

The Free Minecraft Map Maker's Magazine

MAPMAG

ISSUE 4 - MECHANICS



@MapMakingMag

About the Magazine

This project is a community driven and contributed magazine. By publishing we seek to develop the wonderful craft of Minecraft Map Making. All content remains the property of the respective author and is used with permission. All trademarks referenced in this publication remain the property of the respective trademark holder.

Last Issue Errata

Issue 3 Back Cover art was by @CodingConjurer. It was misattributed to @NOPEname_

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@... your name could be here - write an article or provide art for future editions! See submission guidelines in The Lobby.

This publication is a community effort and this issue has been compiled with input from the Minecraft Map Making community.

MapMag is supported by donations from: @immersivemind and @cocoamix86

Cover inspired by @CubedCommunity

THE LOBBY

Welcome back to the Minecraft Map Making Scene!

Welcome to the Fourth Issue of MapMag. In this issue we will look at “mechanics”. This is the mysterious field of Minecraft technical wizardry that involves changing the way the game works with Command Blocks and Redstone. We bring you a bumper pack of articles to help you on your way to building your own exciting maps.

In this issue @CDFDMAN explains how to develop your ideas, and where you can find resources and inspiration to complete your projects.

We reflect on the extraordinary career of serial-genius @Dragnoz and discover how he came to be the magician at the heart of many of our most beloved maps of recent years.

There is also a fine crop of majestic builds to explore with @ArdaCraft taking us on a journey through the largest and most faithful recreation of J.R.R.Tolkien’s Middle Earth yet conceived by the mind of Minecraft Map Makers. In exciting developments, you can help complete this massive project on the ArdaCraft server.

The Conquistadors showcase their new build *Perla del Bóreas*, which is "The Pearl of the Southern Wind" in English. This fortress by the sea has been stunningly realised using the Conquest project to provide custom blocks and amazing textures for the team to work with. You can find out more about Conquest in your last issue of MapMag.

Check out our regular features, with many contributions from your colleagues in the community. As you close the final pages keep an eye on how to add game mechanic elements to our exciting community project.

If you want to help we are always on the lookout for articles and art. See the sidebar for submission guidelines. Until next issue - Happy Map Making!

- Adrian Brightmoore, Editor
Twitter: [@abrightmoore](https://twitter.com/abrightmoore)

Submission Guidelines

We are interested in what YOU have to say. Content you make for MapMag can be sent to:
mapmakingmag@gmail.com.

The best letters, articles, art, and other work may be selected for inclusion in MapMag editions or on affiliate websites and other communication channels. Because MapMag is made by the community for the community, MapMag is free for readers and we don't pay you for anything. We ask for permission to include your work in the magazine.

Any content you submit must be your own work, or work that you have the right to submit. By sending us your work you agree that we may edit it for readability or make changes we think are necessary for the magazine. If we decide to include your work you acknowledge that you have granted us the right to publish your work in MapMag and you understand that your work may be quoted or discussed on the internet by anyone in the world without limitation.

All other rights to your work remain with you. You own your work. We are allowed to use it for MapMag. It is that simple.

We will credit you by real name, game name, social media account, or another method that you prefer and that we mutually agree. We will not share your email address without your express permission. If you do not tell us how to credit you for your work then you will not be published in MapMag.

If we refer to you or your work in MapMag you acknowledge that we do so in good will and our intention is not to damage or harm.

DISPUTES

Writing about what you enjoy and hearing from other people with similar interests can be great fun. When people are excited about what they are doing sometimes things can get a little heated in a large community. If you have any concerns over what MapMag is doing or how we are doing it then please contact us describing your concern. This will allow us to understand how we can do better. We can be reached at mapmakingmag@gmail.com.

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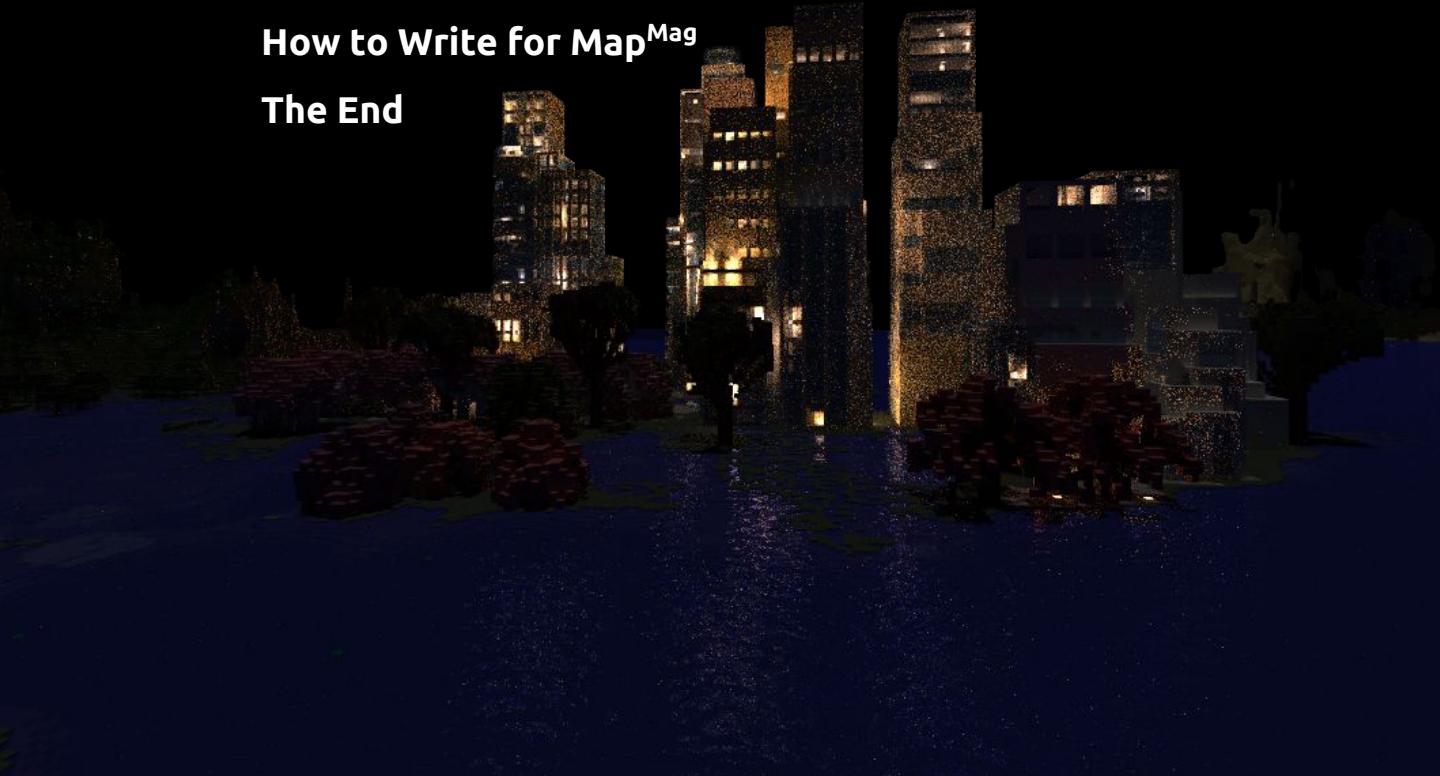
/help

How to Command Block

About this Issue's Cover

How to Write for Map^{Mag}

The End





BOATS

Feature by @GamerGuppy

The power of boats

The boat. Once probably the most hated entity in Minecraft. But ever since MC 1.9 the boat rapidly evolved to become one of the most useful entities the map-making community has ever seen.

Much like Armorstands caused a revolution in Minecraft map-making as a marker entity to store scores for calculations, the strength of boats lie in their use for achieving complex motion that previously required hundreds of command-blocks involving trigonometry. Together with the help of @Onnowhere_ and @shanewolf38 I've demonstrated the power of boats in two videos which can be found on my YT channel.



I am a Dutch applied physics student with a passion for Minecraft's creative & technical aspects. Every now and then I share some of my builds on my YT channel. Often these concern command-block contraptions.



