# PART 1: Factorio Archipelago Setup Guide for Windows (Steam)

1) Purchase Factorio on Steam and Register an account.

> → *Fuzzy on the details here since it's been a while - I think you should be able to create an account inside Factorio at the main menu by going to Settings -> Other*

2) Go to https://www.factorio.com/download and login to the website with your account. This should unlock all the downloads available for the full game.

3) Download the full client in .zip format:
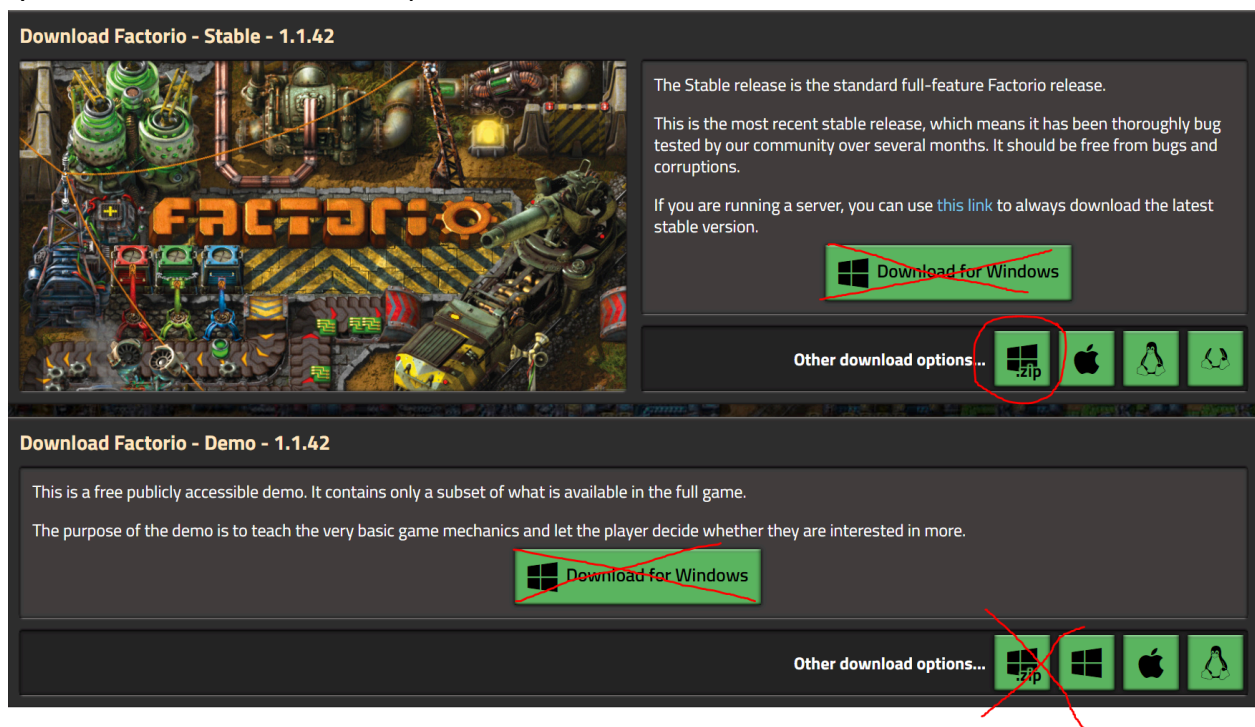
4) Extract the newly downloaded client to a location where you have full read/write privileges (i.e. **not** into C:\Program Files (x86)\. This will be referred to as the "stand-alone Factorio" in the rest of the guide

5) Launch your stand-alone Factorio by launching **\factorio\bin\x64\factorio.exe.** This will create missing folders such as the /config/ folder and /mods/ folder. Your stand-alone factorio folder should have a folder structure looking something like this:

