

# The Star Component

## Star

### Observer

If your scene contains a camera tagged with **MainCamera**, then this field will automatically be filled in. If not, then create one and either change its tag to **MainCamera**, or drag it into this field.

### LUT Size

This allows you to change the resolution of the generated gradient textures. A higher resolution means the gradient will be more accurately represented, but it will require more GPU memory.

Note: You should set this as low as you can get away with. You probably won't ever need this to be above 256.

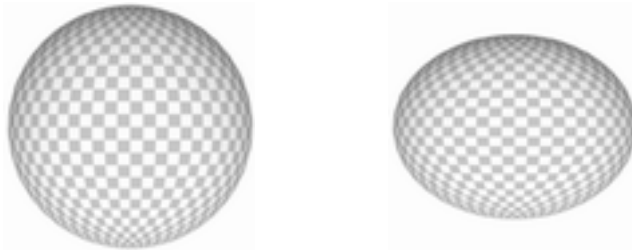
## Surface

### Radius

This allows you to set the radius of the star's surface.

### Oblateness

This allows you to change the oblateness (how round it is) of your star.



## Configuration

This allows you to change the mesh and texture configuration used by your star's surface.

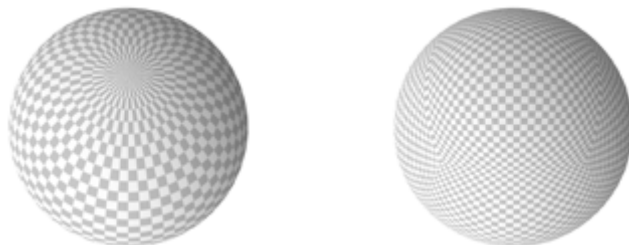
- **Sphere**

A sphere configuration means your star's surface will be made from a single mesh of a sphere and a single set of textures.

- **Cube**

A cube configuration means your star's surface will be made from six meshes forming a cubed sphere, and each cube face will use a unique set of textures.


The main difference between these two options is that **Sphere** surfaces will suffer from polar distortion, whereas **Cube** surfaces are free from polar distortion. However, creating cube textures for planets may be more difficult and time consuming. The image below illustrates what polar distortion (left) looks like compared to cube mapping (right).



## Render Queue

This allows you to set the render queue used by the star's surface material. Consult the official Unity documentation if you're unsure what this means.

## Mesh

You can open the select mesh window by pressing the  button. Then depending on your **Surface** → **Configuration** search for either '**Surface Sphere**' or '**Surface Cube**', and you'll see a list of suitable prepackaged meshes.

Note: The number at the end of the mesh name (e.g. Geosphere40) indicates how detailed the mesh is. You should try to set this as low as possible for faster rendering.

Note: If your **Surface** → **Configuration** is set to **Cube**, then make sure the mesh face (+X, -X, +Y, etc) matches the face you're currently setting.

## Texture

This allows you to set the texture(s) applied to the surface of your star. You can open the select texture window by pressing the ⊙ button. Then depending on your **Surface** → **Configuration** search for either '**Surface Sphere**' or '**Surface Cube**', and you'll see a list of suitable prepackaged textures.

Note: If your **Surface** → **Configuration** is set to **Cube**, then make sure the texture face (+X, -X, +Y, etc) matches the face you're currently setting.



## Collider

If you tick this, then your star's surface will have a mesh collider applied to it. This is useful if you want things to collide with your planet, or you want camera lens flares to hide behind planets.

Note: Do not use this option if your star is also using the **Space Graphics Toolkit** → **Surface Tessellator** component.

## Material

This field allows you to set the physics material used by the planet's surface mesh collider.

Note: This field is only visible if **Surface** → **Collider** is set.

## Atmosphere

### Mesh

This allows you to set the mesh used by the star's atmosphere. You can open the select mesh window by pressing the ⊙ button. If you then type in '**Atmosphere**', you'll see a list of suitable prepackaged meshes.

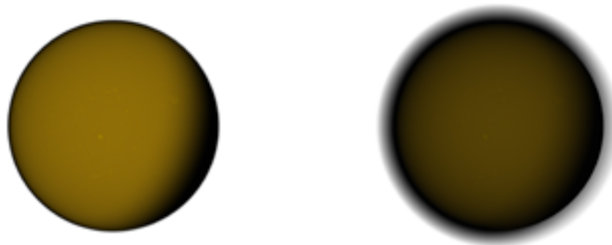
Note: The number at the end of the mesh name (e.g. Geosphere40) indicates how detailed the mesh is. You should try to set this as low as possible for faster rendering.

### Render Queue

This allows you to set the render queue used by the star's atmosphere material. Consult the official Unity documentation if you're unsure what this means.

### Height

This allows you to set the distance between the star's surface and the atmosphere's edge.

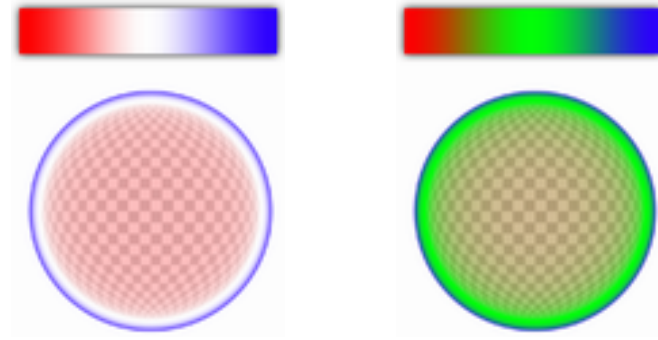


### Density Colour

This gradient allows you to set the colour and alpha of the atmosphere based on the optical thickness to that point in the atmosphere (the optical thickness will be greatest at the horizon).

The key at the centre of the gradient indicates the horizon colour, this key is locked so you cannot move or remove it, but you can change its colour. The right side of the gradient is the sky colour, and the left side of the gradient is the surface colour.

Here are some examples of atmospheres with different density gradients.



## Sky Altitude

This allows you to change the point at which your atmosphere's density reaches maximum. A lower value means you need to travel deeper into the planet's atmosphere before you can see the sky colour change.

## Fog

This allows you to change how thick the atmosphere appears on the horizon.

Note: This should be kept at quite a low value, because the fog is calculated per-vertex, so you will see undesirable vertex blending with high values.

## Falloff

### Surface

This allows you to change the total atmospheric density of the planet's surface.

### Outside

This allows you to change the total atmospheric density surrounding the planet's surface when the planet is being viewed from space.

### Inside

This allows you to change the total atmospheric density of the sky when the camera is inside the atmosphere.

### Per Pixel

If you tick this then the atmospheric density will be calculated per-pixel rather than per-vertex. This is useful if your camera gets close to the surface of your star.