@GamerGuppy



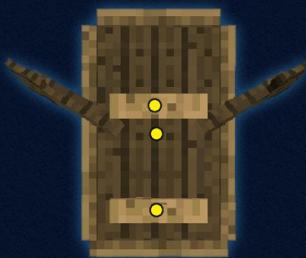
youtube.com/user/gamerguppy

The basic principle

Since Minecraft version 1.9, a boat can have 2 passengers and these passengers have a fixed spatial off-set with regard to the center of the boat. The front passenger (P1) is located 0.2 blocks away from the center of the boat (B), and the passenger at the back (P2) has an off-set of 0.6 blocks.



If we simply rotate the boat using a simple /tp command, the location of these passengers update automatically (at the start of the next tick).



Tick 0

This is the state of the boat and its passengers before teleporting.



Tick 0

In this tick we issue the command:
`/tp @e[type=Boat] ~ ~ ~ 25 ~`
to rotate it 25 degrees. The position of the passengers will not change in the remainder of this tick.



Tick 1

The next tick the position of passengers is updated accordingly.

Translational motion

One form of motion we can achieve is translational motion. Translational motion is the movement of an object from one point to the other. This can be achieved by teleporting the boat to one of it's two passengers.

The movement speed depends on which passenger we decide to teleport the boat to. For example teleporting the boat to it's back passenger makes the boat cross a distance of 0.6 blocks.

The direction of motion depends on the orientation of the boat. By rotating the boat left or right, the positions of the passengers change accordingly.

The only thing left to do, is to actually teleport the boat specifically to its own passenger. Though this is incredibly simple for just one boat, it becomes slightly more tricky when there are multiple boats that all have to be teleported to the correct (as in 'their own') passenger. This is achieved by a smart choice of offsets and target selectors:



```
/execute @e[name=P2] ~ ~0.799999 ~  
teleport @e[name=B,r=1,c=-1] ~ ~-0.799999 ~
```

The idea is to offset the point of execution by .799999, so that we can just barely target the boat with our teleport command using a radius argument of 1. Since we can just barely target the boat, 'c=-1' is practically guaranteed to select the correct boat belonging to the passenger that executes the command. The value of this offset was found by applying Pythagoras' theorem. We do need to correct for this offset by teleporting the boat down by .799999 again. If instead we'd like to teleport the boat to its front passenger, we need to use a value of: $\sqrt{1.0 - 0.2^2} = 0.979795$.



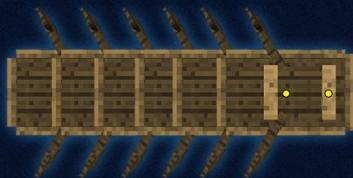
Rotational motion

The second type of motion we can achieve is rotational motion. An example of rotational movement is the earth around the sun. For this type of motion we need some sort of ‘arm’ much like the handle of a door. This arm is made by creating a complicated structure of stacked boats. Each boat is riding the passenger of another boat.



In the image on the right, each boat is riding the second passenger of another boat. This means each boat we add to the structure adds a horizontal offset of 0.6 blocks to the arm.

Making this structure rotate is incredibly easy and only requires one simple /tp command. The exact process as to why it works is described below



Tick 0

This is the state of the boat ‘arm’ prior to the /tp command.



Tick 0

In this tick we issue the following command:
`/tp @e[type=boat] ~ ~ ~ 25 ~`
as to rotate each boat 25 degrees to the right.



Tick 1

At the start of the next tick the game updates all passengers to their correct location (on top of the 2nd passenger). The end result is as if the boat arm as a whole rotated 25 degrees.

If we repeat the /tp command above for each tick, the arm will start circling. This can be used for all sorts of applications as can be seen on the next page.

Applications

The applications are endless. Below I list a few contraptions I made from my video. Of course to see these contraptions in action you will need to watch said YT videos or download the world:

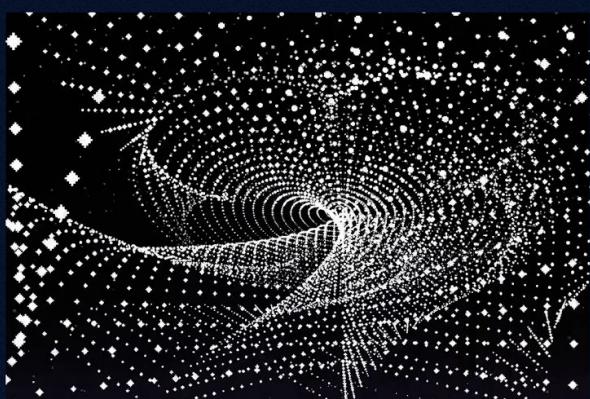
[Click here for video on rotational motion](#)



Scrambled eggs



Particle effects



[Click here for video on translational motion](#)



Boomerang



Car



Dragnoz



*Fire of London render by @BramBossMC
Map build by @BlockworksYT
Game mechanic by @Dragnoz
Commissioned by @MuseumofLondon
Produced by @theCommonPeople*



PROFILE

@Dragnoz Master Map Mechanic

It seems like Dragnoz has always been a part of the Minecraft Map Making community. His unique blend of design talent, technical prowess, and passion for teaching has helped countless Minecraft mechanics develop their art.

The videos on Dragnoz' YouTube channel (at <http://www.youtube.com/Dragnoz>) cover features of Minecraft in easy to follow instructional. He has crafted a series of informational segments on topics as far reaching as working with Command selectors to building massive armies of impressive flying weaponships to destroy and enslave poor unprotected villagers. Each comes with a patient set of instructions to recreate the mayhem, as well as all commands used painstakingly transcribed and archived for easy access.

Dragnoz has a background in creativity extending from filmmaking, where zombie invasions are somewhat of a specialty, to graphic design, and delicious themed cakes and confectionary. With such a diverse background, how did he end up in Minecraft? Maybe the zombies provide a clue...

When asked about how he started using Minecraft, Dragnoz laughs at the memory and explains '*When I started playing Minecraft I was working as a creative director in a Marketing department of an email tech company and I was looking for a way to engage with email administrators. I heard you can "reskin" the game to make the blocks look like anything. I wanted to reskin the blocks to be the various systems you need for email management and have the email administrators "build" their dream setup*'. He is no stranger to using Minecraft as a platform to connect with people.

He has also worked extensively on projects that combine Minecraft's accessibility with a wide range of learners and educational scenarios through his partnership with Wizard Keen (aka Adam Clarke @theCommonPeople). Through these collaborations Dragnoz has extended kids learning into areas as diverse as wildlife conservation with "We Are the Rangers", curriculum knowledge in "Ancient Animals" for the Australian Woolworths Group, as well as interactive learning worlds for the Tate Galleries.



Dragnoz keeps things fresh with regular design changes. Fans can purchase shirts with his designs.

Dragnoz Master Map Mechanic

Dragnoz' skills with Minecraft are in high demand. He has worked with Disney's Maker Studios and British Entertainment Superstar @StampyLongNose to create the dynamic interactive worlds that power the phenomenally popular YouTube original WonderQuest series.

Perhaps the most remarkable thing about Dragnoz is he started out just like you did early on in Minecraft's development.

"I ended up building a huge castle tower and was huddling in the corner at night being killed by zombies", he explains.

The multiplayer side of Minecraft was appealing to Dragnoz. *"I played on various anarchy servers building redstone traps to get items from players"*. This gave Dragnoz a platform to create impressive builds.

"On one of the servers a YouTuber featured one of my builds but I was unhappy with how he did it. so I did my own tour". You can see his first video showcasing his in game creation in his video "Epic Jungle Treehouse".

This experience sent him on a journey to become a YouTube master Command Block educator and entertainer to millions of Minecraft enthusiasts. Dragnoz' YouTube channel is a gold mine of information for people new to Command Blocks, and also for those who are seeking the newest cutting edge ideas to make fun and exciting games within Minecraft.

DRAGNOZ AT A GLANCE:

Twitter: [@Dragnoz](#)

YouTube: <http://www.youtube.com/Dragnoz>

Views: 26,416,263

Subscribers: 126,262

Favourite Creation:

Pop Up LASER towers

<https://www.youtube.com/watch?v=FTTyhxjl7I4>



Favourite Project:

We Are the Rangers Adventure Map

<http://wearetherangers.com/>





ARDACRAFT

by @ArdaCraft

Recreating J.R.R.Tolkein's Middle Earth, One Block at a Time

ArdaCraft is easily one of the most ambitious projects to be attempted in Minecraft since its inception. The aim of the project is to recreate the world created by J.R.R. Tolkien down to the very last detail.

