World Editor Guide

Introduction

Hello and welcome to this guide to the Astronimo World Editor Tool! This guide should be used in conjunction with the World Editor Tutorial, which goes over the breadth of tools available when creating your own worlds. This guide provides more in-depth information for some of the more intricate and complex tools available to you when making levels and as such, some information is shared across both media to help explain core concepts to the World Editor.

What is the World Editor?

The World Editor is a set of tools you can use to create your own worlds within Astronimo. Everything that we, as designers, use to create the levels you've seen in the main game are available to you!

Getting started with making your own level is easy, simply launch the game and select World Editor from the main menu. This will allow you to create new levels, load existing ones or view other workshop content you've downloaded.

Editor Mode and Play Mode

Before jumping into the details of the World Editor, it's important to understand the fundamentals of the editor and how it works.

There are two modes you can swap between: *Editor Mode* and *Play Mode*. By pressing **TAB** you can quickly switch between the two modes to playtest your level seamlessly, find something you don't like? Press **TAB** to switch back to Editor mode and make the necessary changes and then hop right back in to playtest again.

Editor mode is where you'll be making and tweaking your level. Whilst play mode works exactly the same as it does in the main game, it will spawn in a character for you to control (either with a keyboard or controller), letting you get hands on with your creations!

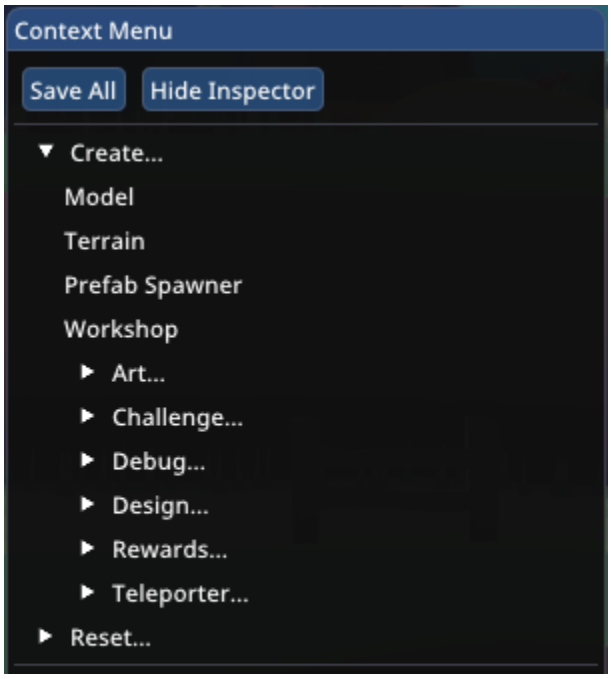
Playtest Mode
Using Playtest Mode, you can experience your world and see it the same way that a player would. To do so, press **ESC** and select the Playtest Level from the pause menu. This will spawn you into your level as if you had downloaded it from the Steam Workshop.

You can also invite other players from your Steam Friends list to try your level while in Playtest Mode, creating a multiplayer session. Note that they will be kicked out of your level when you leave Playtest Mode.

Context and Inspector Menus

To help you get a better grasp on the World Editor, let's quickly go over the *Context* and *Inspector* menu's, what they do and their uses.

Context Menu
The context menu is how you will spawn in and add new objects to your world. It can be accessed by **Right Clicking** anywhere in your world while in ***Edit mode***, doing so will open a small pop up window. From here you have a selection of objects you can spawn in, some of the more handy ones can be found at the top of the menu. For additional information on what each of these entries do, please see the ***Component Guide*** at the end of this document.



Inspector

The inspector has two main functions within the World Editor:

1. It's a place to view tweaks and changes you can make to specific objects when selected.
    a. An example of this can be seen when a piece of terrain is selected, some additional options will appear to change the parameters of that terrain piece.
2. You can also access some additional tweaks to help in the creation of your world.
    a. More information can be found in the ***tweaks*** section of this document.

Editor Controls

Camera Movement Controls

Input	**Action**
A/D Keys	Move the camera left and right
W/S Keys	Zoom the camera in and out
Q/E Keys	Move the camera up and down
Hold Shift	Speed up camera movement
Right Click Drag	Rotate the camera
Numpad 0 key	Reset camera rotation

F key	Focus on a selected object (Also resets camera rotation)
Control + 1,2,3,4 keys	Save a camera position to a favorite
1,2,3,4 keys	Load a camera position favorite
Return OR Enter key	Toggle between editor and gameplay camera (requires a character to be spawned in)

Editor Toggles

Input	**Action**
Numpad * key (or P)	Toggle "Pretty mode" which shows/hides all gizmos
Numpad 7 key (or I)	Show/hide the inspector window
Page Up/Page Down key	Speed up or slow down timescale
Pause break	Toggle time scale between 1 and 0
Control + Shift + Space	Show/hide the editor transform gizmo
Numpad 0, 1, 2, 3	Spawn multiple characters regardless of whether enough controllers are connected.

The Basics of World Creation

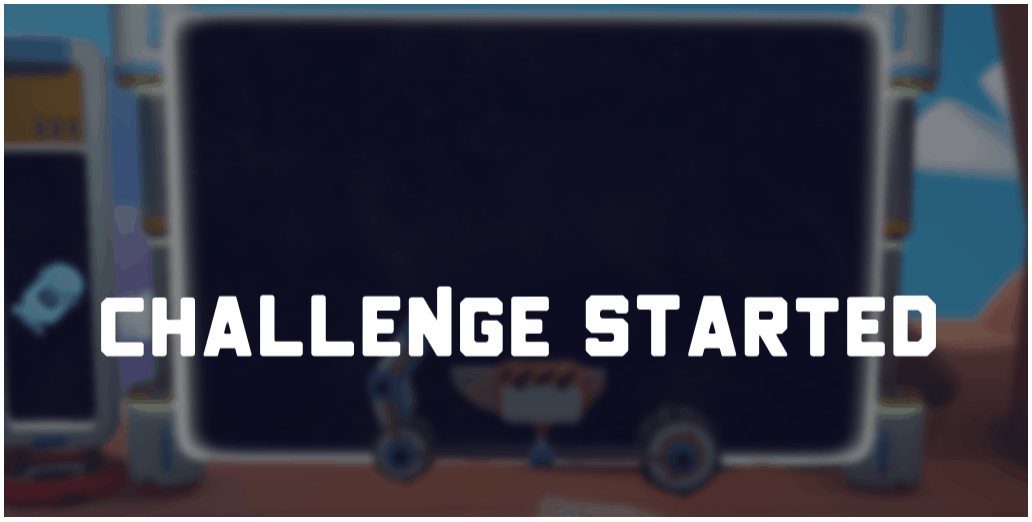
Although you are free to create any kind of experience your mind can concoct, a typical level in Astronimo follows some core ideologies that you can choose to incorporate into your levels or rightfully ignore to create something truly unique.

Worlds will always have a **Start Point** and **End Goal:**

- The **Start Point** is where players will spawn.
- The **End Goal** is what players must reach and break (via punching) to finish your world.
- Both of these objects can be moved freely around your level.

- You cannot delete either of these objects.

Terrain normally plays a large role Astronimo worlds, by default your world will have some terrain spawned in for you to tinker with, but you can add more via the Context Menu. For more information about terrain, please read through the ***Importance of Lanes*** and ***Editing Terrain*** sections of this guide.



These three components make up the foundation of Astronimo worlds, from there you can begin to branch out and add in additional components to vary the game play and experience for your players.

- Challenge workshops can be added to push a player's building and puzzle solving skills to their limits.
- You can make use of timers, battery detectors and spawners to create awesome platforming adventures for your players to complete.
- Or you can use Prefab Spawners to show off your unique creations and share them via Steam Workshop with other players.

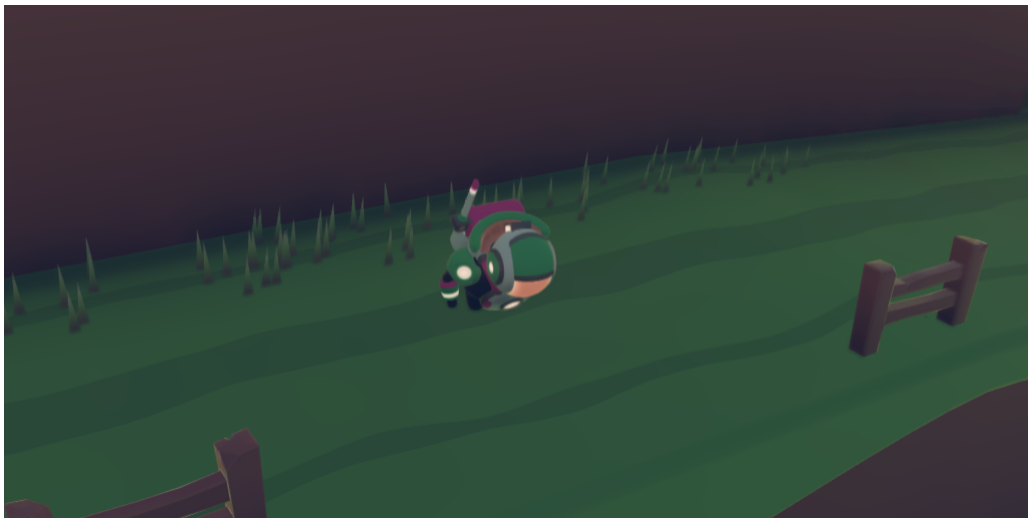
[Gif of a crazy creation]

You are truly free to create anything you want in the world of Astronimo!

Importance of Lanes

A core concept to Astronimo is the use of *Lanes*, the world is divided into multiple lanes with three being available for the player to move between (these three lanes are the core play area for Astronimo).

The three play lanes can be easily identified after adding a material to a piece of terrain, the play lanes will be highlighted with dark lines and will always appear on the top of the terrain as long as it's traversable by the player.



You can add additional terrain/components in front and behind these three lanes, just note that the player will not be able to access them and should be used to add additional decoration and theming rather than anything for gameplay purposes.

