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Introduction

The Ratz Instagib Editor (RatzEd) is a standalone creation tool that allows users to create new maps without limitations for use within Ratz Instagib. Maps created are then distributed through the Steam Workshop system. This makes it easy to share maps with other players with the minimum of fuss.

Although it offers an almost endless range of creativity, the RatzEd is very easy to use and even its most basic features offer a wide range of possibilities!

Useful Information

- There is no limit on how many objects you can add to a map! Even if the Editor itself becomes slow, the geometry is later batched and the map will run a lot faster in-game.
- Be careful when importing very large textures. Textures get compressed upon build, but they are still the main influence to the map size. Try to keep your textures in a 'Power of two' resolution – for example, 256x256, 1024x1024 and so on
- For size reference, in-game player characters are about the size of two units/blocks in height.
- If you want your map to be bigger or smaller, you can change the global Map Size in Settings/MapSettings. This will take effect in-game.
- Save often, especially before you start rendering your scene!
- When you start the rendering process, you might get a firewall warning from your computer. Don't worry, the rendering uses local networking to connect its render slaves and some firewalls react to that too. If the rendering stops, then it's probably a firewall issue.

Navigating the Scene

The controls to navigate the level scene are as follows. In the Settings/Editor menu, you can also change the camera orbit style.

Alt + Left MB + Drag	Rotates the camera.
Alt + Right MB + Drag	Moves the camera forward and backward.
Alt + Middle MB + Drag	Pans the camera.
WASD	Moves the camera in typical FPS style.

Hotkeys

Ctrl + S	Save the map.
Ctrl + Z/Y	Undo/Redo the last action.
F	Focuses the camera on the selected Object.
Shift + Left MB	Select multiple objects.
G	Group multiple Builder Cubes and Meshes

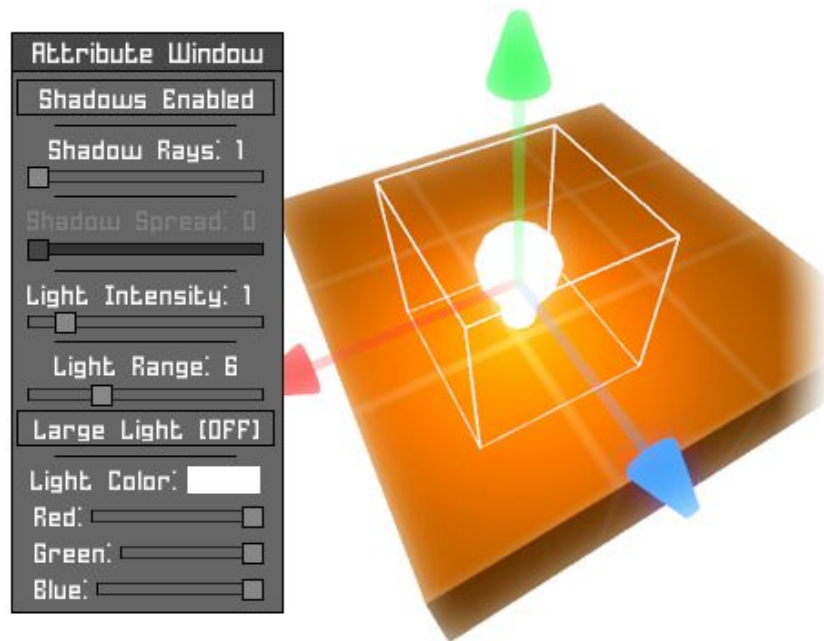
Placing and Manipulating Objects

In the “Entity Window”, click “Basic Objects”. This will show a list of Objects you can add to the scene. Click any object so that it’s highlighted – hovering over the 3D Scene will show you a preview of how/where it’s going to be placed. Click the Left MB to place the object or Right MB to cancel.

Click any placed object in the scene to select it. Depending on the object, this will show you that object’s “Manipulators” in the form of red, green and blue arrows or squares. You can click and drag them to manipulate the object’s position, scale or rotation. In Settings/ Snapping, you can change the stepsize of an object’s manipulation.