Every aspect of the project is done with heavy consultation with the books, as well as various other historical, geological, botanical and other sources to ensure that not only does the server achieve the world imagined by Tolkien, but achieves a level of realism to make the world feel alive.

The scale of the world is 1:58, making it one of the largest maps to ever be attempted in the game (it will be roughly 54'000 by 43'000 blocks when complete), and there is strong, consistent progress.

Co-founded by Fornad and Dags_, the project has been actively worked on for over two years, and it shows. Several media outlets have picked up on ArdaCraft, with features in the IB Times, GamesRadar, Kotaku, and many other sites.

The support shown by the whole Minecraft community demonstrates that ArdaCraft's work appeals to a vast amount of people – both fans of Tolkien as well as fans of creative endeavours in Minecraft. As well as several media outlets, ArdaCraft has been featured on a few YouTube channels, such as Dukonred1, Cerulean Capuchin and several others.

ArdaCraft has a range of locations built currently on the map. The entirety of the Shire - one of the most densely populated areas of Middle-earth – is complete (with well over thirty unique villages and hundreds of fields).

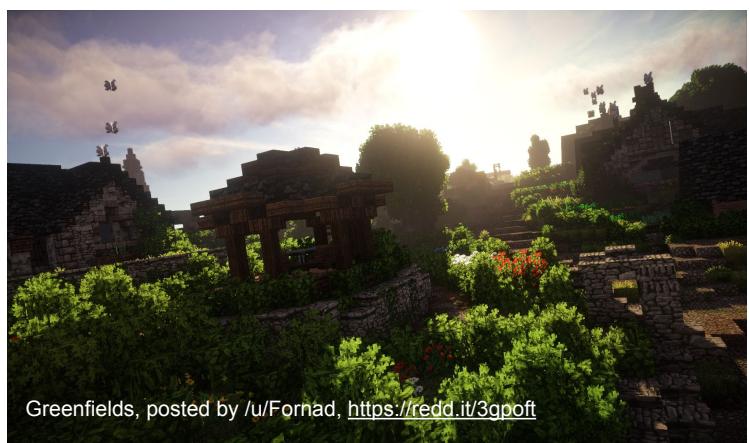
The chilling Barrow-downs are also complete, as well as the famous village of Bree (with its even more famous inn, the Prancing Pony!).

The server's current focus, however, is towards the west. Whilst there are more iconic locations in the east, such as Rivendell, Moria and Mirkwood, the server is instead focusing on the elven realm of Lindon.

Here, there can be found the large elven havens of Mithlond (also known as the Grey Havens), Harlond and Forlond. There are also Dwarven mines in the Blue Mountains, meaning that settlements from all four major races of the Free Peoples – Elves, Men, Dwarves and Hobbits – can currently be viewed on the server.



Whitfurrows, posted by GuanYou007, <https://redd.it/4p7k6x>



Greenfields, posted by /u/Fornad, <https://redd.it/3gpoft>

ArdaCraft is an ambitious project with a welcoming community, and with so much work ahead of them, they always need more builders! Find out more on their website: ardacraft.me



Newbury and the Old Forest from above, posted by /u/Fornad, <https://redd.it/53dc1g>



Mechanics: One Idea at a Time

By @CDFDMAN

With command blocks and resource packs, almost anything you can imagine can be created in Minecraft today. But once you have your awesome idea, how do you convert it into a working mechanic?

Step 1: Define the mechanic.

If you are starting a mechanic from scratch, the key to making it a reality is to break down the mechanic into its core functions and uses. For example, if I were to make a grappling hook, I need to describe how I want it to behave and how the player should use it.

- I make a decision that the grappling hook is something portable that players can carry around with them in their inventory and can use at any time.
- I make a decision that this grappling hook needs to be useable anywhere on the map.
- I make a decision that the grappling hook has a cool down time and can only be used once every 30 seconds.

Every one of these decisions can be changed and manipulated during testing if something isn't working the way you want it to, but what this does offer is a guideline to allow you to start creating the mechanic.

Step 2: Design the mechanic.

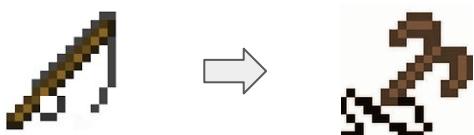
Before starting the coding of the mechanic, I highly recommend doing a Google and YouTube search for your idea. If you find that someone else has made your idea, it's likely the creator will explain how they made the mechanic to you or offer a download. This is a great source of inspiration and guidance in ways of making your idea. At the time of writing, my YouTube Search for "Minecraft Grappling Hook" returns 121,000 results!

Every mechanic is different and requires varying levels of coding ability depending on what you are trying to do. I would highly recommend becoming familiar with the full list of commands on the [Minecraft wiki](#) as well as manipulating NBT data and scoreboards. Most creations use them and they open up a lot of possibilities.

Mechanics: One Idea at a Time

To start coding your mechanic, you have to look at what is offered in the game and compare it to what you can use to make your idea. For example: Snowballs can be thrown and aimed by players in all directions, they are affected by gravity, and work well for having the player right click to launch a projectile. However, If you were making laser blasters, you would not want to have a laser fall to the earth. A simple search on Snowball NBT data will reveal that you can make them fly in straight lines, unaffected by gravity, making for a realistic laser battle after all!

For our grappling hook, a search of the in-engine mechanics points to using a fishing rod for our grappling hook. It allows players to cast an bobber in any direction and it has a nice wire texture that protrudes from the source like a real grappling hook. There are other ways that the grappling hook can be created but this is the most simple option I could find. The fishing rod satisfies our first feature for portability of our mechanic. Using a resource pack we can retexture or remodel the fishing rod to look like a grappling hook in the player's inventory and in game.



Looking more into the fishing rod, we notice that you can target the bobber of the grappling hook. We can create a scoreboard value that detects when the player has used a fishing rod. Once detected, we delay our next commands a few seconds for the bobber to land, then we teleport the player to the bobber. This allows the hook to work anywhere on the map and satisfies the second feature of the mechanic.

Finally, we decided to limit the power of the grappling hook by putting a 30 second cooldown on its use.

To make this a reality, we add a scoreboard value to the player after they are teleported when they use the grappling hook. While this score is counting down to 0 from 30, we replace their fishing rod with another item in their inventory textured like the grappling hook that they can't use. After the time is up, we return the fishing rod back to them and the mechanic works as intended.

Step 3: Code and implement the mechanic.

To write your code, use a text editor, such as Sublime, to keep your code organized and easily readable. I would highly suggest looking into Smelt by [@GnaspGames](#), which is a one-command creator that takes your code in Sublime and packages it for easy implementation into the game. You can also manually put each line of code into the game by placing the blocks by hand.

Step 4: Test and release the mechanic.

Now that you have a working prototype of your mechanic, have players test it out. Is it fun? Does it work as intended? Do you need to make changes to it? Are there bugs in the mechanic? Is the mechanic balanced?

Make the necessary changes and once the mechanic is done, add more mechanics that interact with it or compliment it. Multiple mechanics can be combined together to create challenging experiences or interesting never before seen creations.