Tweak Settings

To aid in the creation of your worlds, the editor comes with a number of settings called *Tweaks*, these can be accessed through the inspector when in edit mode. Here is some extra information on some of the less obvious options:

- Pretty Mode
    - Turns off all the Gizmos and UI elements, allows you to see the level from a players perspective
    - P hotkey also toggles this option
- Toybox Mode
    - Allows you to see a reference of the player model, which can help finding the right scale for terrain when creating your world.
- Show Evergreen Hints
    - Removes the hints from the right hand side of the screen
- Edit Revealable Terrain
    - Used to later edit revealable terrain, see Revealable Terrain Section for more information.
- Show Planet Grid
    - Creates a Grid over the entire planet volume, useful to help line up terrain sections, creation a smooth piece of terrain with stays level across the planets.
    - The tweaks below allow you to change the amount of rows and columns, allowing you to line up the grid with whatever you're creating.
        - Planet Grid Columns
        - Planet Grid Rows
        - Planet Grid Inner Radius
        - Planet Grid Outer Radius

- Show Physics Shapes
    - Shows the collision boxes for objects in the world.

Editing Terrain

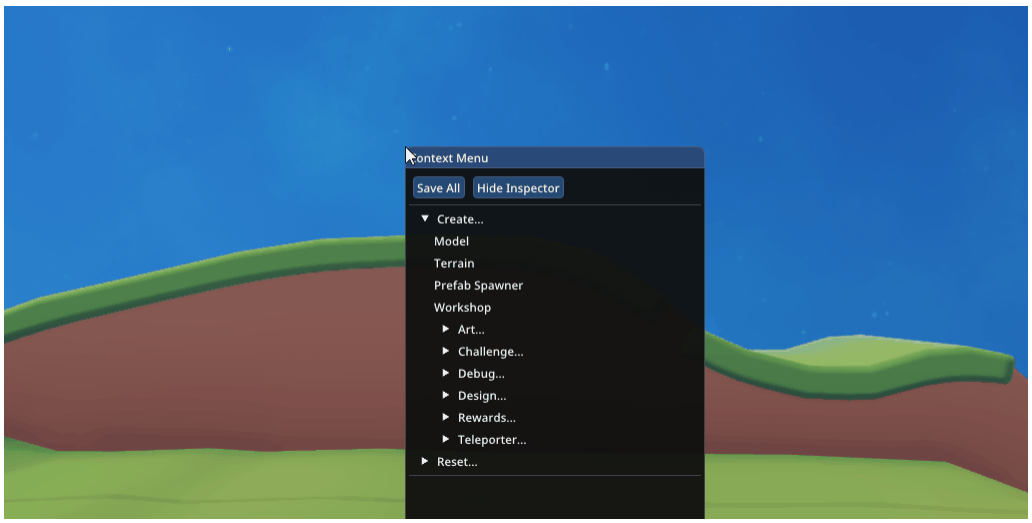
At the heart of most Astronimo levels is some terrain to run across, editing and creating terrain couldn't be simpler and is the perfect place to start when you're creating your worlds.

Creating and Editing Terrain

By ***Right Clicking*** and selecting ***Terrain*** from the ***Context Menu*** a new terrain object will be spawned into the world. Selecting terrain allows you to move and rotate the terrain by using control gizmo.

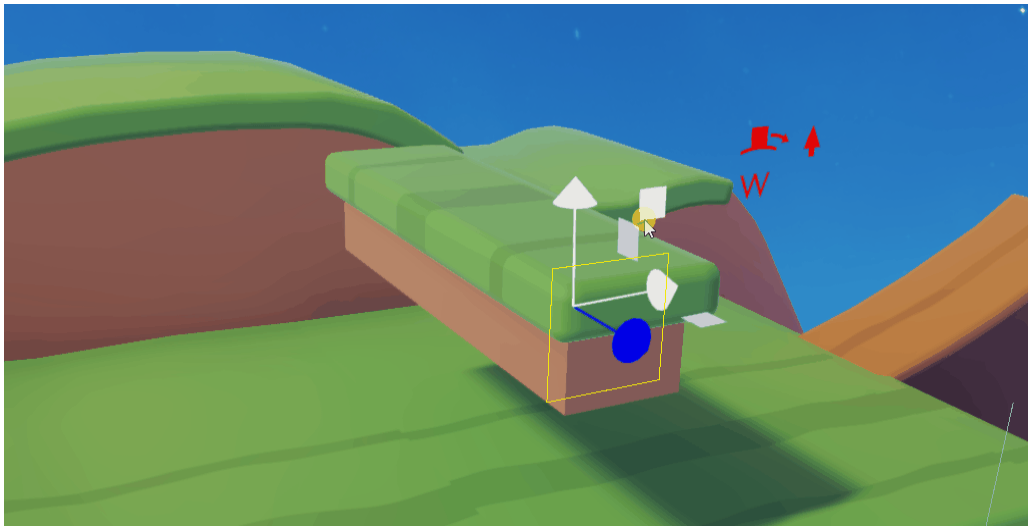
Pressing **TAB** with some terrain selected will allow you to move the Terrain points and add additional points to create your own shapes.

- By clicking and dragging a Point around, you can change the general shape of the terrain.
- By selecting and pressing **Delete** or by **Right Clicking** over a point, you can remove points from a piece of terrain.
- By clicking on the red line between points, you can add additional points to the terrain to create more complex shapes.



Using the **Arrow keys** will allow you to move terrain between lanes and adjust the width of how many lanes the terrain reaches across.

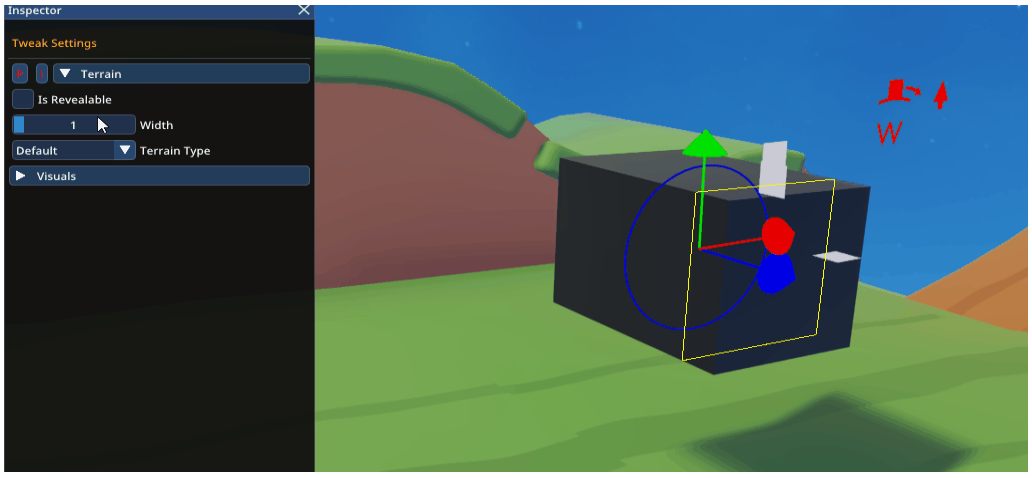
- By using the **Left** and **Right** arrow keys, you can increase and decrease the width of terrain.
    - This can also be done through the Inspector by expanding the Terrain Tab and changing the width value.
- Using the **Up** and **Down** arrow keys allows you to move which lane the front of the terrain is on.



Terrain Types

You can also select a number of different **Terrain Types**, these change how the terrain reacts when the player interacts with it, there are four different types of terrain to choose from:

- Default
    - Standard terrain players can walk across.
- Kill Surface
    - When players or contraptions touch a kill surface, they'll instantly die or be destroyed.
    - Kill surfaces also explode batteries and dynamite on contact
- Slippery
    - Low friction terrain which slides players and contraptions
    - Can be difficult to climb when moving vertically
- Bouncy
    - Will bounce the player or contraption back when contact is made

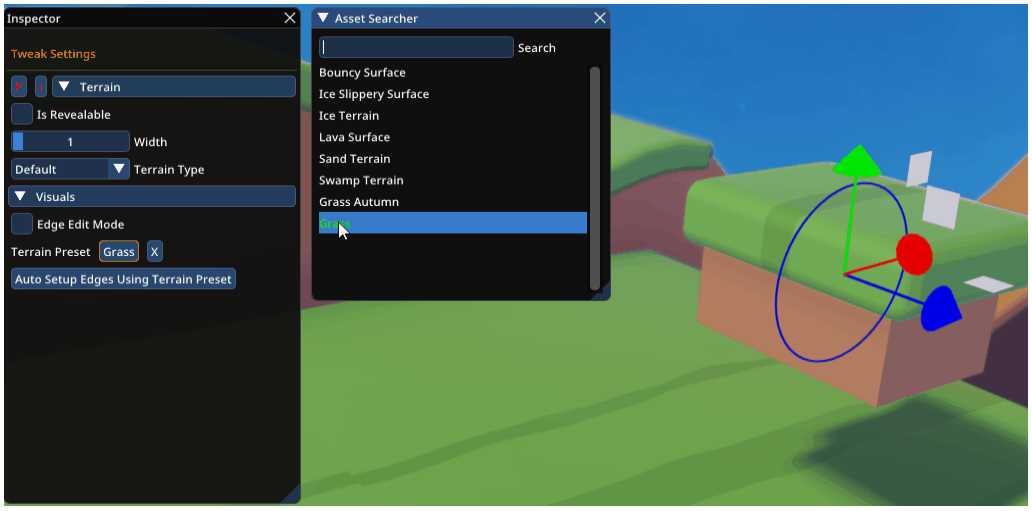


Revealable Terrain
You can hide parts of the map by checking the **Is Revealable** checkbox, revealable terrain will block the player from seeing what's behind it until their player model enters the area the terrain is hiding.

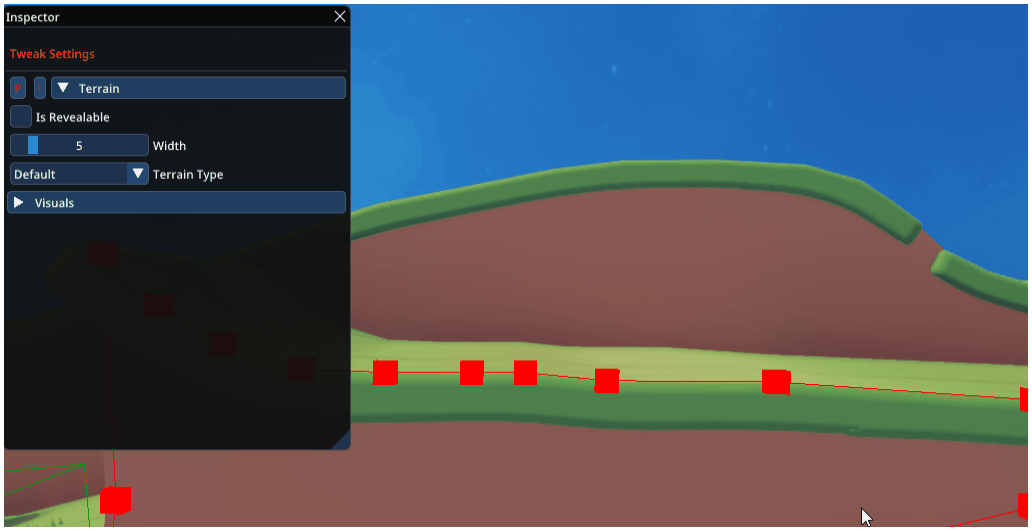
You can edit a revealable terrain after clicking off it by opening the tweaks menu in the inspector and checking the **Edit Revealable Terrain** checkbox.