> This PC > Lenovo (D:) > Program Files > Factorio

Name	Date modified	Type	Size
bin	6/4/2021 8:55 PM	File folder	
config	6/4/2021 9:07 PM	File folder	
data	10/23/2021 6:16 PM	File folder	
doc-html	10/23/2021 6:16 PM	File folder	
mods	10/24/2021 2:35 PM	File folder	
saves	10/24/2021 2:31 PM	File folder	
script-output	6/25/2021 6:31 PM	File folder	
temp	10/24/2021 3:57 PM	File folder	
.lock	10/24/2021 3:57 PM	LOCK File	0 KB
_autosave5.zip	7/28/2021 11:41 PM	Compressed (zipped)...	2,853 KB
achievements.dat	7/19/2021 9:45 PM	DAT File	2 KB
achievements-modded.dat	10/23/2021 6:21 PM	DAT File	3 KB
blueprint-storage.dat	6/4/2021 9:08 PM	DAT File	1 KB
config	6/4/2021 8:57 PM	Shortcut	1 KB
config-path.cfg	6/4/2021 9:03 PM	CFG File	1 KB
crop-cache.dat	10/23/2021 6:16 PM	DAT File	1,758 KB
factorio-current.log	10/24/2021 3:57 PM	Text Document	3 KB
factorio-previous.log	10/24/2021 3:57 PM	Text Document	3 KB
mods	6/4/2021 8:57 PM	Shortcut	1 KB
player-data.json	10/24/2021 2:34 PM	JSON File	11 KB
saves	6/4/2021 8:57 PM	Shortcut	1 KB
server-adminlist.json	10/23/2021 8:12 PM	JSON File	1 KB
unins000.dat	6/4/2021 8:57 PM	DAT File	2,441 KB
unins000.exe	6/4/2021 8:54 PM	Application	1,169 KB

6) Open the **/config/** folder and then open **config.ini** in Notepad. Confirm at the top that the following lines are present:

[path]
read-data=__PATH__executable__\..\..\data
write-data=__PATH__executable__\..\..


```
config.ini - Notepad

File  Edit  Format  View  Help
; version=9
; This is INI file : https://en.wikipedia.org/wiki/INI_file#Format
; Semicolons (;) at the beginning of the line indicate a comment. Comment lines are ignored.
[path]
read-data=__PATH__executable__\..\..\data
write-data=__PATH__executable__\..\..

[general]
locale=

[other]
; Options: true, false
; verbose-logging=false

; Options: true, false
; log-saving-statistics=false

; autosave-interval=5
```

7) Download and install Setup.Archipelago.0.#.#.exe, the latest archipelago software from https://github.com/ArchipelagoMW/Archipelago/releases/. Make sure to have Factorio selected as a game when prompted during the install, along with any other games you may want to play in the future. This should install the archipelago software by default to **C:\ProgramData\Archipelago\.** The install folder should look something like this:

Name	Date modified	Type	Size
data	10/15/2021 11:46 PM	File folder	
EnemizerCLI	10/15/2021 11:46 PM	File folder	
lib	10/15/2021 11:46 PM	File folder	
logs	8/28/2021 4:03 PM	File folder	
output	10/24/2021 10:38 AM	File folder	
Players	10/24/2021 8:36 PM	File folder	
QUsb2Snes	6/18/2021 6:22 PM	File folder	
SNI	10/15/2021 11:46 PM	File folder	
_persistent_storage.yaml	9/25/2021 12:45 AM	YAML File	233 KB
ArchipelagoFactorioClient.exe	10/15/2021 11:10 PM	Application	240 KB
ArchipelagoGenerate.exe	10/15/2021 11:10 PM	Application	236 KB
ArchipelagoLttPAdjuster.exe	10/15/2021 11:10 PM	Application	240 KB
ArchipelagoLttPClient.exe	10/15/2021 11:10 PM	Application	240 KB
ArchipelagoServer.exe	10/15/2021 11:10 PM	Application	236 KB
ArchipelagoTextClient.exe	10/15/2021 11:10 PM	Application	240 KB
host.yaml	10/20/2021 6:51 PM	YAML File	5 KB
LICENSE	10/15/2021 11:10 PM	File	2 KB
manifest.json	10/15/2021 11:10 PM	JSON File	1 KB
meta.yaml	10/15/2021 11:10 PM	YAML File	4 KB
python3.dll	5/3/2021 11:54 AM	Application extension	59 KB
python38.dll	5/3/2021 11:54 AM	Application extension	4,113 KB
unins000.dat	10/15/2021 11:46 PM	DAT File	2,316 KB
unins000.exe	10/15/2021 11:45 PM	Application	3,256 KB
unins000.msg	10/15/2021 11:46 PM	MSG File	24 KB
vcruntime140.dll	4/6/2021 2:25 PM	Application extension	94 KB

