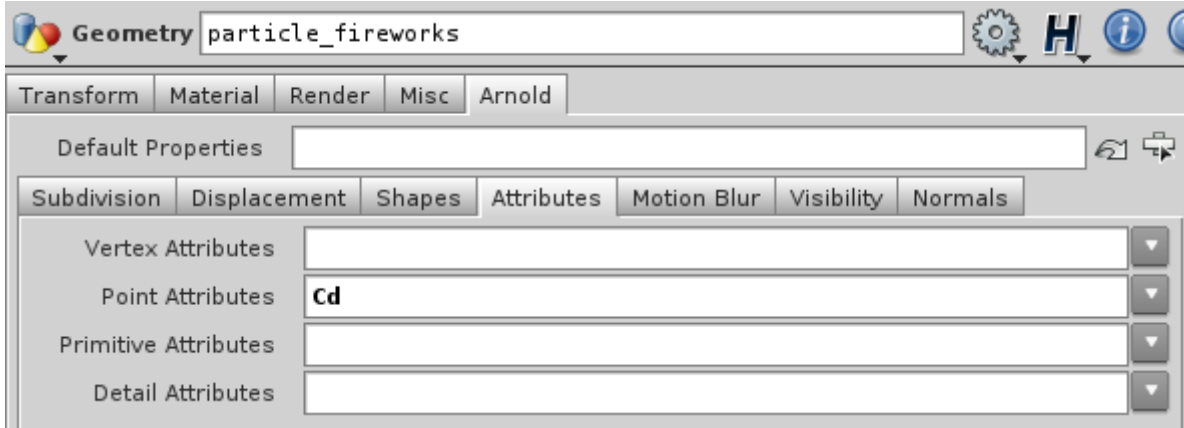


## Part 3 - Color & Volume

Houdini's fireworks have an inherit color, which is the attribute called **Cd**. This needs to be passed the Arnold shader network to be used.

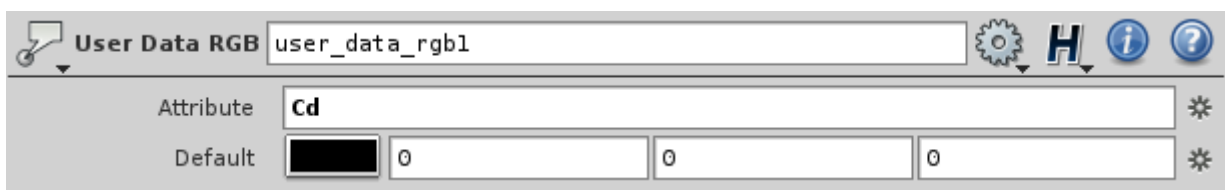
Under the attached Arnold properties is a tab called Attributes. Clicking the down arrow next to Point Attributes will list the available attributes on the fireworks, choose **Cd**. This will pass the attribute to the .ass file as **User Data**.