Terrain Aesthetics
When a piece of terrain is selected, you'll have access to a **Terrain > Visuals** tab in the Inspector, this menu provides a few options to help vary the look and feel of your world.

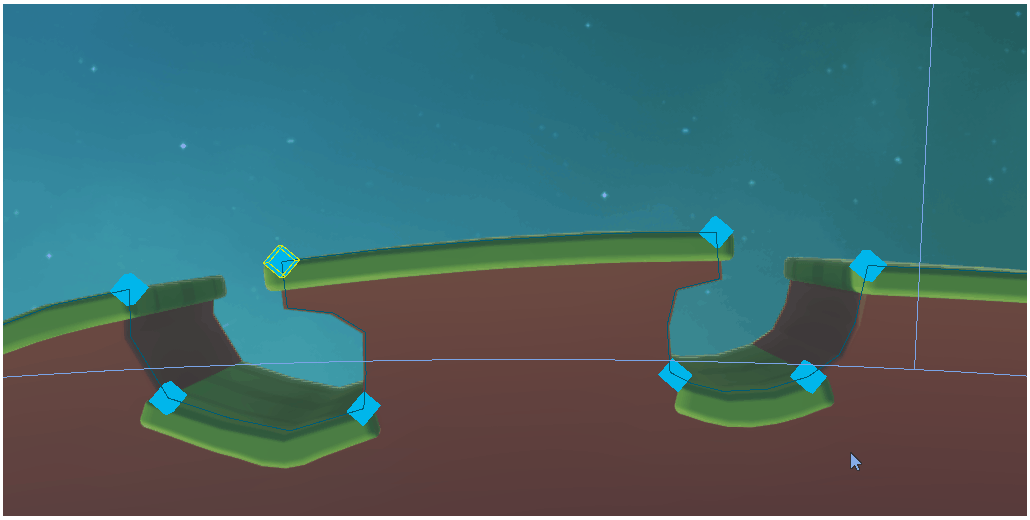
- Terrain Presets
    - We've created a selection of different looks for terrain for you to choose from, selecting the Orange **Choose Asset** button will let you choose from a selection of premade materials and see in real time what the different options look like.
    - You are also able to create your own Terrain Presets, which will be covered further down in the Developer Mode section of this document.



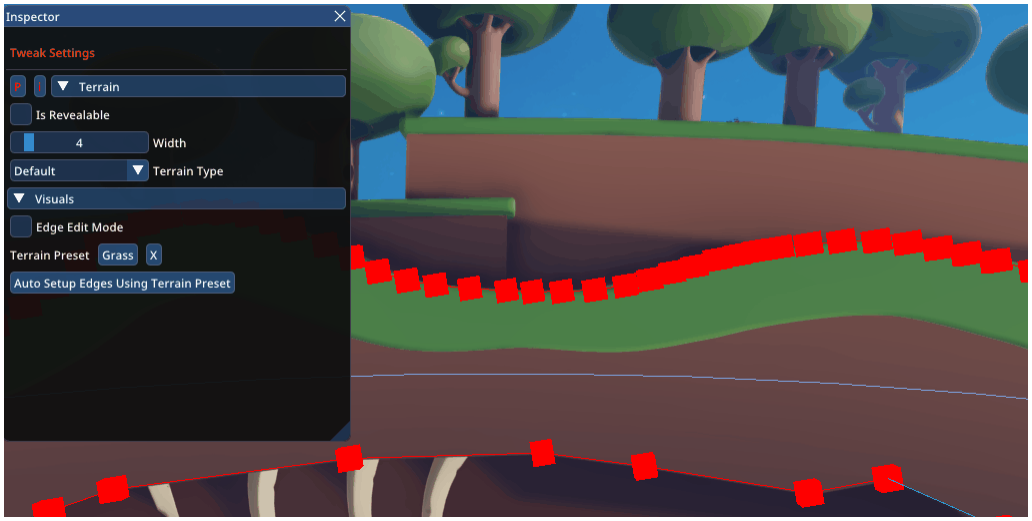
- Auto Setup Edges Button
    - Once you have assigned a material to your terrain, this button will appear.
    - When pressed it will automatically update the terrain aesthetics based on parameters defined when the material was set up.
    - Pressing this button after making large alterations to your terrain will remap the top level material across the entire terrain.



- Edge Edit Mode
    - This mode allows you to essentially edit the placement and look of the top level terrain material.
    - After toggling this check box to on, press **TAB** and you'll notice the Red Terrain edit points are now Blue.
    - Dragging these points around will move the top level materials' start and end point



- Holding **T** when moving a point will increase or decrease the reach of the top level material.



Edit through Context Menu

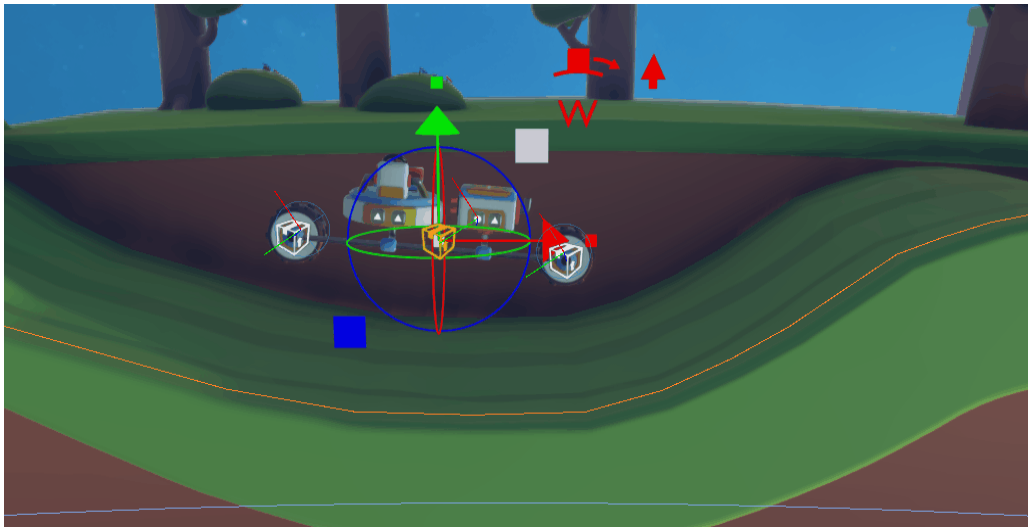
The context menu also provides some handy additional powers to help terraform your terrain. These options only appear in the context menu when terrain is selected.

- Delete Selection
  - Deletes your currently selected terrain
- Mirror All
  - Will mirror all points to allow you to quickly flip a piece of terrain
- Align Vertices Horizontally*
  - Will align all selected vertices horizontally, finding an average location between all selected points.
- Align Vertices Vertically*
  - Will align all selected vertices vertically, finding an average location between all selected points.

*Only appears when multiple points have been selected.

Workshops and Prefabs

Workshops serve two purposes when using the World Editor, they let your players create their own contraptions to use in your level. But they also allow you, the creator, to create your own contraptions and make them a part of your level.



Start by adding a workshop to your level through the context menu, then press **TAB** to jump into gameplay mode and enter the garage. Make a contraption that you'd think would work well as part of your level, here are a couple examples:

- A box that players need to move in order to gain access to a higher point in your level
- A strong bridge that players need to move into position to cross some dangerous lava.
- A simple car contraption will help your players explore your level if you don't want them making their own contraptions.

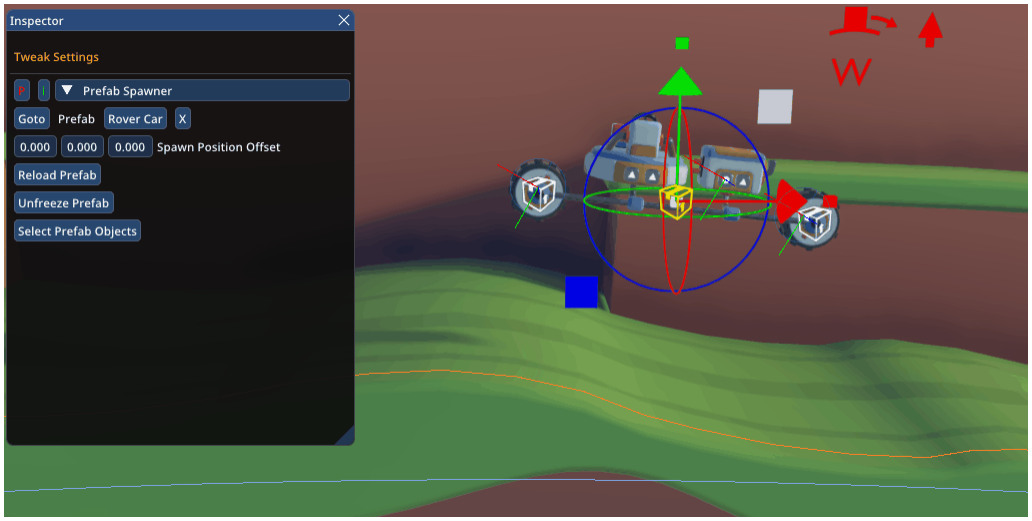
Once you're happy with your contraptions, be sure to save it, giving it an appropriate name. Next jump back into editor mode with **TAB** and open the context menu. There are two ways to spawn a prefab:

- Prefab Spawner
    - Spawns in your contraption once at the start of the level, will not respawn if broken or destroyed
- Repeatable Prefab Spawner

- Creates a physical spawner in the world for the player to interact with, great for spawning in vehicles as the player can respawn them if they break or get stuck somewhere.