8) In the Archipelago folder, open **hosts.yaml** in Notepad. Near the bottom of the hosts.yaml file will be a factorio_options section, under which an executable path will be listed. This path needs to be updated to point to the factorio.exe in your stand-alone factorio installation. The format for this path also requires double back-slashes in-between each folder in the path. It's also a good idea to put quotes around the path.

For example, if your stand-alone Factorio was extracted to **D:\Program Files\factorio**, your executable should be set to:
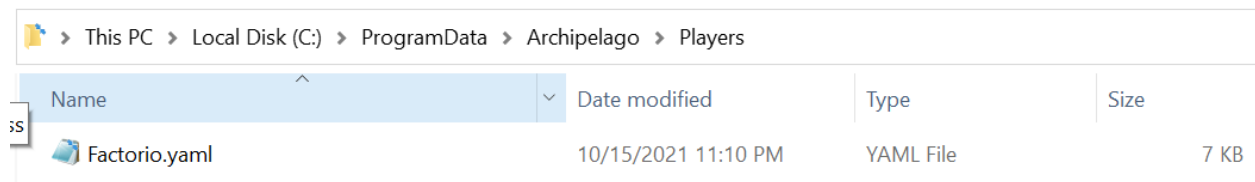
factorio_options:
  executable: **"D:\\Program Files\\factorio\\bin\\x64\\factorio"**

Note: This line will be overwritten each time you install a new version of Archipelago, so don't forget to reset it with each new version.

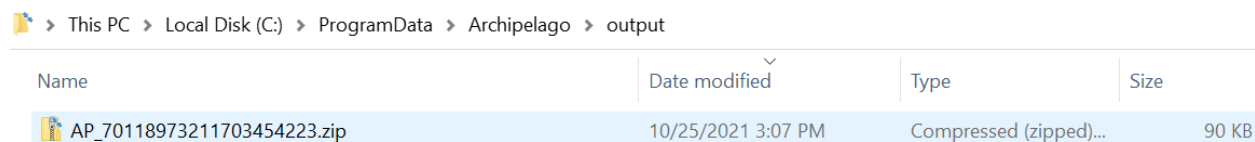# PART 2: Testing that your Factorio Archipelago Setup is Working

This is intended simply to be a quick test to make sure everything in part 1 was configured correctly, and that you can generate an archipelago mod and connect to your server. A more detailed explanation for customizing your Factorio randomized game is later in the document.

1) In your Archipelago folder, open the **\players** folder. Inside this folder you will find a series of .yaml files, one for each different game that is currently supported in Factorio. Remove each other .yaml file except for **factorio.yaml**. (Recommended to back those other files up somewhere else in case you want to generate other games in the future).
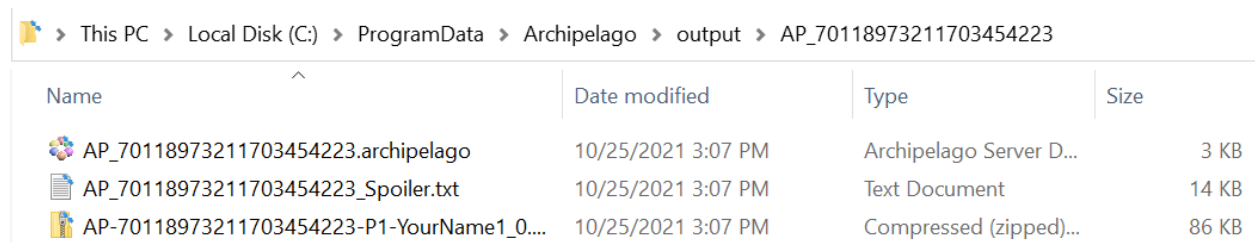
Name	Date modified	Type	Size
Factorio.yaml	10/15/2021 11:10 PM	YAML File	7 KB