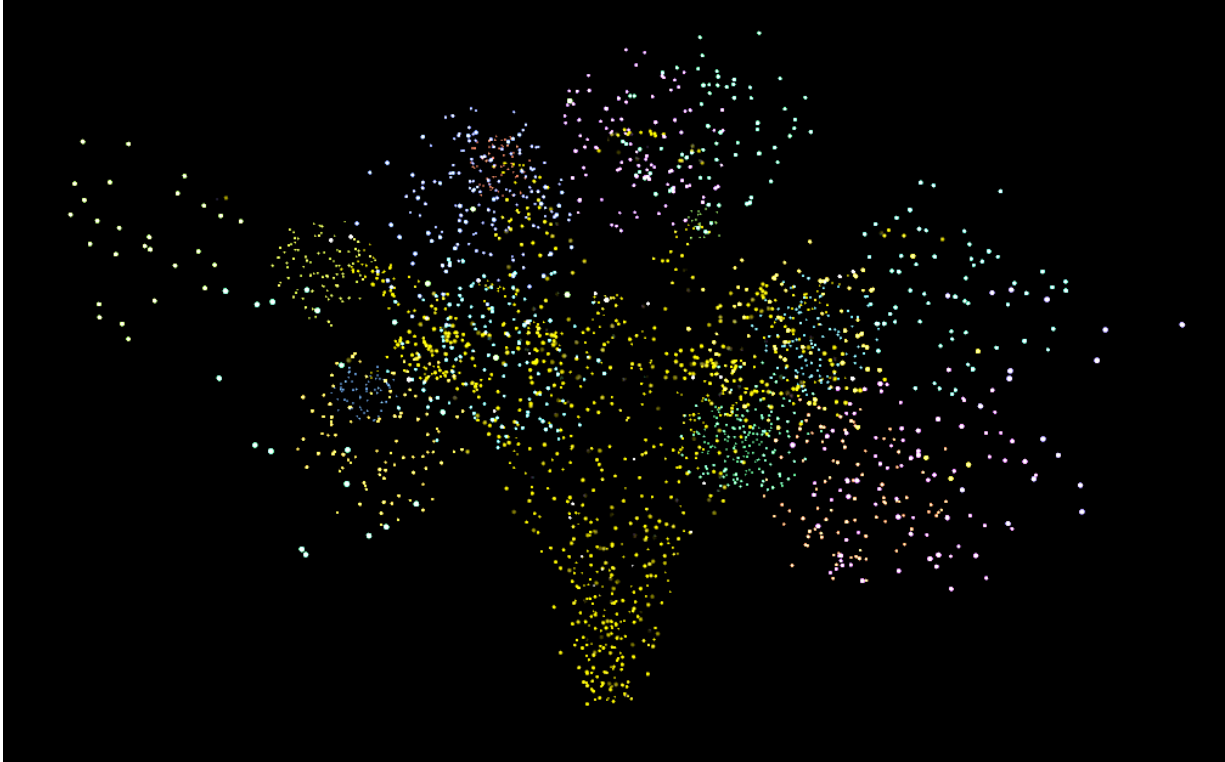
- Now go the shop and into the *fireworks* vopnet. Create a User Data RGB node and attach it to the **Emission Color** of the Standard Surface Surface shader.



- Select the *user\_data\_rgb1* node and type **Cd** in **Attribute**.



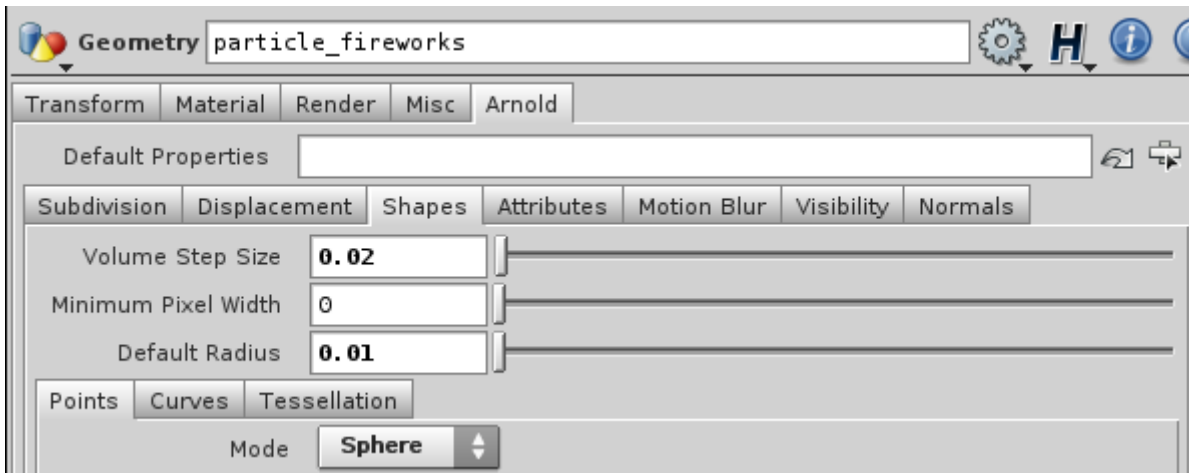
Now the disks should be rendered with color.



## Turning The Particles Into Volumes

At the moment the Particles are being rendered as flat colored disks but they could be rendered as spheres with **volume**.