Either method will prompt you with adding a prefab in the inspector, you'll also see a list of all currently available prefabs, most of which are used within the main game. Once a prefab has been spawned, you'll have some more options to edit the prefab further.

Resetting an Activated Prefab
When a prefab is spawned through either method, rather than grabbing parts of the contraption be sure to select the spawn point, this will allow you to reset, move and simulate physics on the selected prefab.

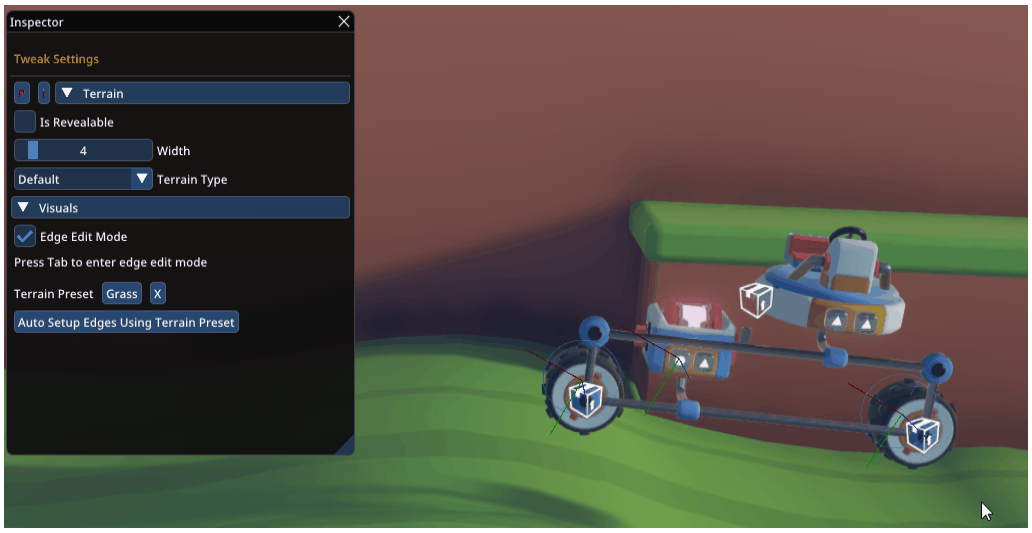


Customizing Prefabs

A large, relatively hidden part of Astronimo is that ability to edit your prefabs past the options given to the player in the workshop. This allows you to create truly crazy levels with wacky contraptions some of which you may have already come across in the main game.

Updating a Prefab
Before jumping into customizing an existing prefab, it's important to know that after making any changes you'll need to save over the existing prefab with the new version, this can be easily done through the inspector. Once you've made your changes, hit the Quick-Save button to overwrite the existing prefab with your new changes. This means that when you spawn that prefab in, or when the level is loaded, it will have your updated prefab.

Note: You can only Quick-Save your own prefabs, you cannot save over a pre-packaged prefab that came with the game.

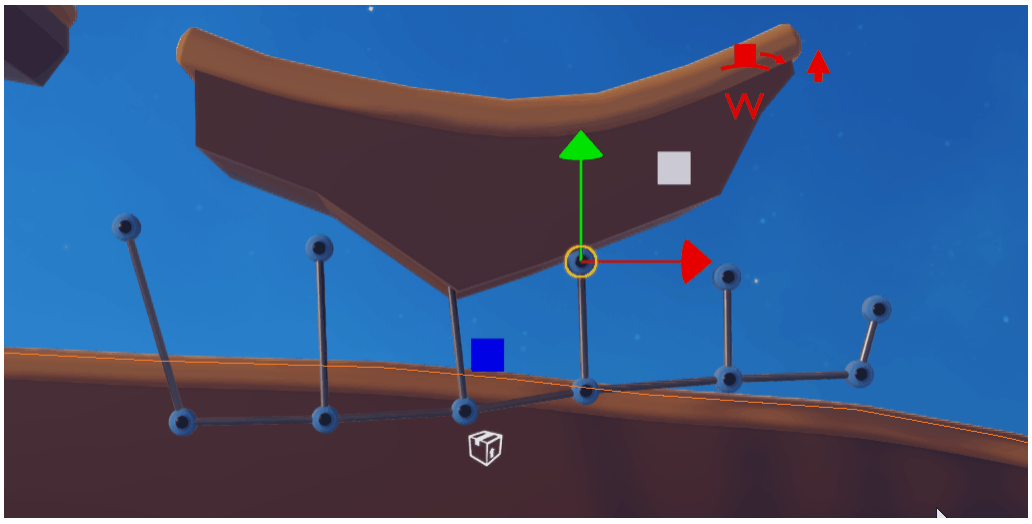


Tweaking Contraption Points

Taking this example of a simple box which has been spawned in using a Prefab Spawner.

Once a prefab has been added to the world, you can edit the placement of individual points to help create shapes you couldn't inside a workshop. This is useful if you need a prefab to fit in a specific location or you're unhappy with the original placement.

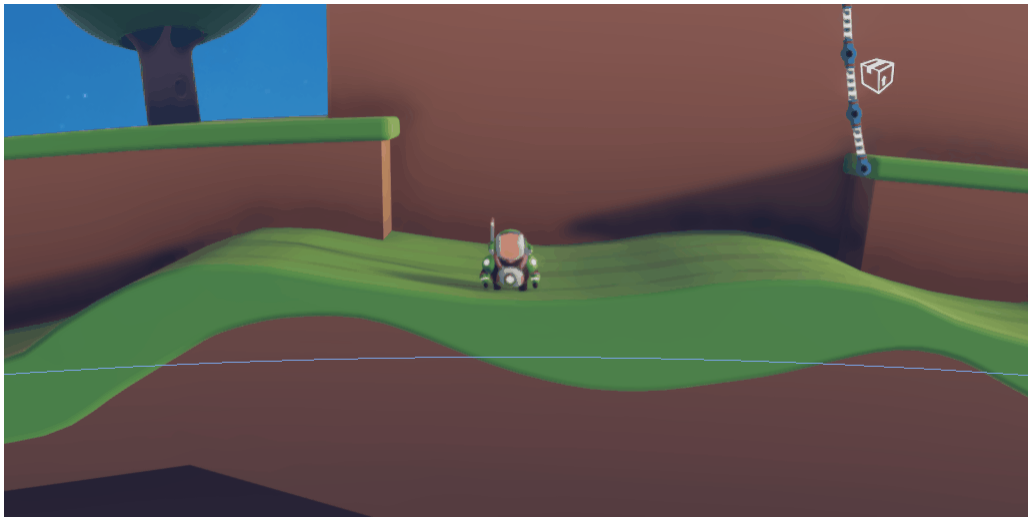
To do so, select a point on your prefab and use the movement gizmo to change the Points location. You can select multiple points by drag selecting or holding down **Control** while clicking on a point.



You can make some changes to each of the points to change the properties of the prefab, by selecting a point you can change its mass either making it lighter or heavier in the inspector. But the real value in this is by checking the **Static** checkbox to true, doing so will freeze that point in space, allowing you to create prefabs that do not move with physics and other interactions. With this you can create some great contraptions for your players to interact with, here are some more detailed examples of this in action.

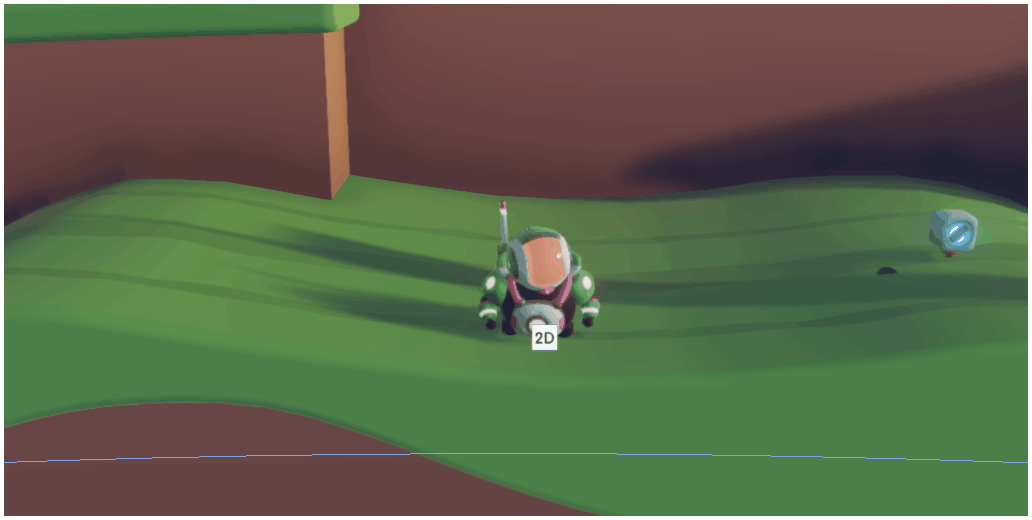
Swinging Vines:

- By creating a series of rods with multiple points and attaching a hinge within a workshop, You can create a rope that can swing around freely..
- By changing the top point to static, you can create a rod for players to swing from.



Button Door:

- A hydraulic with a platform attached to the platform makes for a strong barrier that players can't push through. By connecting a button to the Hydraulic you can create a simple puzzle players need to solve to progress.
- Freezing the origin point on a hydraulic rod stops the player from easily pushing past the door.
- When creating a prefab you wish to use within a level, you do not need all the parts to be connected so you can hide the button somewhere far away to make it even harder to progress.



Contraption Bridge

- A relatively simple build, but if you want to use a contraption as a bridge, if you do not make the points static, it'll simply fall into a pit when physics kicks in.
- By turning the points static, you can lock the bridge in place, so when the player walks or drives over it, they'll have no fear of falling down.

All of these examples can be found in game under the following names:

- Strong Vine
- Door
- Bridge Platform

Moving to another lane

When creating more complex contraptions, you may find you want a certain part of the contraption on a separate lane from the other components. For example, you may want a button for a door hidden from the player in the third lane with the door on the first lane.

You can achieve this quite easily, by selecting all the points on the part of the contraption you want on another lane and then pressing the **Up** and **Down** arrow keys, you can move that part of the contraption between lanes. Make sure to Quick-Save your changes after doing so, as to not lose the changes.