> This PC > Local Disk (C:) > ProgramData > Archipelago > Players

2) With the one .yaml file in place, in your Archipelago folder run "ArchipelagoGenerate.exe". This program generates the needed files for your archipelago game, one game per .yaml file contained in **\players**. Once this program is run, check the **\output** folder in your Archipelago folder. It should contain one single .zip file, which should look like "AP_########.zip".

> This PC > Local Disk (C:) > ProgramData > Archipelago > output

Name	Date modified	Type	Size
AP_70118973211703454223.zip	10/25/2021 3:07 PM	Compressed (zipped)...	90 KB

3) Extract this zip file, which should contain three files inside - the Archipelago server that was generated, a spoiler log for the generated run, and another .zip file. This extra zip file is the Factorio mod that needs to be added to BOTH of your Factorio installations.

> This PC > Local Disk (C:) > ProgramData > Archipelago > output > AP_70118973211703454223

Name	Date modified	Type	Size
AP_70118973211703454223.archipelago	10/25/2021 3:07 PM	Archipelago Server D...	3 KB
AP_70118973211703454223_Spoiler.txt	10/25/2021 3:07 PM	Text Document	14 KB
AP-70118973211703454223-P1-YourName1_0....	10/25/2021 3:07 PM	Compressed (zipped)...	86 KB

4) Launch the Archipelago Server client. It should open up an extra window, and state that the server is listening on 0.0.0.0:38281. If it does, go ahead and minimize that window and ignore it for now.
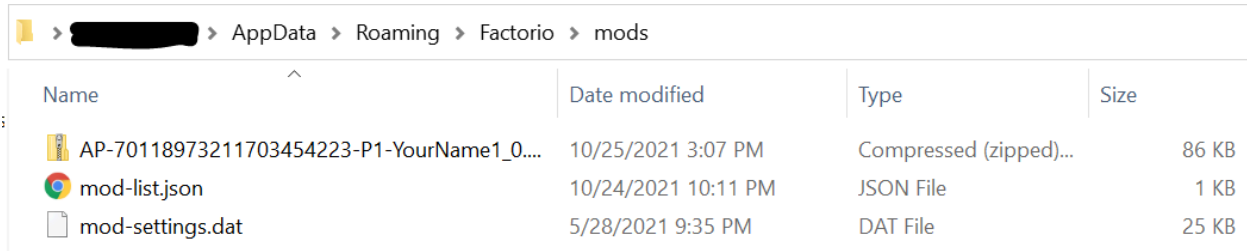

5) Copy the Factorio mod .zip file into your stand-alone Factorio installation. For the stand-alone Factorio, the mods file should be contained directly wherever you extracted your stand-alone Factorio to. If this folder is missing, be sure to launch this copy of Factorio once to generate the mods folder and other files that may be missing:

> This PC > Lenovo (D:) > Program Files > Factorio

Name	Date modified	Type	Size
bin	6/4/2021 8:55 PM	File folder	
config	6/4/2021 9:07 PM	File folder	
data	10/23/2021 6:16 PM	File folder	
doc-html	10/23/2021 6:16 PM	File folder	
mods	10/24/2021 2:35 PM	File folder	
saves	10/24/2021 2:31 PM	File folder	
script-output	6/25/2021 6:31 PM	File folder	
temp	10/24/2021 10:09 PM	File folder	