You have the ideas to make amazing things, now you just have to make them a reality, one command block at a time. -[@CDFDMAN](#)

- Have Questions? Tweet me @CDFDMAN

Perla del Bóreas

Feature by The Conquistadors



Perla del Bóreas

by The Conquistadors

Planet Minecraft: <http://www.planetminecraft.com/member/conquistadors/>

YouTube: <https://www.youtube.com/channel/UCfLYgXz5lrOlOLHNsY8D8Hw>

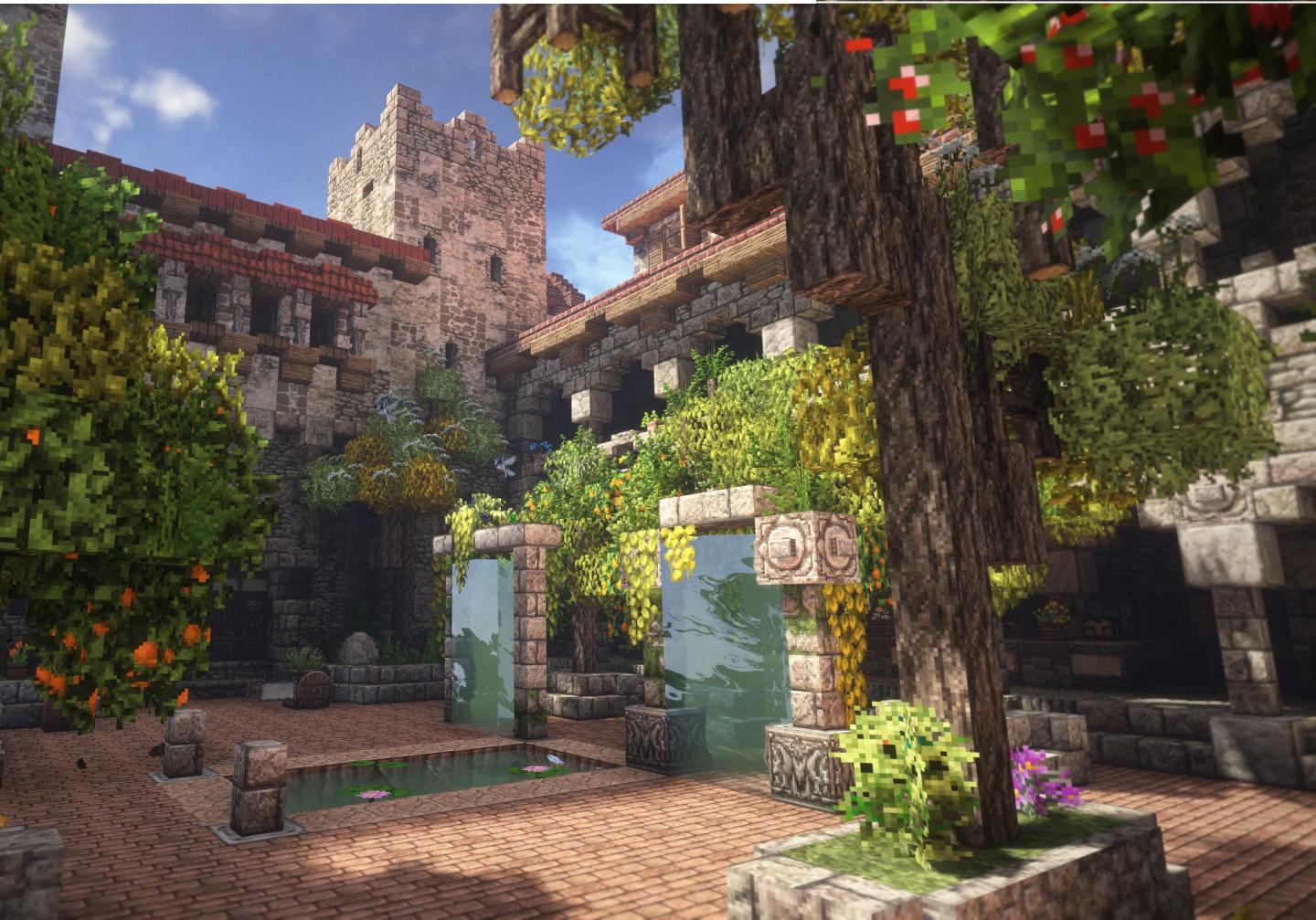


Post Spanish Inquisition, King Ferdinand II ordered a castle to be built in Malaga to resemble a new generation of "pure Spanish" architectural movement without Moorish influence. The Castle was built with white stone to represent purity and innocence, and red brick to symbolize valor and courage. It acted as one of the main residencies for Ferdinand II and Isabella (and their successors) for centuries.

Perla del Bóreas

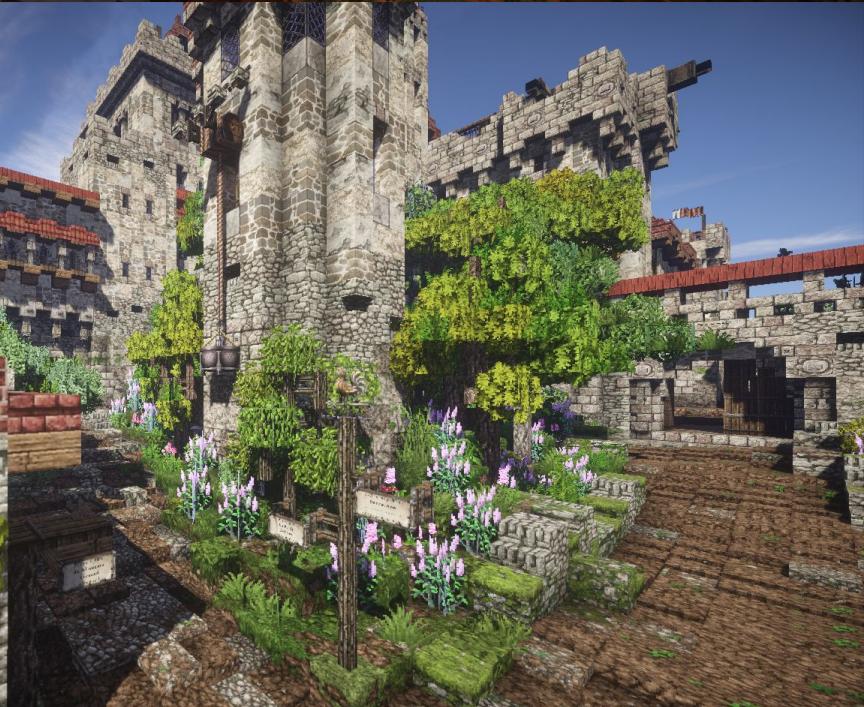


This is the new Creative Spawn for ravand.org, the home of Conquest. This build was also The Conquistador's first build as a group, and has set the standards and expectations for all of our future projects. Perla del Bóreas was the convention of our team, dating back to when we had only eight members; we now have seventeen. We are now further dedicated to bringing new and unique Conquest specific content to the community.