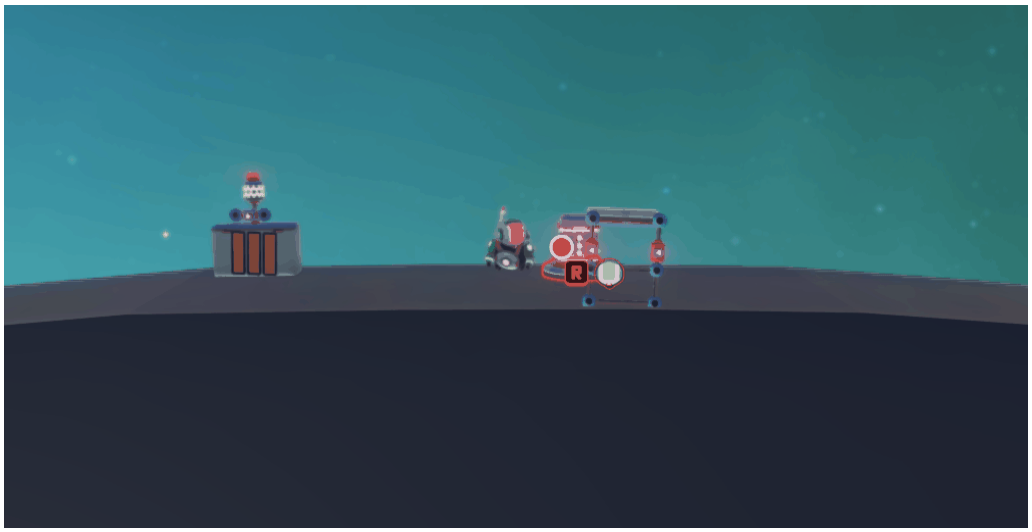
Being able to lock in the placement of a Point unlocks a multitude of possibilities, so be sure to experiment with different components and combinations to see what you can create.

Useful Editor Parts

As well as the list of contraptions available in the main game, the World Editor also comes with a select number of editor-only parts that are more useful for creating puzzles rather than solving them.

- Timers
    - Timers work by alternating between a positive and negative input at set intervals, there are three types currently available: Slow, Medium and Fast
    - Using timers you can create contraptions that move on their own between fixed positions

- Battery Sensors
    - Whilst not entirely restricted to the World Editor, Battery Sensors really shine when used to create puzzles.
    - Battery Sensors work by sending a negative input until it detects a battery within a set radius.



- Input Inverter
    - Again, not an editor only part but the Input Inverter is incredibly useful when creating worlds.
    - It allows you to set objects to a positive input by default, which can be useful for Hydraulics to have them extended by default.

Challenge Workshops

Challenge Workshops are a way for you to test a player's creativity and problem solving. Restricted to a single area, a Challenge Workshop consists of a Workshop and a Goal for the player to reach, you can throw in your own created Prefabs and Platforming sections to really challenge the player. Each Challenge will come with a Play area that the player must stay inside otherwise they'll fail the challenge, players can not bring their own contraptions into a Challenge workshop once the challenge has stated.

Challenge Workshop Types
There are four types of Challenges in Astronimo:

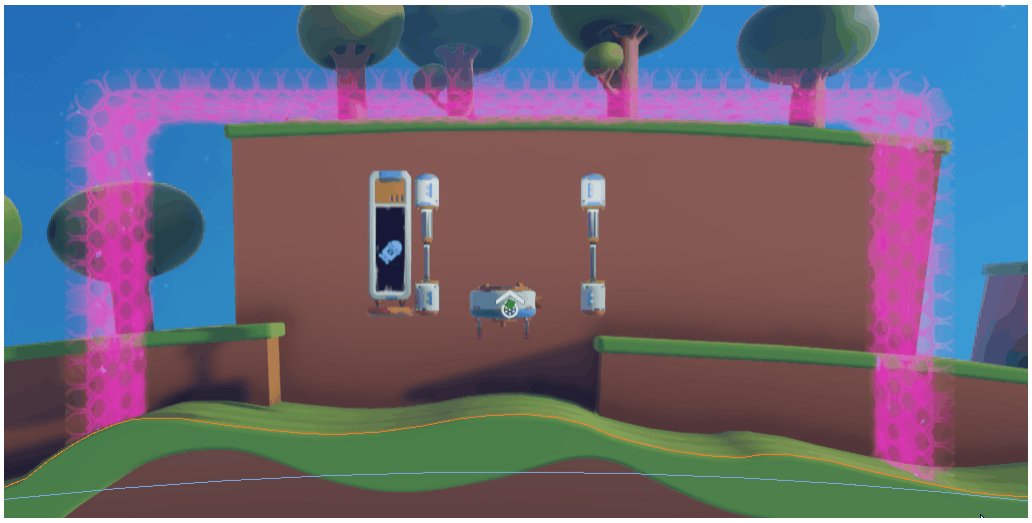
- Standard

    - Requires the player to reach the Rocket, normally with some additional challenge thrown in for the player to overcome
    - Can be added via the Challenge drop down in the Context Menu
- Battery
    - Requires the player to escort the battery to a Battery Sensor, which will then activate and allow the player to collect the Rocket
    - Can be added via the Challenge drop down in the Context Menu
- Solar Safes
    - Requires the player to open a Solar safe in order to complete the challenge.
        - Default version
    - Creating a Solar Safe challenge is a little more hands on than the previous two and is explained in detail further down.
- Free Form Workshops
    - These workshops come with no reward but can be used to give players a chance to create their own contraption to travel our level.
        - Default version
    - Or allow them to solve a challenge you've created within your level, without the requirement of a Rocket or Solar Safe reward.

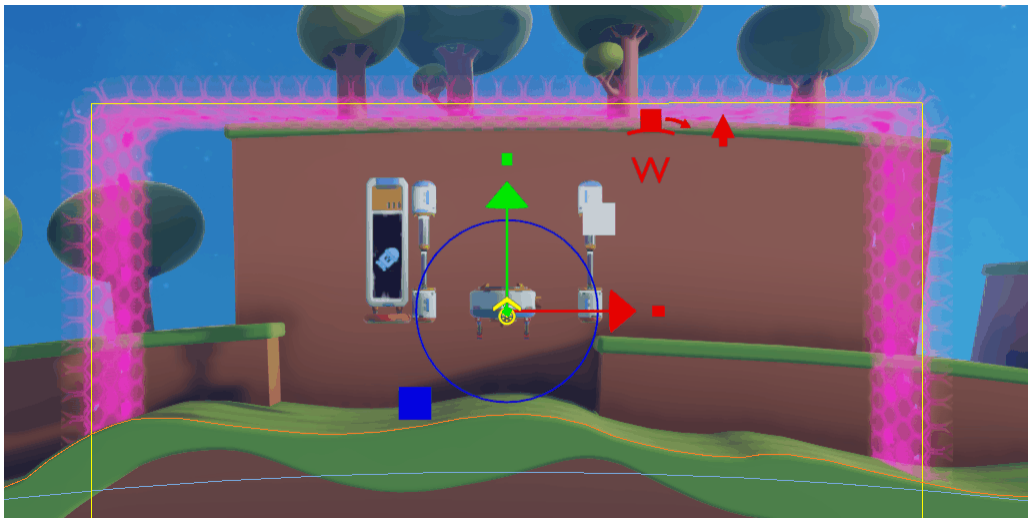
Challenge Play Area

Every Challenge requires a play area to be set up, this space ensures the player cannot bring outside contraptions in to solve the challenge and allows them to leave the challenge quickly if they find it too difficult.

After adding a challenge workshop to your world, in editor mode you'll now see a pink holographic barrier, this is the *play area*. The *play area* is anchored to the workshop, so when the workshop moves, the challenge area will move with it.



Pressing **TAB** with a Challenge Workshop selected will allow you to edit the *play area* similar to how you edit terrain, you can click and move points around using the Gizmo or click the red line to add additional points to change the shape or the Play Area.



Challenge Invalid Warning

You may see this warning when creating a challenge workshop, this will be because some key components to your challenge are outside of the play area, for a challenge to be valid the following must be inside of the play area:

- Challenge End Goal
- Battery Sensor*
- Battery Spawner*

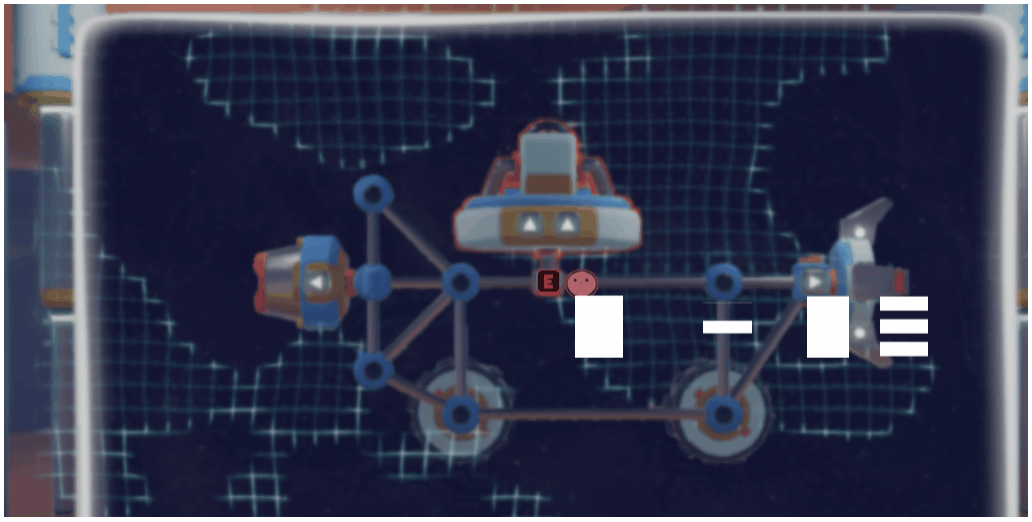
* Only for Battery challenges

If this warning does appear, simply move these components back into the play area, you'll see a green line appear between the Workshop and the object when they're safely within the play area.