> This PC > Lenovo (D:) > Program Files > Factorio > mods

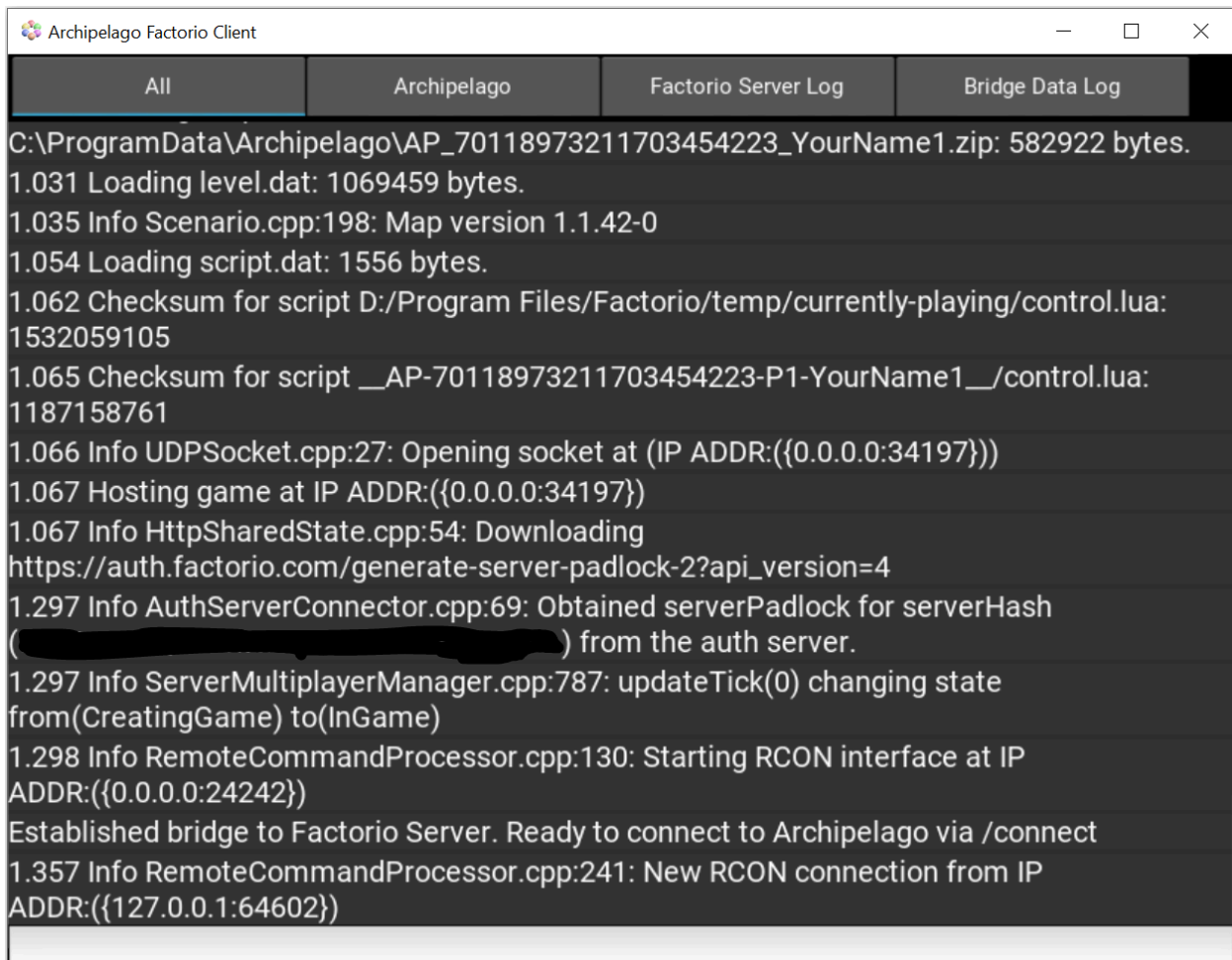| Name	Date modified	Type	Size
AP-70118973211703454223-P1-YourName1_0.1.9.zip	10/25/2021 3:07 PM	Compressed (zipped)...	86 KB
mod-list.json	10/24/2021 11:58 AM	JSON File	1 KB