When an object is selected, the “Attribute Window” will display all kinds of options related to the selected object.



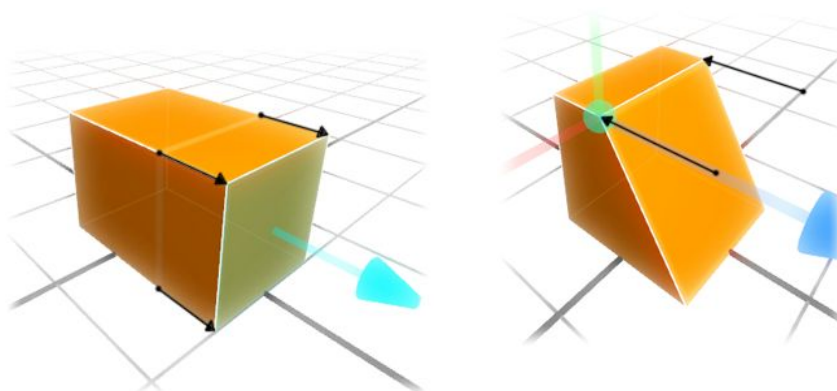
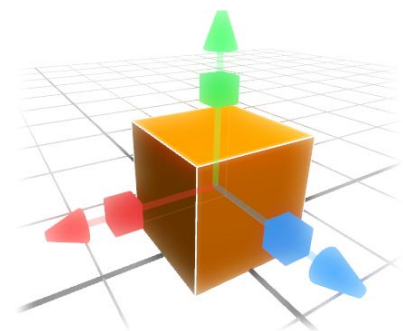
By using Shift+Left MB, you can select multiple objects. Builder Cubes and Meshes can also be grouped together by pressing “G” – this makes it easy to handle multiple objects at once.

The Builder Cube

The Builder Cube is found in “Basic Objects” and is the main tool for creating the level geometry.

Builder Cube - Edit Geometry

Besides the basic move and scale functions, you can also move individual faces and vertex points of the Builder Cube. With a cube selected, hold the Right MB and then move the cursor over the faces or vertex points to highlight them. Release the Right MB to confirm the selection..

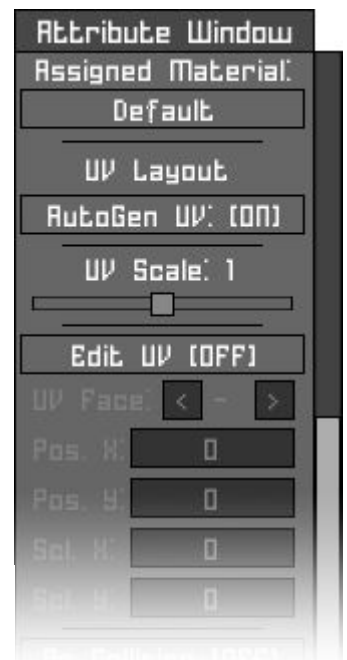


By creating and manipulating multiple Builder Cubes, you can create all kinds of different shapes. Don't forget, you can change the stepsize of which the object is manipulated in Settings/Snapping.

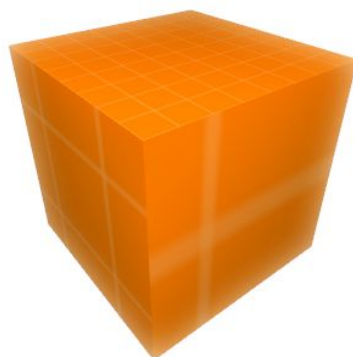
Builder Cube - Edit UVs

Click any Builder Cube to see its settings in the "Attribute Window". UVs are 2D coordinates that are responsible about how an object's applied texture is positioned. By default, the UVs are automatically tiled – however, you can disable this at any time by setting "AutoGen UV" to OFF.