Play Area Tips

Keep in mind that when creating your play area, that you'll want to give players enough space to use their contraptions, here some tips to keep in mind:

- Give the players enough vertical space incase they get a little too much height with their contraption



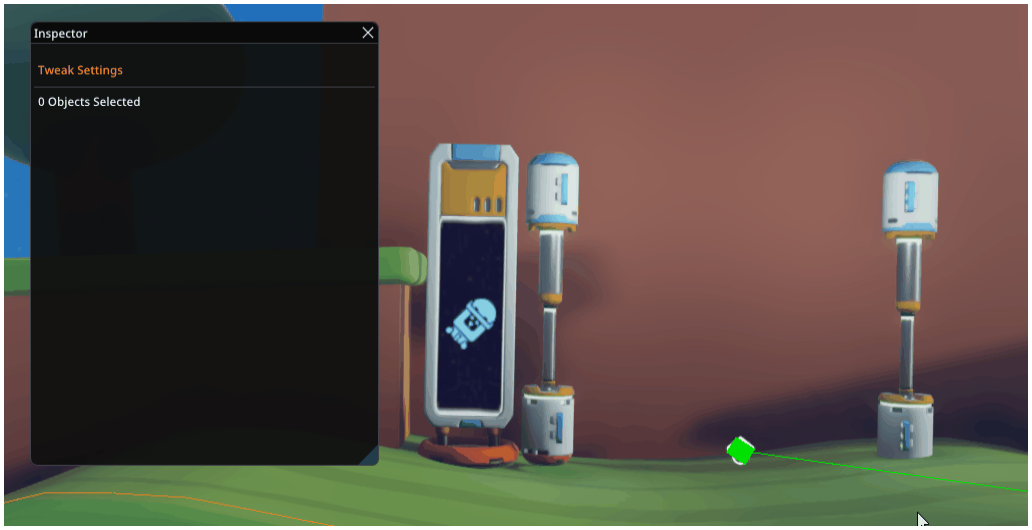
- Add some extra space at the either side of your play area incase they overshoot their target when in a driving contraption
    - Adding a ledge in the terrain to stop vehicles can be a great way to ensure players don't accidentally go out of bound

- If your play area is hidden by terrain, avoid aligning it with the terrain edge as players may not be able to see it, but the player's collider may still hit the edge of the play area, causing them to fail the challenge.

Restricting Components

Challenges can play a large role in your World and as a creator, you can impose limits on which parts a player can choose from. This allows you to remove some parts that would make your challenge too easy or you can make it easier for the player by removing red herring choices, forcing the player to focus on a specific selection of parts and solving the challenge with limited options.

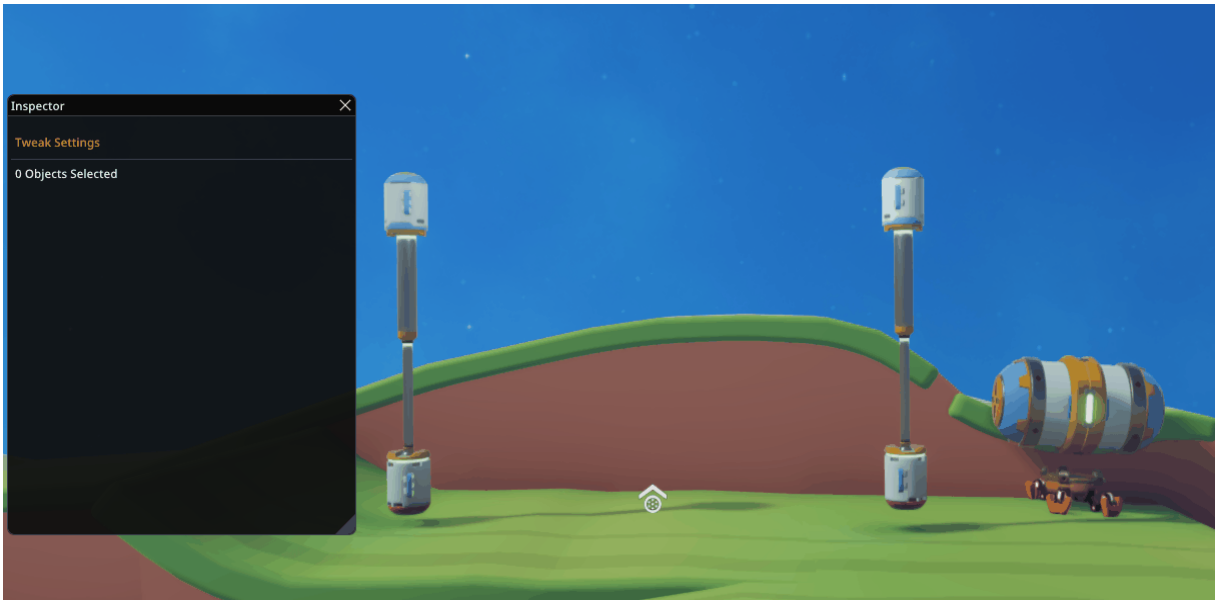
To restrict which components appear in a challenge, select a Challenge workshop in your World and look to the inspector, open the Workshop tab and you'll see the **Unlocked Components** dropdown. Opening this up will show a list of all available components, unchecking a checkbox will remove the part from the workshop. You can press **TAB** to jump into Playmode to enter your Challenge's Workshop and see that the component has been hidden from the player's choice of parts.



Solar Safe Challenges
If you want to reward the player for overcoming a challenge with something more than a Rocket, you can link a Workshop to a Solar Safe with a cosmetic reward inside.

To do so, create a Solar Safe through the Context Menu (be sure to add a reward through the Inspector to reward players' efforts). You can use either a regular Solar Safe or a Locked Solar Safe which comes with a Battery Sensor and requires a battery to open. With a Locked Solar Safe spawned in, position the Safe and the Sensor where appropriate. Spawn in a new, standard Workshop and position where appropriate, with the Workshop selected, look to the Inspector and you'll see a Goal Solar Safe option, select the choose option and select your Solar Safe. This will turn your standard workshop into a Solar Safe Challenge, you'll know it worked when a new model is added to represent it being a Solar Safe Challenge.

Disclaimer: Any cosmetics unlocked in the Level Editor will not carry over to the main game

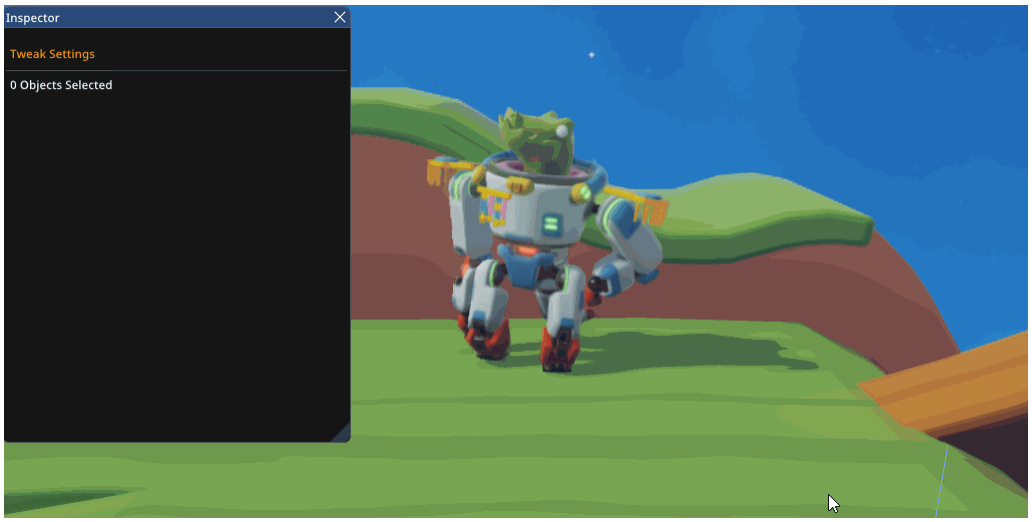


Cinematic Camera

The Cinematic Cameras allow you to create your own cutscenes to help explain or show something to your players. When activated, a Cinematic Camera node will take control of the player's camera.

Cinematic Camera Node
You can create a cutscene with multiple camera positions by making use of Camera Nodes. These are chained together and can be progressed through by the player at their own pace. Think of each node as a single camera position, you can add more nodes easily through the Inspector.

With your first Camera Node selected, open the **Cinematic Camera Node** tab in the Inspector. Look for the insert node button. Once clicked this will spawn in a new Camera Node, it will automatically connect to your current node. This creates a chain of Cutscene slides, the more nodes you add, the longer the cutscene!

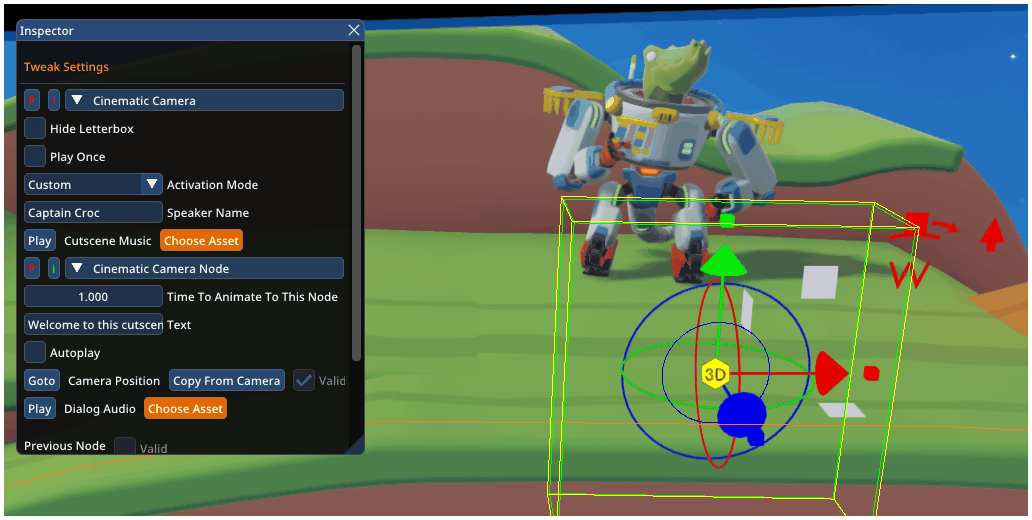


If you want to explain something to the player during a cutscene, you can add text that will be displayed when the player is going through a cutscene. Text will display when each node is active, so if you feel you have too much dialog on one section of a cutscene, adding an additional node and moving some text over will help split up the text and make it easier for your player to digest.

Triggers

For your player to be able to see and activate a cutscene in your level, you'll need to set up a trigger. You can change the type of trigger you use through the Inspector with your first Camera Node selected. There are two types of triggers available to you when creating a cutscene:

- Trigger Volume
    - Volumes will activate automatically when a player walks into the area.
    - You can scale the size of your Trigger volume to your needs with the Transform Gizmo.
- Button Press
    - Requires the player to walk up to the cutscene node and press a button to start the cutscene
    - Keep in mind that the player won't be able to see the Cutscene Node so you should make it clear in your level design that there's a cutscene trigger available.
        - One way to do so is to make use of the Captain Croc holograph model, this brings attention to the area your cutscene node has been placed and gives the player something visual to look out for.