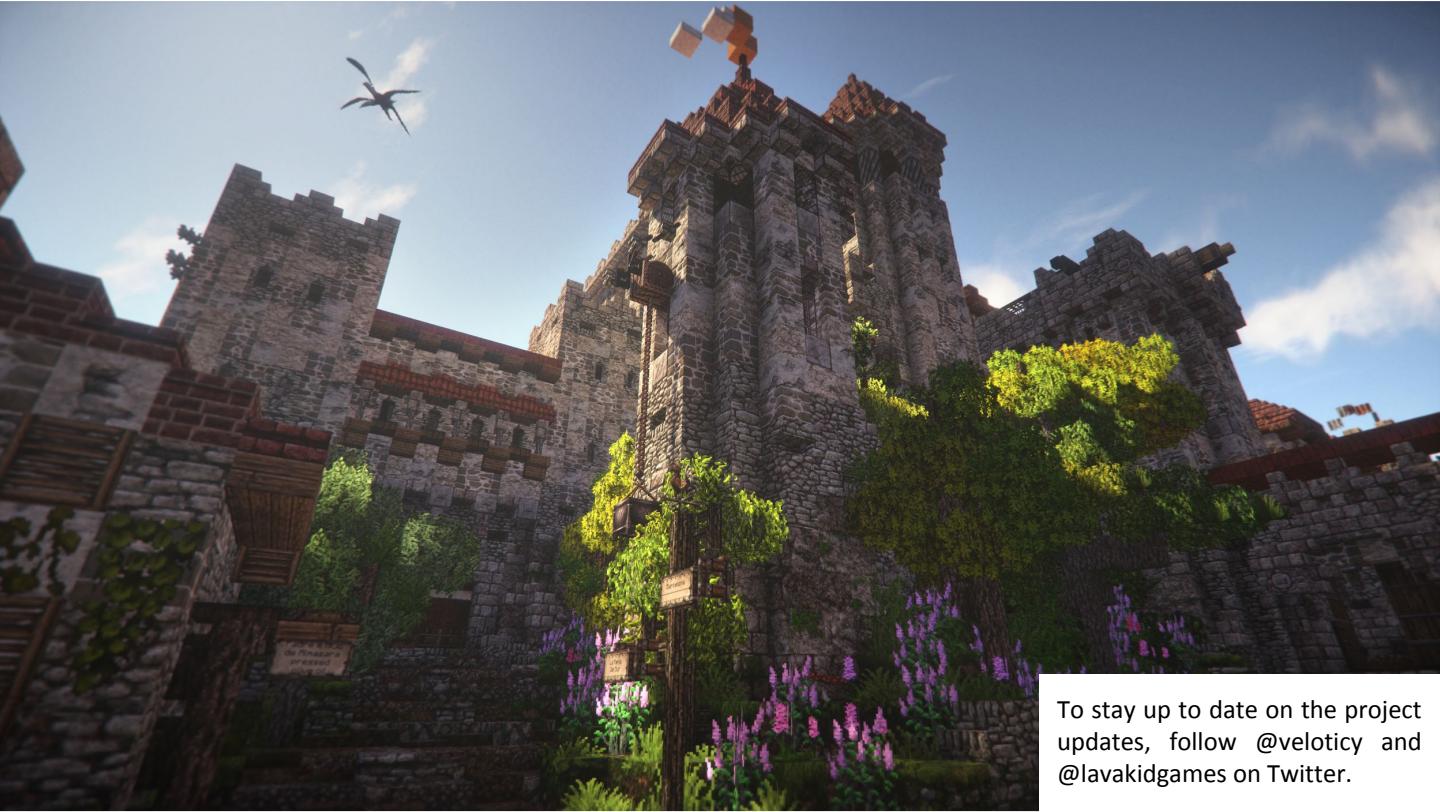




Perla del Bóreas



Perla del Bóreas



To stay up to date on the project updates, follow [@veloticy](#) and [@lavakidgames](#) on Twitter.





LOST HALLS

by Minecraft Map Maker @Pecoliky1

This is an Adventure / Parkour Map which uses personal assistant to help you out on your way.

The Map will become public in November, but the official release will be in 2017.

You are sent on a mission to find the ancient artifact known as "Titan Essence". On your adventure, you find the lost halls. As you enter, the entrances close, leaving you trapped inside. You must find the artifact and you must find a way out.

Above is a picture of the latest version of the map. This is the area where you start your adventure. Levels will be detailed and will contain lots of easter eggs! (props to structure blocks!)

How is the assistant made and how does it work?

Assistant lana is made with basic mechanics, nothing too complicated, but she will help you when the help is needed. She will tell you how to complete a level in an efficient way, and let you know of your progression. If you need any extra help, or just want to know more about her story, you can chat with her in her private room. lana will be the key of your success, and will stay relevant throughout the map.

The Map is designed for PC v1.11.

- @Pecoliky1

gone, but not forgotten

Moesh's Simple Solution to Player Loading (or... In Loving Memory of Spawn Pads)

by [@leMoesh](#)

```
# InitializeNewPlayers
>>{"type":"repeating-chain","auto":true,"conditional":false}
/effect @a[tag=!Initialized] minecraft:saturation 999999 0 true
/effect @a[tag=!Initialized] minecraft:absorption 1 4
...
/tp @a[tag=!Initialized] 1144 64 136
// Add new lines above this one
/scoreboard players tag @a[tag=!Initialized] add Initialized
```

This code block is written to be used with [Smelt](#), a one-command CLI tool by [@GnaspGames](#).

Spawn pads are dead. How long since? Well, they could be confused with the other skeletons in my closet.

My code block for this issue is the **gold standard method for player initialization**.

Why? It is independent of location, handles multiple players without mishap, and does everything in a single-game tick. By using `@a[tag=!Initialized]`, we target players without the Initialized tag. At the end of this line of Command Blocks, we finally add the Initialized tag, and these blocks do not update until a new player logs in.

Two more things to note.

The “health” scoreboard objective type is

read-only, and does not automatically register the player. However, once a player’s health changes, the value will appear on my “Health” scoreboard. I use Absorption to change the player’s health.

Finally, before releasing any map, I clean up any leftover development player data by...

- Deleting the `/players` folder within my world folder
- Using NBTEexplorer or MCEdit Unified to delete the Player NBT entryin level.dat

This code block ensures anyone who plays your map is never left in creative mode, or stuck at the Command Blocks.

Send memorial tweets in Spawn Pad’s name to [@leMoesh](#).



The Mechanics of Storytelling

By @CDFDMAN

You just had the coolest idea for an adventure map, now how do you program that story to work?

Break down the story into plot points and triggers.

When programming a story, you have to recognize exactly what the player is doing in each section of the map and how the player triggers the commands to move to the next plot point. I find it best to breakdown your story into plot points and triggers and to record them in a text editor or spreadsheet program.

Plot points are the sections of your story and triggers are what move the player to the next plot point.

In writing code for adventure maps, a natural structure tends to form. At the start of the map you initialize the player into a lobby and you create a way for the player to start the map. After the player starts the map, your plot begins. A set of commands (also known as a function) are run to place your player into the first scene of the map.

Once the first function is run, you turn on a clock to test for a trigger that has been activated. Once the trigger is activated, you turn off the clock and run another function that moves the plot along. This structure continues until the plot is completed and the story is over.

Defining Triggers:

Programming wise, triggers are any action or attribute we can detect from the player to run a command. Once an action or attribute is detected by a trigger, the plot moves forward and the next section of commands are run.

A few types of triggers are:

- Pushing buttons and levers
 - Killing a certain amount of enemies
 - Using a tool or item a certain amount of times
 - Going to a specific location
 - Completing a set of actions in a specific order
 - Dying or living

The Mechanics of Storytelling

For example: A player joins our map and gets initialized into a lobby we created. (See Moesh's article on initialization) The player then presses a button in the lobby that triggers a function to start the map.

We teleport the player in their room and tell them (through their mother's voice downstairs) to put on clothes before leaving for school. The plot point is to put on clothes. The trigger for the next section is detecting when the player leaves their room with or without their clothes on.

Depending on the player's choice to put on clothes or not, we can have different reactions from the mother when the player walks into the hallway. She can either tell the player they look cute or she can make a witty comment about going to school without any clothes on. The choice of which comment to play comes from the result of the trigger that tested if the player had clothes on or not.

Based on how you want the story to progress, you can program the map to force players to complete an action before they can continue or you can make it so that the map reacts to the player not completing the task by taking the player in a different direction or simply moving on. Manipulating which functions and triggers are used can allow for branching stories.

Using this framework to break down your story into plot points and triggers, you can create the code structure required to make your map a reality.

However, this method doesn't fix that gaping plot hole you left in your story, you'll have to fix that one on your own. -@CDFDMAN

- Have Questions? Tweet me @CDFDMAN

Adventure Map Breakdown:

Scene 1: Home Preparations for School

- Map Lobby (Clocking*)
 - Player initialized by map upon joining the game and teleported to the lobby.
 - **Trigger:** Player presses button to start map.
 - Run *Player's Room* function
- Player's Room (Function)
 - Teleport players into room.
 - Playsound mother's request to put on clothes.
 - Spawn clothes in closet for player to put on.
 - Turn on *Hallway Detects Clock*
- Hallway Detects (Clocking*)
 - **Trigger:** Detect when player leaves their room and walks into the hallway while detecting if the player is wearing clothes or not.
 - Run *Hallway Response* based on the results of the trigger. Turn off *Hallway Detects Clock*
- Hallway Response (Function)
 - *If wearing clothes:* Playsound mother saying the player looks cute.
 - Open the front door.
 - *If not wearing clothes:* Playsound mother's witty comment about going to school in the buff.

At this point you can wait until the player puts on clothes by turning on the Hallway Detects Clock again or you can open the door to continue the map with no clothes on.

**Clocking refers to a set of commands that are run repeatedly until they are turned off.*

BOOKS ABOUT BLOCKS

The Elementia Chronicles

by @sfaywolfe (<http://sfaywolfe.com/>)



Upon first glance at the official Elementia Chronicles Minecraft map, an avid builder might not see what makes this map so special. Sure, the Elementia map is home to an expansive city perched on a massive cliff, which is ringed by a great stone wall and holds many secrets within... but there are hundreds of maps with many similar features. Why, then, has the Elementia map been praised as a breakthrough achievement in inspiring children in literacy, problem solving, and storytelling skills?