Here is an example of a cube with AutoGen UV ON/OFF which is then scaled:



Enable "Edit UV" to edit individual face UVs with more detail. For example, you could set one side of the cube to be small tiled and another side large tiled and stretched:



Static Meshes

Static Meshes, also found in the “Basic Objects” menu, are pre-created scenery objects such as chairs, tables and other things. The polycount on Static Meshes are much higher than the Builder Cube, but usually the performance impact will be minimal.

Depending on the size of the object, its lightmap will require more texture space and therefore take longer to render. In the “Attribute Window”, you can disable this automatic behaviour and set your own desired lightmap texture resolution (32-2000 width/height pixels). Be careful when setting the texture size above 1000px though! Multiple high-resolution meshes can make the final map download size too big...



Materials

Materials are basically the different textures that define how an object looks.

Mat. Texture

This is the applied texture. Click it to open the “Texture Viewer” and to assign a new texture.

Mat. Color

This color gets multiplied with the materials texture and acts like a color tint. If you want to change the color of the texture to something completely different, it’s more advisable to use the “Texture Hue Shift” option.

Texture Hue Shift

If a texture is applied to the material, you can change its color tone with “Texture Hue Shift”. You can get all kind of different shades and colors with it!



Emission Texture

The emission texture is a separate grayscale texture that defines which pixels of the main texture should be fullbright.

- White = full emission influence
- Black = no emission influence

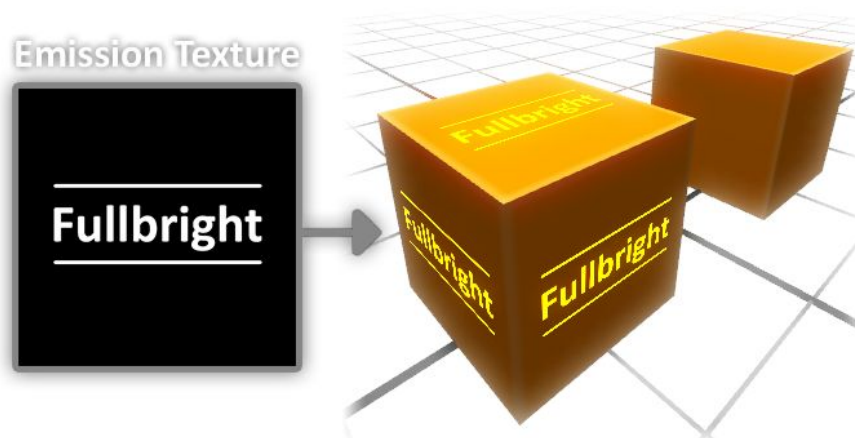
Emission Influence

This is an additional way to change the emission influence.

Emission Intensity

Increases the intensity of the emission even more.

An example of a simple emission texture applied to the default material:



Cubemap Reflection

As the name implies, Cubemaps add simple reflections to the materials on an object. A cubemap consists of six environment renders combined together, which are generated based on the Cubemap object position. A Cubemap's placement plays a huge role on how the resulting reflection will look. More importantly though, each Cubemap only applies reflections to one material – it'll affect all instances of that material on a map, but you'll need one for each material that you want to apply reflections to.

Click the “Create Cubemap” button to create a new Cubemap and place it somewhere on the map to apply it to a material. Note that a Cubemap's renders won't update automatically as you edit your map. If you make big changes to the level layout, you need to click the Cubemap and press “Generate Cubemap” to see those changes reflected.



Lighting the Map

There are two types of light that are placeable: the “Point Light” and the “Directional Light”. You find both of them in “Basic Objects”. There is also a global “Ambient Light” that lights all objects independent of their position.

You can place as many lights as you want into the scene – it won't impact the in-game performance in any way. However, every light placed will cause rendering time to increase.

Point Light

The “Point Light” acts like a lightbulb shining in all directions. It’s important to know that in preview mode, before you actually render the scene, point lights don’t cast any shadows. Light coming from a point light that’s behind a wall will actually appear to shine through. As such, some guesswork is required on how the light will actually affect the scene after rendering. Note that when adding point lights, the “Light Range” (the size of the light and the distance that the light shines) will also play a huge factor in the rendering time.