You can easily change the location the Camera pans too when the player activates a cutscene, when a Node is selected, in the inspector look for the Camera Position option in the Cinematic Camera Node tab. By pressing the Copy From Camera button, the Node will take a snapshot of your current camera position and rotation and use it for the Cutscene. This can help you to easily set up a chain of Camera Nodes with unique camera positions to show off your creation.

Time between nodes too

Planet Volumes

Planet zones are the core of Astronimo Worlds, although you're free to build wherever you want, we recommend taking advantage of the benefits of gravity to keep your players grounded.

Core play areas for levels, Planet Zone -> Terrain -> Players

New levels will come with a Planet Volume automatically created, you can add additional planet volumes to your Level through the context menu, be sure to space them out evenly to not cause any gravitational anomalies between the two volumes.

When a Planet Volume is selected, you'll have some tweaks available to you in the Inspector:

Atmosphere

- Atmosphere values control the amount of light and color a planet will emit.

Planet Audio

- The audio track which plays when the player is within the planet volume.

Planet Zones

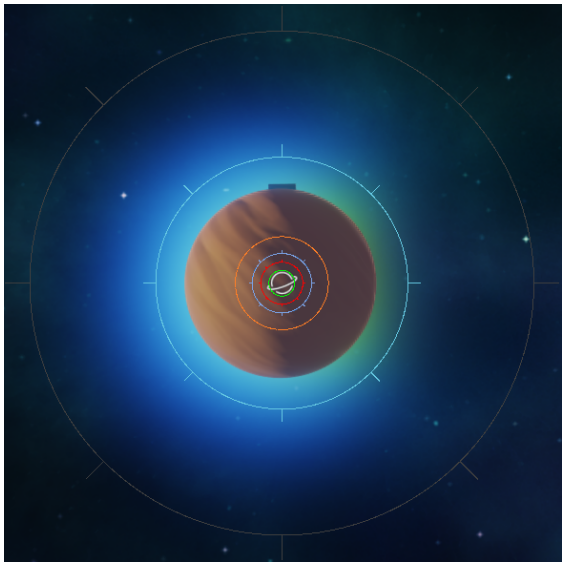
- Controls the effects of Gravity on the Inner and Outer radius of the Planet
- Tweaking this will control how strong players are affected by gravity within these radii.
- Some examples of values for Small and Larger planets can be found below.

Example Planet Volume Values

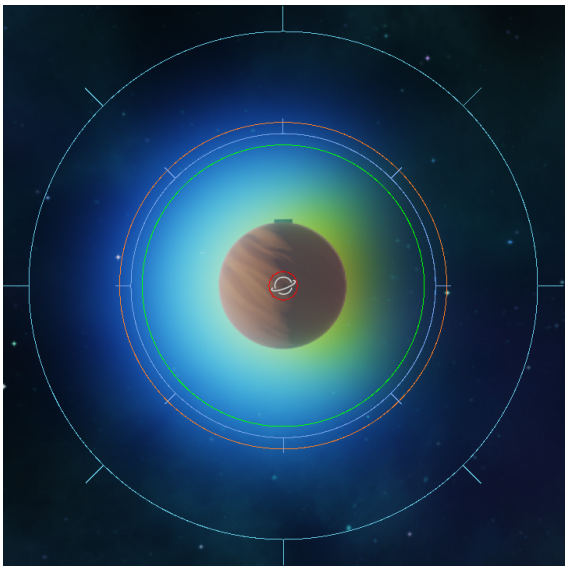
If you want a quick starting point for a small or medium sized planet, these values can be copied and pasted into the Planet Zone through the Inspector, resizing your starting Planet Volume to the desired size.

You can Control + Left click on a value in the Inspector to directly edit it's value, allowing you to copy in the value.

Mini Moon Example Values	
Outer Gravity Radius	
Size	300.0
Strength	-20.0
Air Density	0.0
Atmosphere Size	150.0
Inner Gravity Radius	
Size	35.356
Strength	-20.0
Air Density	0.060
Atmosphere Size	35.416



Planet Example Values	
Outer Gravity Radius	
Size	1042.997
Strength	-14.0
Air Density	0.0
Atmosphere Size	451.114
Inner Gravity Radius	
Size	270.0
Strength	-16
Air Density	0.050
Atmosphere Size	270.306



Optimal Play Zone
When setting up your Planet zone, you may notice a Green, Blue and Orange Circle. These can aid you when creating your level to help center your creations.

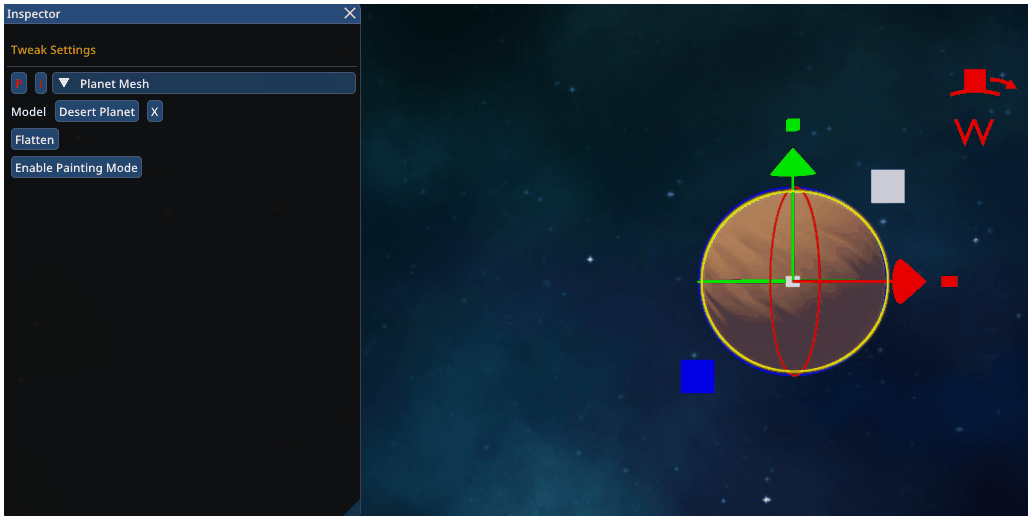
When designing levels, using the Blue circle as a guide for the overground layer will ensure you're making the most of the planet's size. It will also help keep the planet surface level, creating a nice even play area.

You can then use the Green and Orange circles to create your lowest and highest points, these work nicely with the scale of the player, helping you create a level that works nicely to the size of the player.
ˆ focus more on gravity

Planet Camera Orientation

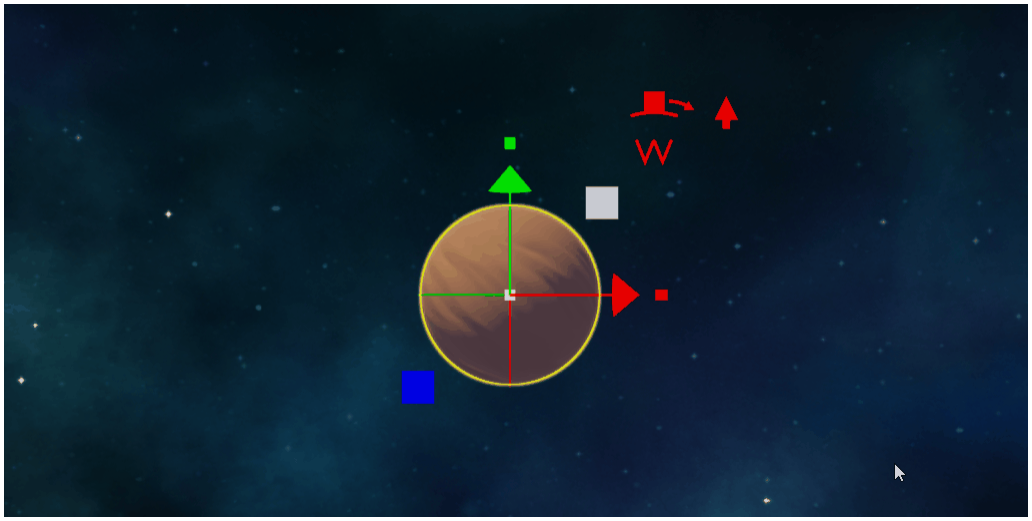
Planet Mesh

Normally placed in the center of a Planet Zone, a Planet Mesh is a 3D Object used to represent the actual look of your planet. There are a number of default planet mesh' available for you to choose from to help get the perfect look for your world.



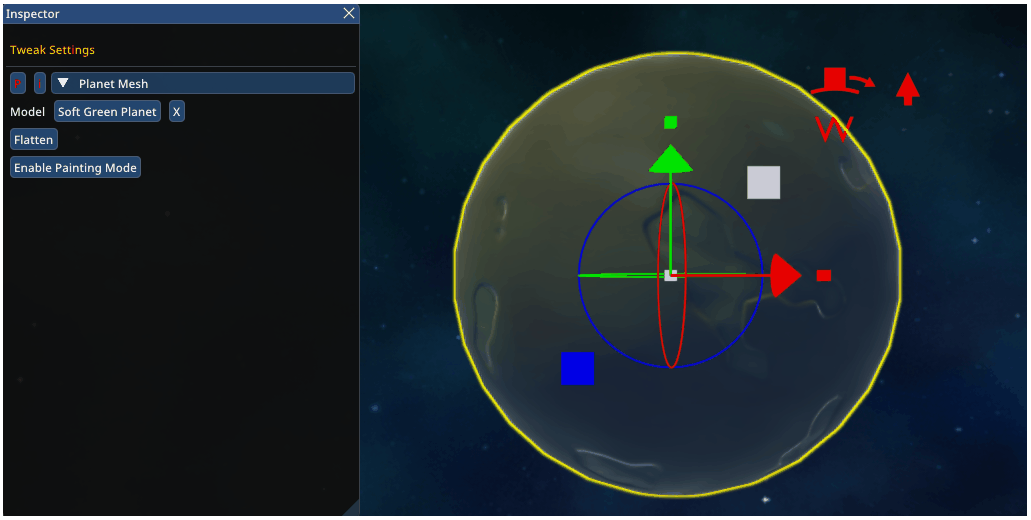
Planet Scaling

You can scale a Planet Mesh in all dimensions by holding down T with the Mesh selected and moving your cursor back and forth.