The answer is simple. The Elementia Chronicles map is more than just a map: it is an interactive learning experience. It takes a setting from one of the most popular Minecraft book series, and brings it to life

for children to explore, interact with and, most importantly, change.

The Elementia Chronicles series is a trilogy of action-adventure novels that tells the story of three new Minecrafters leading a revolution against a kingdom of ruthless, elitist older players in a Minecraft server called Elementia. The author of the series, Sean Fay-Wolfe, shares the same passion for Minecraft that compelled his readers to pick up the Elementia Chronicles, and so he had an idea. Working together with a talented team of builders known as Minegage who specialize in educational Minecraft worlds, the setting of the Elementia Chronicles was brought to life in Minecraft.

However, rather than just have this be another generic Minecraft city, Sean and his team fleshed out a vision for this map, and ended up creating something more substantial. Rather than turning this world into a server, he instead opted to release the world as a downloadable map, and he issued a challenge to the fans of the Elementia Chronicles: explore and play in this world, but also change it, modify it, and build in it however you want.



As the Elementia Chronicles is a series of novels, children had to use their imaginations while reading. As they read about epic battles, sweeping landscapes, and iconic locations, they no doubt formulated ideas in their head about what all these things looked like. If the Elementia world were a server that the children could join but not modify, they would no doubt be left at least a little bit disappointed that certain locations didn't look the same as they had imagined them. However, as a downloadable map, kids have the freedom to build, destroy, customize and modify the world however they see fit, with free reign to shape the author's vision of Elementia into their own vision of Elementia.

The map was released in October of 2016, and it has been a success thus far. VA Hagan, teacher and Minecraft club leader at Hampton City Schools in Pennsylvania, says that her students enjoy bringing to life the locations that they read about, and changing the world

The Elementia Chronicles



The Elementia Chronicles

so that it more closely resembled what they had imagined. Lynne Telfer, a Minecraft educator from Melbourne, Australia, speaks highly of the map, describing her experience with it in her class.



"When do you actually get a chance to walk around in a world made from imagination without even leaving the classroom? My Minecraft club [has] been able to truly connect with the wonderful adventures of [the Elementia Chronicles] as they are able to explore and create the world of Elementia and Element City itself. The students get excited when they recognize and place where a significant thing happened and even want to change the build as they recreate the event! We love the fact we can build our own version of places in the book! We can make our own Adorian Village or Noctem Base [from the book]!"

"They say a movie can bring a book to life, but [a] virtual world like the Elementia world brings the book to reality! We cannot take for granted how well the story and map have inspired and continue to inspire our students in literacy, problem solving, enthusiasm and team work."

The map is available as a free download from www.sfaywolfe.com, and is compatible with all PC versions of Minecraft. Whether you are a teacher looking to inspire students, a fan of the Elementia Chronicles looking to explore the world of the book series, or a casual builder, the Element City map is more than just a map... it is imagination come to life, in all of its fun and wonder, and it's ready for you to make it your own.



Sean Fay-Wolfe is available for presentations on the writing process in person or via Skype. Go to www.sfaywolfe.com for more information, teacher testimonials, and to book a presentation for your school, library, bookstore, scout troop etc.

The background of the image consists of a dense, perspective-viewed grid of numerous red and orange printed circuit boards (PCBs). These PCBs are densely packed, creating a textured, layered effect that recedes into the distance. Each PCB features a complex pattern of gold-colored metal traces and various electronic components, though they are mostly obscured by the overlapping nature of the grid.

TECH NEWS

News

Blockworks Eats GoCreative

The ever expanding ranks of @BlockWorksYT swelled further this month with an assimilation of talent from @GoCreativeMC. Their Minecraft build team has joined BlockWorks, and our understanding is the GoCreative will continue to pursue non-Minecraft opportunities.

Massive Fireworks Filter

@RedStonerLabs has created a Fireworks Filter for MCEdit that creates complex explosions.
<https://twitter.com/RedstonerLabs/status/802397173610672128>

Command Combiner Pro

@JustMrGaretto released Command Combiner Pro, a web console development environment for programmatically creating one-command complex command block contraptions. Support is provided for functions, parameters, trigonometry, and much more. The release video:

<https://www.youtube.com/watch?v=YVfuuA-UtkThe> site:
<https://mrgarretto.com/cmdcombinerpro>

Minecon Map Making Videos

All Map Making videos from Minecon 2016 are now available via YouTube channel
<https://www.youtube.com/TeamMojang>:

- The Art of Storytelling and Narrative in Minecraft Maps
- Storytelling Through Minecraft
- Rube Goldberg Machines, Roller Coasters & Mega Contraptions
- Learning to Make Maps in Minecraft
- Game Design and Development with Minecraft
- BlockWorks - A Minecraft Studio
- Enhancing Vanilla With Command Blocks

Spooky Maps

Minecraft Maps sometimes come in waves themed around holidays. Halloween 2016 was a bumper crop of spooky builds and adventures for you to explore. While it is tempting to do a seasonal roundup, there's more than enough content out there for you to find with a few well crafted Google searches. (Don't use Bing. It's not very good - Ed).

One of the better map index sites is Minecraft Maps. It has a category for Horror maps, which is handy if you are into that sort of thing:
<http://www.minecraftmaps.com/horror-maps>

One standout map in terms of mechanics is Unsighted Shadow by @MineMakersFR and @GreenLenux



Spectacularly moody,

Download:

<http://minemakers.net/unsighted-shadow/>

Festive Maps

Checkout @NemPlayer's Advent Calendar for holiday count-down challenges and mini games:
<http://www.minecraftforum.net/forums/mapping-and-modding/maps/2762688-minigame-advent-calendar-24-minigames>

/help!

Hello everyone! My name is iNkoR international, and in this issue of MapMaking Magazine we will cover a very useful command for custom effects - "/playsound". It's used to play sounds (wow!). The json of command was changed in 1.9 and can confuse map-makers who just moved to new versions. And that is why I'm here: to "/help" you!

To begin with, let's remember the good old usage of "/playsound" back in the day when it was added. Here's an example: /playsound mob.wither.spawn @a ~ ~ ~ 1 1 1
"mob.wither.spawn" is the name of the sound. "@a" is the selector for our sound. "~~~" is the coordinates of the sound (they can be, of course, be changed to any other values). "1 1 1" are the following: volume, pitch and minimum volume.