Directional Light

The “Directional Light” works like a sun. It doesn't matter where a “Directional Light” is placed, it’s the rotation of that light that’s important. Unlike the “Point Light” the “Directional Light” actually does show preview shadows.

Ambient Light

The “Ambient Light” is an omnipresent light that affects the whole scene. It’s mainly used to add some fake indirect lighting, brightening dark spots. “Ambient Light Strength” defines the light intensity, but usually does not need to be changed.

Rendering the Map

The moment you click the big “Build Map” button, the lightmap rendering will start. This will merge all the light information into lightmaps and generate proper shadows and ambient occlusion. You can stop the process anytime by holding down the “ESC” button.

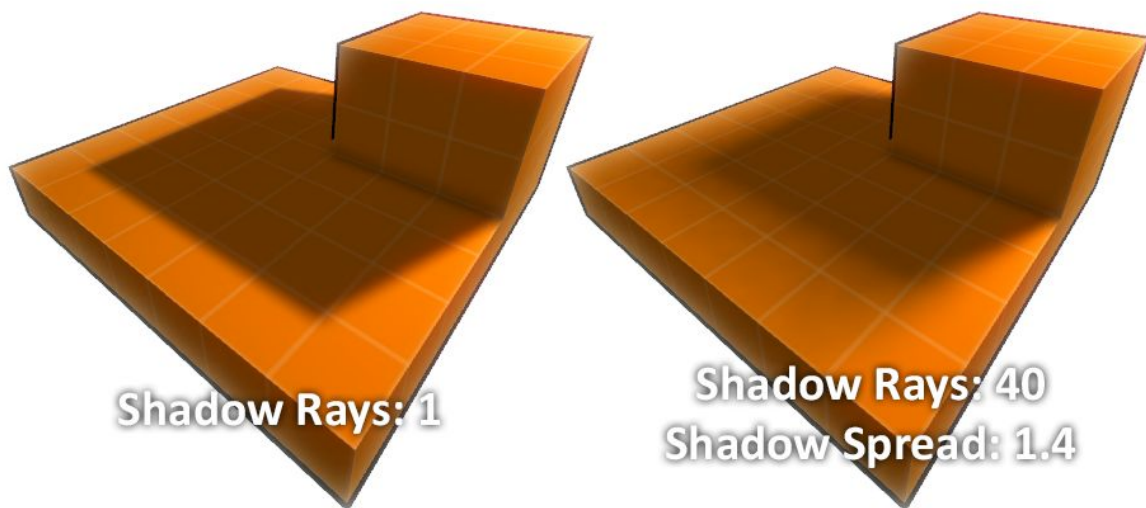
In Settings/RenderSettings the “Cube Lightmap Resolution” property lets you set how detailed the “Builder Cube” shadows will be. You can set this to 0.6 if you want to test render your scene with decreased render times. Also you can disable rendering of “Builder Cube” faces by selecting them and clicking “Exclude/Include face from rendering” in the “Attribute Window”.

Shadows

Click a light object to show its attributes in the “Attribute Window”. Two properties define how the rendered shadows will look: “Shadow Rays” and “Shadow Spread”.

By default, “Shadow Rays: 1” means that the shadow will be hard and without falloff/penumbra. Increase the “Shadow Rays” to something between 15-40 to make the light cast soft shadows. “Shadow Spread” defines how soft the shadows will be. A higher “Shadow Spread” requires more “Shadow Rays” to look good.

Soft shadows will make the rendering process much slower, so use them sparingly and on small lights only!



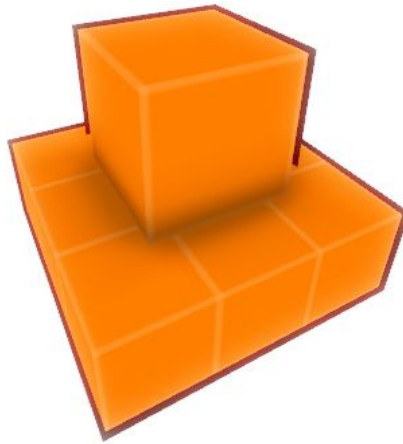
Ambient Occlusion

“Ambient Occlusion” are fake shadows that can be used to add indirect lighting. They add depth to the scene by making corners darker. This should be adjusted if you are making a very big map, like the size of the official ratz maps.