Planet Mesh Painting Mode

Additionally, can deform the Planet Mesh, this will allow you to raise and lower the shape of the Mesh to suit your mapping needs. To do so, turn on the Enable Painting Mode with a Planet Mesh Selected

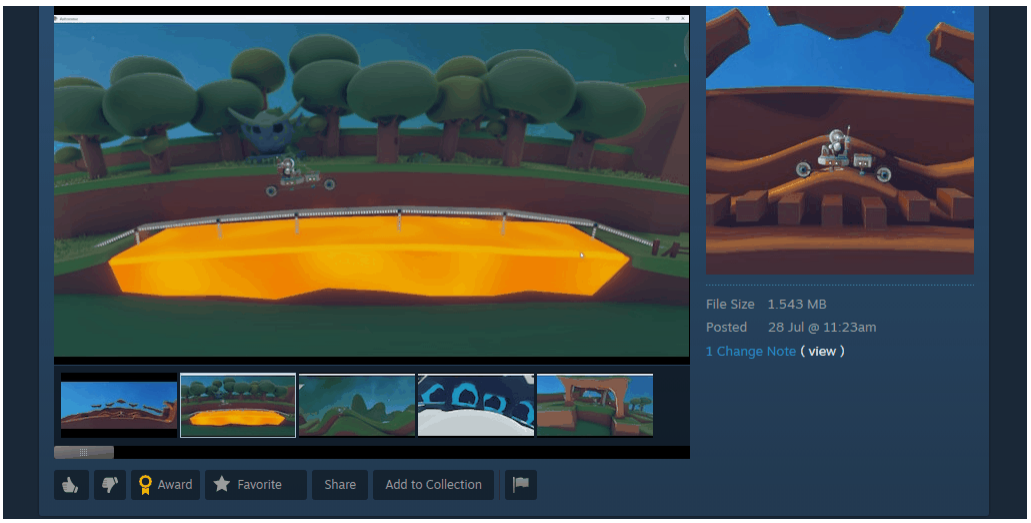


Uploading to Steam Workshop

Now you're armed with the information

Uploading your level to the Workshop for Astronimo is simple, once you're happy with your creation and have playtested it sufficiently, press the **ESC** key to open the In-game menu and click the **Upload World** Button, this will prompt you to take a picture of your level. Once done, you'll be taken over to a Workshop page. Here you can edit the Title, Description and upload more Images to help promote your level.

Remember: After you've finished creating your level and have your workshop page setup, be sure to set it to Public so others can see it!



Developer Mode

Although a wide variety of content can be made in the standard editor, there may be times you wish for finer control or access to even more options. Developer mode removes all limits in creating levels and allows you to tweak and edit every element of the game we developers have access to.

WARNING
Entering Developer mode will reveal all internals of the Astronimo Engine

There is only English Language support for Developer mode

Wild tampering with values, components and other parts of the advanced UI may result in crashes and potential data loss.

To access developer mode, open the Tweaks Menu in the inspector, scroll down to the bottom and click the Developer Mode button.

As developer mode is rather extensive in its options, this guide will focus on the options most useful for designing levels.

Disclaimer - Making tweaks through the Inspector in Developer Mode are not shared between players and are not part of the Workshop package other players will download, changing values found in the Tweaks menu will only affect your World.

Hydraulics & Spring Tweaks
Rather than stacking multiple hydraulics to create a long extending lift or platform, you can select the Hydraulic Rod and edit its parameters in the Inspector menu under **CMPHydraulic**. Here you'll see a number of Parameters you can tweak:

- Speed
    - How quickly the rod retracts or extends
    - Don't tell anyone but Springs are just faster Hydraulic rods
- MaxLength
    - How far the rod will extend when a positive input is sent
- MinLength
    - How close to the starting point of the rod will the hydraulic retract too
    - 0.1 is a good minimum value for this, any closer or past 0 will have strange results.

- Force
    -
- Stiffness
    - How flexible will the rod be under pressure, a high value will keep the rod rigid, while a lower value will allow it to flex.
    - 1 is the maximum for this value, surpassing it will have unintended consequences

After making changes to a hydraulic or spring, be sure to Quick-Save your prefab to keep the changes.

Custom Materials

Trailer Tools

By opening the context menu and scrolling to the bottom, you will see a section for **Trailer tools**. These options allow you to capture images without an UI pop ups or overlays, helpful when capturing a nice picture for the Workshop

Changing Planet Volume Orbits

Editor Mode Tips

Here are some useful hotkeys and tips that can help with designing and testing your worlds:

- If you close the Inspector by accident, you can press **7** on the **NumPad** to reopen it.
- You can use the **1**, **2** or **3** on the **NumPad** to spawn in additional players,
- When in Play mode, you can press enter to detach the camera and access mode options, this allows you to control the camera position with a camera model in place for reference.
    - You can control the camera with your keyboard and also control your player with a controller.
- Setting up Camera positions can speed up World creation, especially on larger levels. Press **Control + 1/2/3/4** to create a saved Camera Position, after which pressing **1/2/3/4** will focus the camera on the saved position.
- Alongside the Transform gizmo you may see when moving objects, you can also use the following hotkeys
    - **G** key - Start moving/translating
    - **R** key - Start rotating
    - **T** key - Start scaling
- Holding the **B** Key with a model selected will snap the model to the surface
    - Moving the object around will keep it snapped to the surface as well as rotate it.
- Pressing **V** will snap an object to a Vertex on another model

Component Guide

The World Editor provides a wide range of components to help you create your own levels, provided below is breakdown of all these components and their uses.

- Terrain
    - Once spawned in and selected, can be edited with **TAB.** Moving and adding points allows you to create custom terrain shapes.
    - More information can be found in the ***Editing Terrain*** section of this document
- Model
    - Allows you to place custom assets around your levels.
    - You can select through a list of existing assets to select from.
- Workshop
    - Can be used by both the designer and player to create custom Contraptions.
    - Workshops can be changed to any size and will resize appropriately.
    - For more information please read through the ***Workshops and Prefabs*** or ***Challenge Workshops*** section of this document.
- Prefab Spawner
    - When placed in a level, you can assign a Prefab to this spawner.
    - Doing so will spawn in the Prefab when your level loads.
    - More information can be found in the ***Customizing Prefabs*** section of this document.

Art

- Decal
    - Projects an image onto the terrain.
    - Used in the game for tutorial hints and control explanations.
- Light
    - A light which can light up parts of your map.
    -
- Planet Mesh
    - 3D Model which can be deformed to match your levels layout
    - For more information please see the ***Planet Mesh*** section of this document.
- Sprite
    - A 3D Plane which can have an image attached..
- Grass Volume
    - A 3D Area, which when placed near terrain, will spawn in grass through the volume.
    - Values and colour can be tweaked via Inspector
- Flower Volume
    - A 3D Area, which when placed near terrain, will spawn in multiple flowers throughout the volume.

        - Model and values can be tweaked via inspector.
            - This volume will let you chose a specific model so can be used for models that aren't flowers!
- Simple Character
    - A basic representation of the player character
    - Can be placed in your level and customized with:
        - Helmet Options
        - Suit Colours
        - A looping animation

Challenge

- Standard Challenge
    - Creates a Challenge Workshop and Goal.
    - Goal must stay within the Play Area for the challenge.
    - Challenge information can be tweaked via the inspector when the Workshop is selected.
    - For more information please read through the ***Challenge Workshop*** section of this document.
- Battery Challenge
    - Creates a Challenge Workshop, Battery Spawner, Battery Sensor and Goal.
    - Players must take the Battery to the Battery Sensor to activate the Goal.
    - Battery Spawner, Battery Sensor and Goal must stay within the Play Area for the challenge.
    - Challenge information can be tweaked via the inspector when the Workshop is selected.
    - For more information please read through the ***Challenge Workshop*** section of this document.
- Challenge Battery Sensor
    - Allows you to add additional Battery Sensors and link them to challenges through the inspector.
- Battery Spawner
    - Creates a spawner for a Battery.
    - Used outside of Challenges to create battery interactions throughout your level.

Debug

- Editor Label
- World Text

Design

- Cinematic Camera
    - Can be used to create Cutscenes
    - For more information please read through the ***Cinematic Camera*** section of this document.
- Planet Zone

    - For more information please read through the ***Planet Volumes*** section of this document.
- Checkpoint
    - When a player runs past, will set their respawn location to the Checkpoint if they die/respawn.
- Group
    - When placed over terrain/components, will create one grab point to move and rotate all the terrain contained within the group's boundary.
- Repeatable Prefab Spawner
    - Creates a respawn in your level which can be set to respawn a prefab through the inspector.
    - Players can interact with the Spawner to respawn in the Prefab, useful for Contraptions and Vehicles players can interact with.
- Destructible
    - Creates a solid 3D Object which players can destroy using Dynamite or a Drill.
    - Width and Height can be changed via Inspector.
- Windzone
    - Creates a 3D Zone which will push the player in a given direction.
    - Strength/Direction and Depth can be edited via inspector.
    - Bounds of WIndzone can be changed by pressing TAB with the Zone selected.
- Gas Zone
    - A 3D Volume, which when a player enters, will slowly countdown, once the time limit has been reached, the player will be killed.
    - Width can be edited via inspector.
    - Boundary of the Gas Zone can be changed by pressing TAB with the Zone selected.
- Dynamic Focus Camera

Rewards

- Grinder
    - 3D Object which will break up medium to large chunks of Ore into smaller ones when brought over by the player.
- Gumball Machine
- Ore Spawner
    - When added, it will spawn an ore node.
    - Size of the Ore node can be edited in the inspector
        - Ore Nuggets - Can be picked up by the player immediately
        - Ore Blocks & Large Ore Blocker - Require breaking up with a Grinder, converting it into Ore Nuggets
        - Ore Vein - Requires the player to drill ore explode with Dynamite to turn into Ore Nuggets.
- Solar Safe
- Locked Solar Safe

Teleporter

- Local Teleporter
    - Teleporters can be linked together to allow players to quickly jump between two locations
    - With a teleporter selected, the inspector will provide you with the option to add a destination, simply click on your other teleporter to set it.
        - You can link the destination teleporter back to the original to create a two way connection.
- Home Beacon
    - When out exploring the world, once a player passes a Home Beacon they can use it to teleport back its location by zooming out and selecting the teleporters icon.
    - This is another handy way to help players get around larger maps.
- Showdown Teleporter
    - Currently don't work in Level Creator and will be removed in a future update.