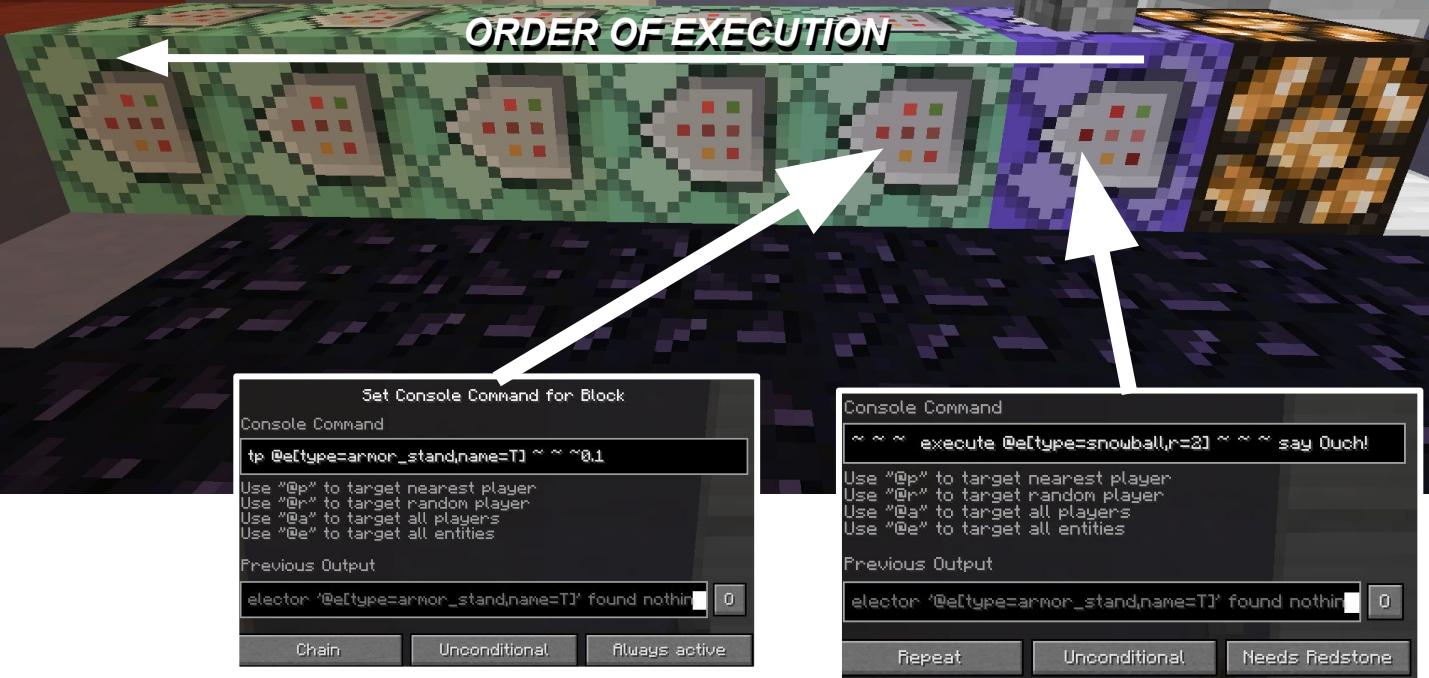
Those are pretty much self-explanatory. But what about the changes that were introduced to us in Minecraft 1.9? Well, let's see.

Now, the same command from above needs to look like this to function: /playsound entity.wither.spawn master @a ~ ~ ~ 1 1 1. So what changed? The main part is that names of the sounds were edited. To see the full lists of sounds, follow this link: <http://minecraft.gamepedia.com/Sounds..json>. Now, after each sound's name you need to write the sound's source. The following are all the sources: ambient, block, hostile, master, music, neutral, player, record, voice, weather. All of them are present in the settings.

Find me on Twitter @iNkoR_the_2nd if you have any questions. Tell me about your problem and I might "/help" you in the next issue.

HOW TO COMMAND BLOCK

REDSTONE POWER



Command blocks are powerful tools when configured correctly. Here are some tips to get you started:

- 1) Command blocks only do something if they are configured to run. There are many ways to do this, the most obvious is to send a redstone signal into the block. You can simply use a button!
- 2) You can set up a simple chain of commands as shown above, with the pointy end of the arrow facing the next Command Block to execute.
- 3) The Command Block edit interface has a section called 'Previous Output' which gives you essential information about what the Command Block is doing.
- 4) Consider using an external tool to create your Command Block contraptions using a text editor. You can build libraries of game logic this way. See previous issues for links and more details.

About this Issue's Cover

This issue we took some effort in designing and creating the cover to make sure it properly communicated the theme of the month: Mechanics. In Minecraft the method of reaching under the game physics and swirling things around is through the mighty Command Block, a feature added in [PC snapshot 12w32a](#) for version 1.4.2.

The cover version of a Command Block has part of the block cover (ha!) removed to show some old-world mechanical innards in the form of wooden gears. The combination of simple and complex come together nicely in a suitably lit and rendered image using Jesper Öqvist's Chunky software (<http://chunky.llbit.se/>).

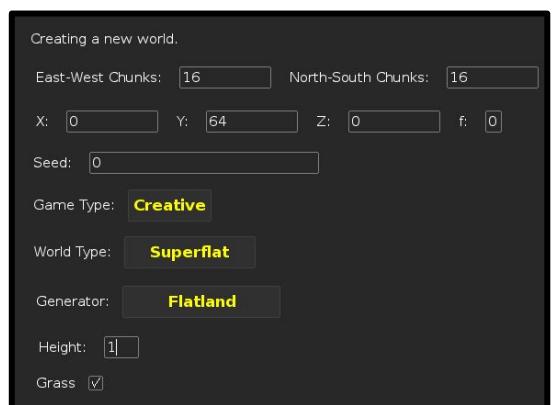


Originally we thought landscapes made of various command block types would look good, and after several hours of work we discovered... it does not.

Let's take a look at how we ended up where we did! Keep in mind there are many ways to create, and this is just one of them.

We used a world editing tool called [MCEdit](#) by [@Codewarrior0](#) and the [Minecraft community](#). MCEdit is used to place blocks.

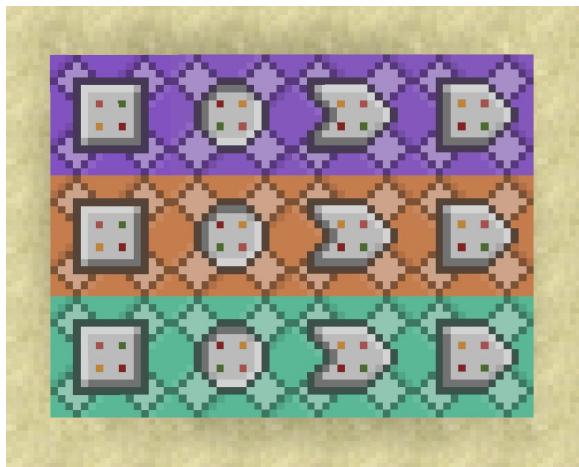
THE FIRST STEP is creating an area to edit within. This is done by going into a new world, and generating chunks. I choose to have the chunks 1 block high. This gives plenty of room for the creation.



THE SECOND STEP is to create the voxel art from the blocks and other features that Minecraft provides. For this exercise we used an advanced feature of MCEdit called "Filters". These are little programs which create blocks in particular arrangements.

For the cover we needed to create large command block. Fortunately Filters allow you to create large structures quickly without having to place each individual block by hand. I used [PNGtoCube](#) to read a picture file and creates a block for each pixel that is kind-of the same colour as the pixel ([@Sethbling](#) wrote the colour code which I borrowed).

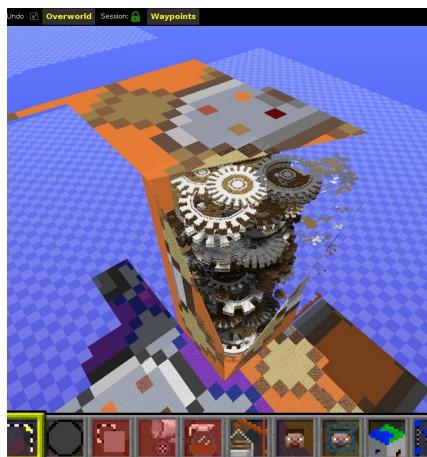
The image used for the cover originally come from a Google search for Command Block images. The texture images are from this graphic by @Samasaurus6:



(Thanks to @Anistuffs for the sleuthing)

STEP THREE involved snipping regions of the imported blocks and pasting them in a cube. This was done using the MCEdit inbuilt Copy / Paste and Rotate/Roll features.

STEP FOUR was to create all the gears that fill up the Command Block. I wrote some code to do this. Call it magic for now:



(Step 4 is the equivalent of 'drawing an owl': Start with a couple of circles, then draw the rest of the owl).

How to draw an owl

1.



2.



1. Draw some circles

2. Draw the rest of the fucking owl

STEP 5 Was to render the picture using CHUNKY. This involves opening the world in Chunky after saving it in MCEdit, and then selecting the chunks to render by holding the shift key and click-dragging around the area of interest. Then select New Scene. After Chunky reads the world, you can move the view using WASD on your keyboard in the Preview window. Once everything is lined up, set your lighting and sky options, then click START.

Once rendered you can save the image, and bring it into the Magazine for the title page.

There is a little more detail than this, but for now I hope it inspires you to try building interesting artworks yourself!

HOW TO WRITE FOR MAPMAG

MapMag is not like all other magazines. We do not have staff writers and we do not pay professionals to research and develop new content. We look for interesting content created by our community of Map Makers so we can bring together all our friends and help them connect with each other.