6) Copy the Factorio mod into your main installation of Factorio. If installed from Steam (and possibly if also installed directly from the Factorio download page), your default mods folder will be **"C:\Users\%USERNAME%\AppData\Roaming\Factorio\mods"**

7) Back in your Archipelago folder, launch the ArchipelagoFactorioClient.exe. This will launch a client that will automatically generate your Factorio world, and then host a local Factorio multiplayer server using your stand-alone Factorio Installation. If everything is working correctly, the window should look like this:
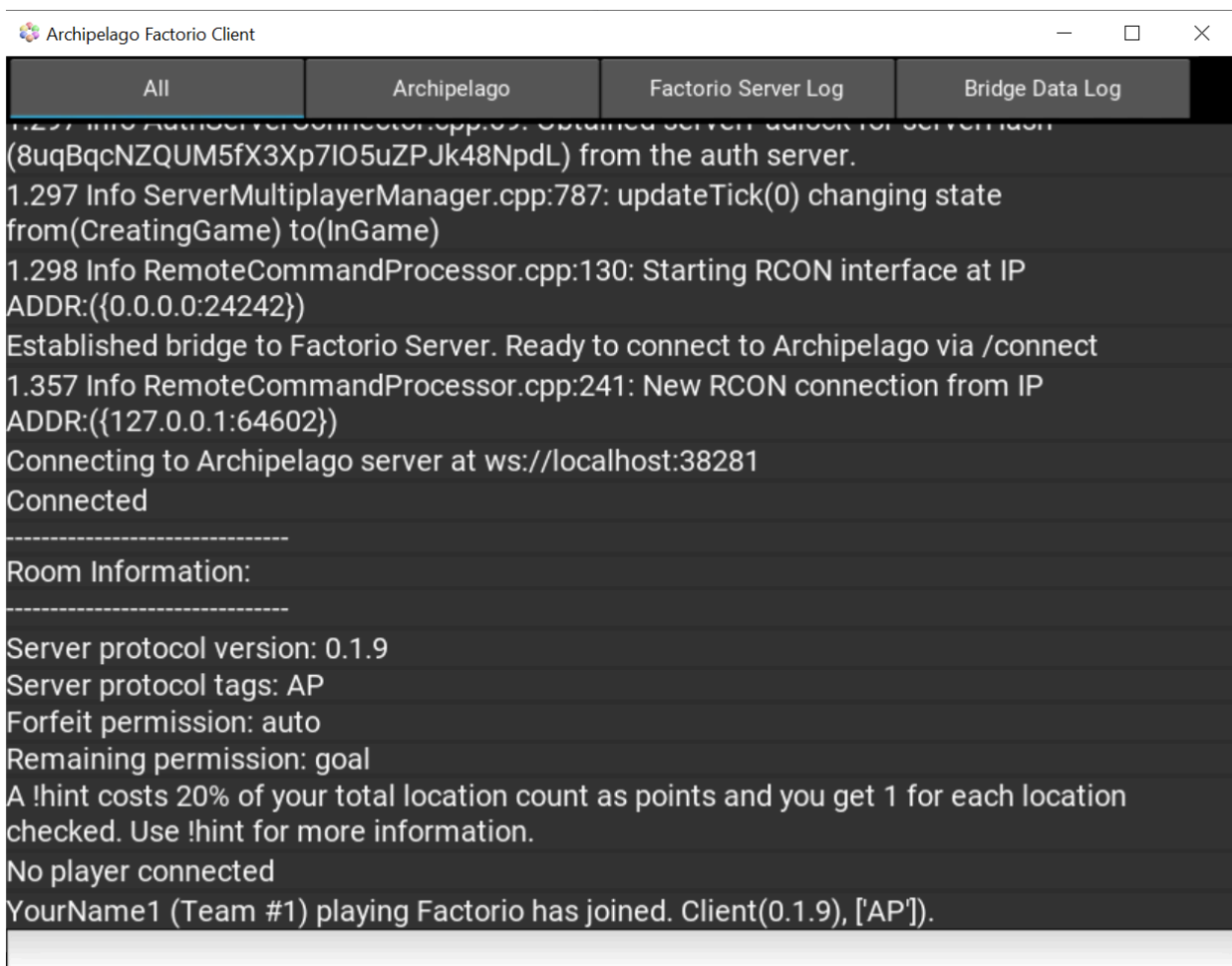
8) Connect your Archipelago Factorio Client to the Archipelago server you launched back in step #4. This is done by typing in the /connect command, followed by the ip address : port that the archipelago server is being hosted at. Since you are hosting your own local archipelago server for this test, you can connect using your local address and the default AP port: "/connect localhost:38281"

```
Established bridge to Factorio Server. Ready to connect to Archipelago via /connect
1.357 Info RemoteCommandProcessor.cpp:241: New RCON connection from IP
ADDR:({127.0.0.1:64602})
/connect localhost:38281
```