You can find the “Ambient Occlusion” settings in Settings/RenderSettings.

- “Ambient Occlusion Strength” defines how visible the shadows are.
- “Ambient Occlusion Range” defines how large the shadows are. This should be adjusted/increased for big scenes - otherwise, the shadows will look very small and out of place.
- “Ambient Occlusion Rays” defines how detailed the shadows will be. This usually does not need to be changed.

An example of a simple scene that just uses the “Ambient Occlusion” pass, without any light and shadows:



Importing Custom Assets

Click the “Import...” button to import custom assets like textures, meshes or background music to the map. This allows you a huge amount of freedom to personalise your own maps and make them extra special!

Texture Import

You can import your own “.jpg” and “.png” files. Be careful when adding too many high-res textures above 1024x1024 in resolution to your scene! Doing so can make the final map size very big and, really, who wants to spend time downloading huge map data when you could be playing?

Choose any material and in “Mat. Texture”, click “Choose Texture” to open the “Texture Viewer”. You will find the imported textures in the “Imported Textures” tab.

Mesh Import

You can import models in “.dae” (Collada) format. Most 3D applications like Maya, 3dsMax and Blender support exporting to “.dae”.

Make sure you have a valid uv2 layout for lightmapping on every mesh you import, otherwise it will fail!

Music Import

You can import custom background music for your map in “.ogg” format. There are many web-based music file converters available to convert any music file to “.ogg” – just google “mp3 to ogg”.

An important point: please don't import copyrighted music! If you do, you risk having your map taken down due to copyright claims.

Preparing your Map for Publishing

Before you can upload your map to the Steam Workshop, you need to make sure that the following requirements are fulfilled.

- In Settings/MapSettings, fill in the Map's name and description for users to see. Remember to also define which game modes are supported by your map.
- Place enough “Player Starts” and additional team-based “Player Starts” if you have any team-based game mode enabled.
- Place the “Winner Podium”.
- Place two “CTF Flags” if you have “Capture the Flag” mode enabled.

Publishing your Map to Steam Workshop

Build your map and click “Publish Map to Steam Workshop”. Next, click “Create new Workshop Item” to create a new Workshop item page and update your page/files with “Update Workshop Item”.

Depending on the size of your map, the upload can take a while – however, do NOT cancel the process or you might risk corrupting the map files on the upload server! If that happens, simply re-upload the map to the server.

Important:

When you finished your map and it's ready to be shared with the world, you need to go to its Workshop page and click the “Change Visibility” button, then change the option to “Public”. The map will then appear in the in-game map voting and other users can find it in the Ratz Instagib Workshop page to subscribe to it.

Additional Informations

Fast and efficient Map rendering

- When test-rendering your scene you can reduce the lightmap size to decrease render time by a lot. Settings/Render Settings -> Cube Lightmap Resolution to 0.5
- You can define individual “Builder Cube” faces to be ignored when rendering. Select a face with the Right Mouse Button and in the Attribute Window click the big “Exclude/Include face from rendering”.
This is most useful on very big Cubes with faces that are not seen by the player anyway.
- Do not use more than one Directional light! It will look wrong and slows the rendering process by a lot.
- Avoid increasing the “Shadow Rays” on large lights. This can mean the difference of 5 or 60 minutes of render time!

Known Issues

The Map Editor is still “Work in Progress”. The issues listed here will be fixed at some point.

- No Transparent Textures
Currently the Editor will ignore any transparency in imported textures. But you can work around this by cutting the mesh the transparent texture is applied to, so it matches the invisible parts.
- No support for Survival mode.
The Survival mode itself needs some work, when it's ready the editor will also support it.