Because of this, it is quite hard to explain how you should write an article or share your art. If you are thinking of writing an article but are a little uncertain where to start the following tips may help:

1. The basic rule is that if you are interested in something, then there is a good chance someone else will also be interested, so start by writing down your thoughts.
2. A Mind Map may be useful. You can write out keywords and expand on them. It frees you from thinking too much about sentences.
3. Once you have a good idea about what to say you can start to provide some structure to it.
4. A good method to use is to write an introduction that sets the scene for the reader: think about answering the question “why should they care”? You know the answer to this, because you care. Write your reasons down.

5. You can then break up your ideas into a logical sequence. Write one or more paragraphs explaining each idea
6. Then provide a conclusion. You can include a call to action. This can include directing people to a video, website, or download link.
7. A good conclusion explains what has been discussed and reminds the reader why it matters.
8. Once you are happy you can contact MapMag with your article and we will work out where it can go in the magazine. Sometimes we can put similar articles together, and other times we can write something that helps link your article into the issue.

By writing an article for MapMag you can share your knowledge with the community and start a conversation. You do not need to know all the answers to have something interesting to say. Start sharing what you are good at with the rest of us, we would love to hear from you!

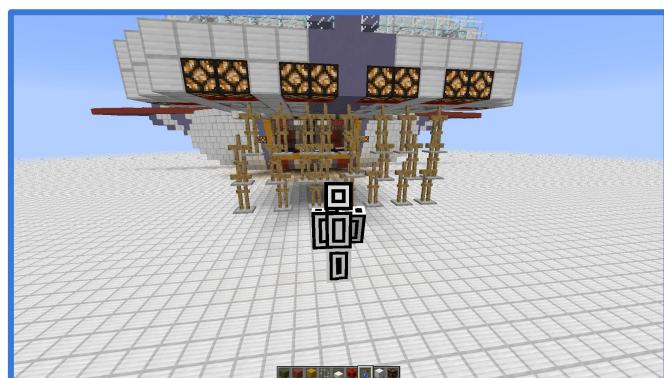
THE END

In our ongoing quest to create fun and mischief we have reached the point of our community project where we can start making the map come alive. This issue sees us add in the game mechanics!

The style of map we are making, chosen randomly in Issue 1, is a “Survival/Arena”. The theme, decided in Issue 2, is “futuristic”, with the Player on a spaceship repelling alien attackers. In Issue 3 we built the ship and the play area within it.

Because combat will be a factor, we will need a place to spawn the enemy. To do this, create a field of invisible ArmorStands with the same custom name. These can randomly be targeted to summon entities as required in each attack wave:

```
/summon minecraft:armor_stand ~ ~ ~  
{CustomName:spawner,NoAI:1,  
NoGravity:1,Invulnerable:1,Invisible:1}
```



See <https://www.youtube.com/watch?v=vuVuZwaCqyE> for a sample of the game mechanic we are developing

The next step is to randomly spawn aliens. Later we will put this on a timer that we can adjust to make the game more challenging the longer you play it. For the basic alien enemy we will use the new totem item introduced in Minecraft PC v1.11:

```
/execute  
@r[name=spawner,type=armor_stand] ~ ~ ~ summon minecraft:armor_stand ~ ~ ~  
{CustomName:T,  
ArmorItems:[{}],{},{}},{id:totem,Count:1}],  
Invisible:1,NoAI:1,NoGravity:1}
```

Any alien needs to head toward the Player's ship, and it is the Player's job to destroy the alien before it gets inside. We need a way to send the alien forward:

```
tp @e[type=armor_stand,name=T] ~ ~ ~ 1
```

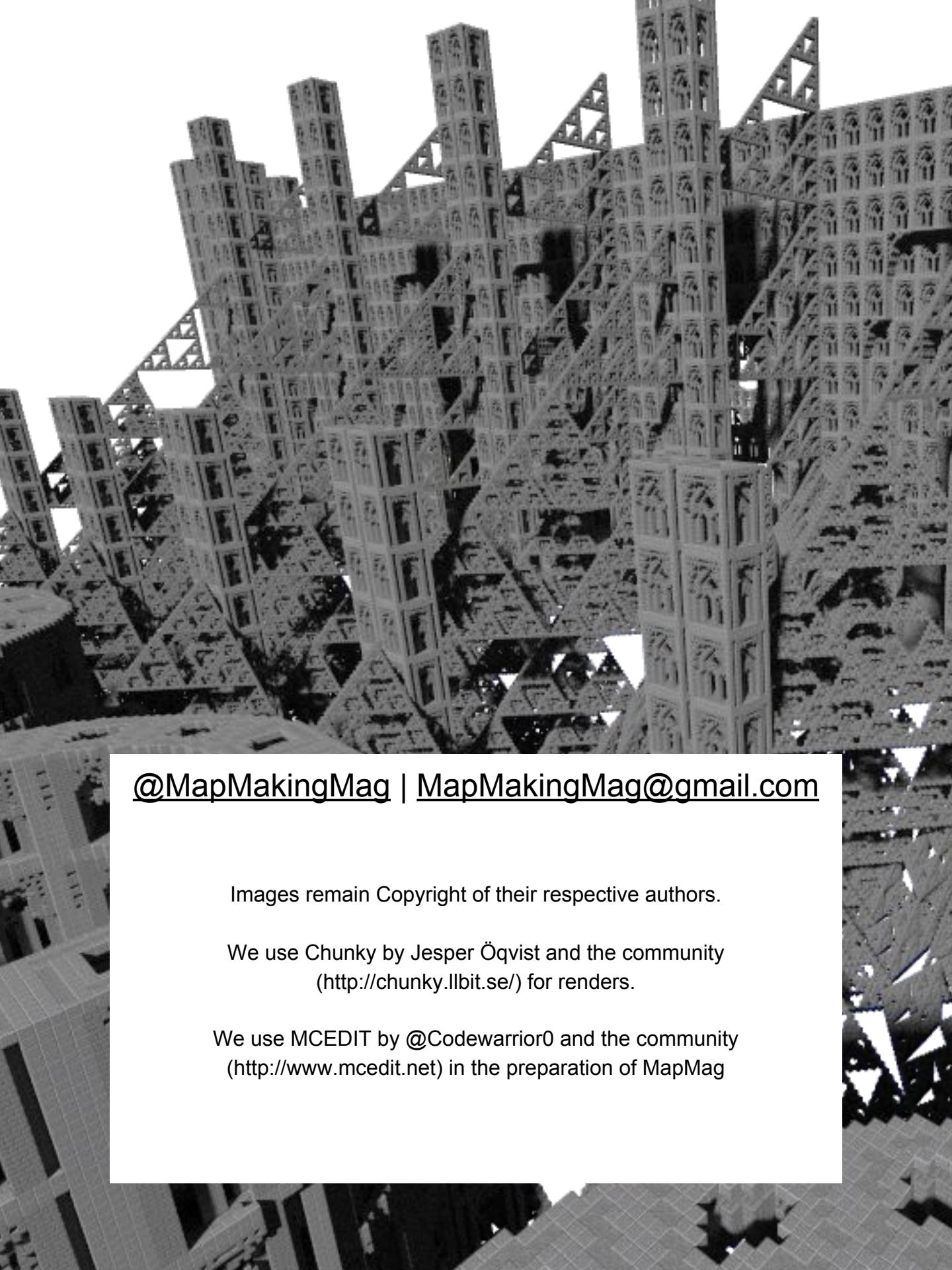
When a player lands a snowball on an alien, we make it die:

```
/execute @e[type=snowball] ~ ~ ~ kill  
@e[type=armor_stand,name=T,r=2,c=1]
```

Some particle effects to hint at the aliens jetting their way forward:

```
/execute @r[type=armor_stand,name=T]  
~ ~ ~ /particle cloud ~ ~2 ~ -0.5 0 0 0 0.01  
1 force
```

That's it for now!



@MapMakingMag | MapMakingMag@gmail.com

Images remain Copyright of their respective authors.

We use Chunky by Jesper Öqvist and the community
(<http://chunky.llbit.se/>) for renders.

We use MCEDIT by @Codewarrior0 and the community
(<http://www.mcedit.net>) in the preparation of MapMag