Once this is executed, you should see a welcome message:

| All | Archipelago | Factorio Server Log | Bridge Data Log |

(8uqBqcNZQUM5fX3Xp7IO5uZPJk48NpdL) from the auth server.
1.297 Info ServerMultiplayerManager.cpp:787: updateTick(0) changing state from(CreatingGame) to(InGame)
1.298 Info RemoteCommandProcessor.cpp:130: Starting RCON interface at IP ADDR:({0.0.0.0:24242})
Established bridge to Factorio Server. Ready to connect to Archipelago via /connect
1.357 Info RemoteCommandProcessor.cpp:241: New RCON connection from IP ADDR:({127.0.0.1:64602})
Connecting to Archipelago server at ws://localhost:38281
Connected

Room Information:

Server protocol version: 0.1.9
Server protocol tags: AP
Forfeit permission: auto
Remaining permission: goal
A !hint costs 20% of your total location count as points and you get 1 for each location checked. Use !hint for more information.
No player connected
YourName1 (Team #1) playing Factorio has joined. Client(0.1.9), ['AP']).

9) Launch Factorio on Steam. Once at the main menu, go to Multiplayer -> Connect to address, then type in 127.0.0.1
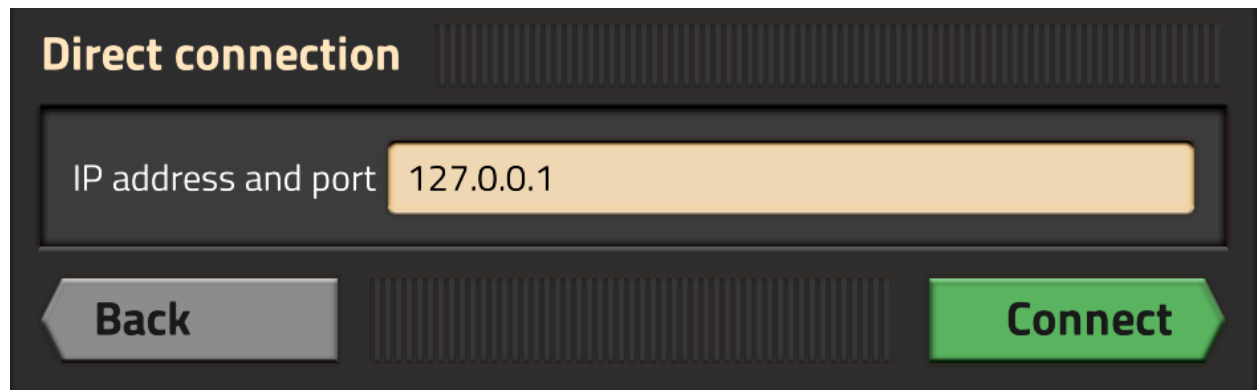
10) You should now be successfully connected to your randomized Factorio game! By successfully connecting your AP Factorio server to the main archipelago server and then logging into the game, that should demonstrate that all configurations have been setup correctly, and you're ready to generate and play Archipelago Factorio games.

