuke and rendered.

(We tried rib include but couldn't get the wild card to work, tried rib merge, tried txmake –work, byte and short as in txmake –float name.zfile name.tif)

Lights – you can import lights and cameras from maya (.ma), or use the ones in Massive.

Open questions for me:

1. swimming textures
2. shadow color
3. shadow intensity
4. occlusion

ADDITIONAL NOTE: default behavior for output pics went to the directory of your session. If this is not happening, here is what you should do:



This usually works fine, however if you find your "render#.tif" files are not where you expect for either Velocity or Renderman renders, simply specify the path directory you wish these to be written to.

Please note there is additional information in MayaToMassiveTutorial for the purposes of the "Spider" exercise. In addition, the manual and tutorials as well as the fundamental courseware materials are excellent resources that should not be ignored.