- Select the fireworks and go to the **Shapes** properties again. To turn on volumes the **Volume Step Size** needs to be increased to 0.02 and the **Mode** set to **Sphere**.



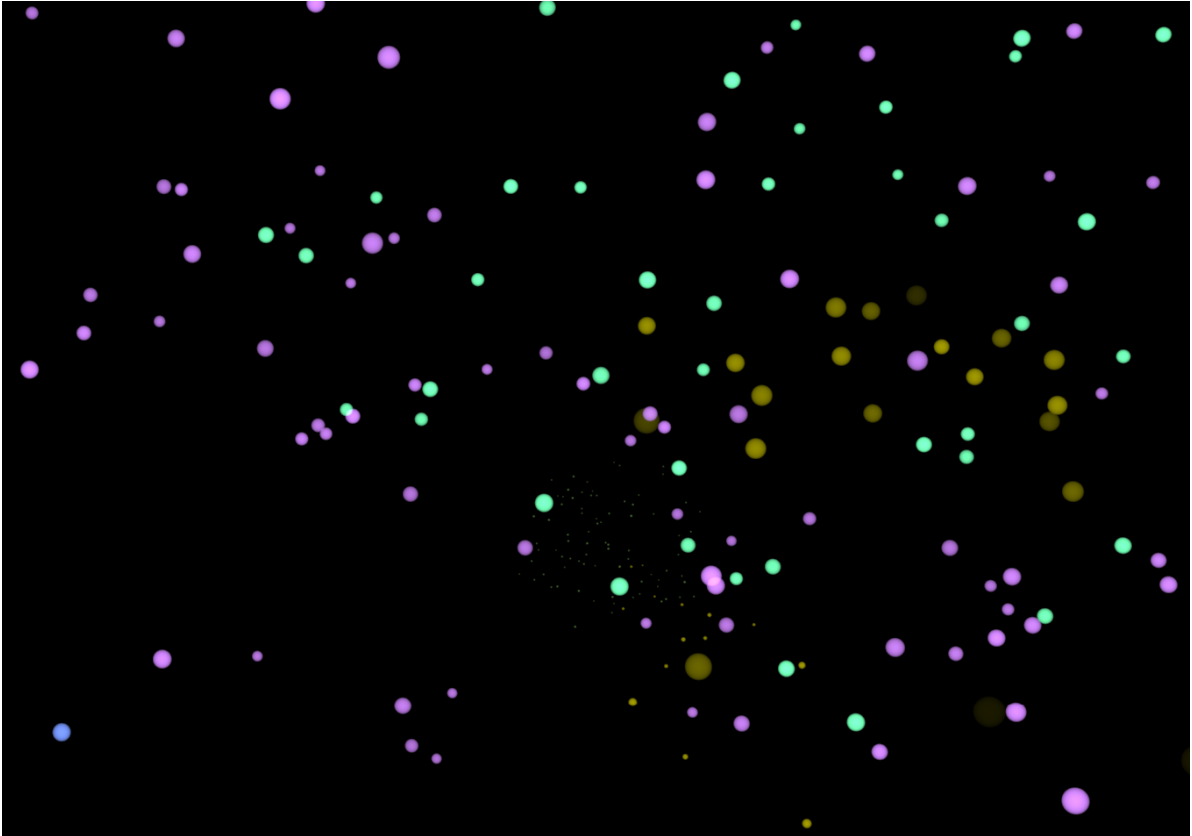
- Now go the fireworks vopnet and delete the Standard Surface shader. Create a **Standard Volume** node instead. Attach it to the **volume** parameter of the **OUT\_material**. Connect the **user\_data\_rgb1** to the **emission** of the Standard Volume.

Render the scene again.



It is very dull because the values being passed to the *Standard Volume* are very low. Insert a *Multiply* node and set ***Input2*** to ***40***.

Close up, the volumetric nature of the spheres can be seen.



## End of Tutorial

The resulting scene from this section can be downloaded below.

- [htoa\\_tutorial\\_fireworks\\_part03.hip](#)
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