You can continue in this world and research one thing to further confirm that the AP server and Factorio server are communicating correctly. If you research a technology, in the corner you should see an Archipelago message relaying who found what item. You should also receive a free stack of items that are associated with the technology that you researched:
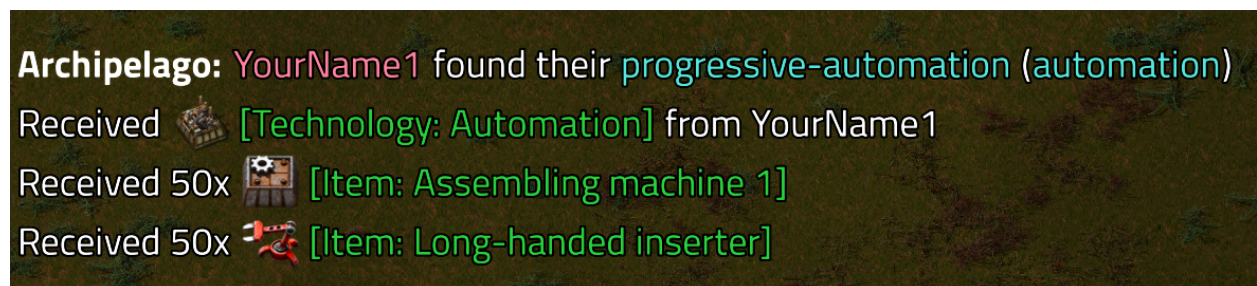
Part 3: Introduction to the Factorio Randomizer and Setting Up Your Factorio Randomized World Settings - Factorio.yaml

Just like in vanilla Factorio, your goal to win the game is to launch your first rocket. In a typical game, this will require you to both research the Rocket Silo technology, and then fill the silo with enough ingredients to build 100 rocket parts and successfully launch the rocket.

The Archipelago randomizer gives you a large set of options to choose from through a .yaml file to configure how easy or difficult your game will be. You can setup a world where it's trivial to launch a rocket within a few hours, or you can turn up the difficulty and take days or even weeks launching your rocket. The main features offered are to configured how many different levels of science are required (You won't always have to research all the way through yellow science), the tech tree layout, the costs of all research, and even the ingredients required to craft each color of research pack.

If you're familiar with randomizers for other games, you can consider each technology researched within Factorio as a "check". The research will either send yourself a technology back to your Factorio game, or it may send an item over to another player's game, such as researching a hookshot or piece of heart for a Link to the Past player.

In your Archipelago folder, there will be a folder called **\Players**. Inside this folder will be a set of .yaml files that can be edited with Notepad or any other text editor. Each of these files contains the configurable options for each game integrated with Archipelago in the currently installed version. You are interested in the **Factorio.yaml** file**.**

This file contains all the different ways for you to customize your own factorio game, such as which science packs are required, science pack ingredient randomization, and research costs, amongst many, many more options. The file itself is commented to give a description of what each configuration option affects within your Factorio world.

It's important to note the comment at the start of the document, which is copied here:

 # How do I use it?
 # The options in this file are weighted. This means the higher number you assign to a value, the more
 # chances you have for that option to be chosen. For example, an option like this:
#
 # map_shuffle:
 #   on: 5
 #   off: 15
#
 # Means you have 5 chances for map shuffle to occur, and 15 chances for map shuffle to be turned off

When choosing your options, if you want to enforce a specific setting, you need to make sure the option you want is set to 1 (or greater), and all other options are set to 0.

Below is a list of the main configurable options (in no particular order) for Factorio in Archipelago (**work in progress**):

NAME: Don't forget to give yourself a name near the top of the .yaml file. You don't want to be the guy known as "YourName_1" for the whole multiworld.

name: YourName{number}
#{player} will be replaced with the player's slot number.
#{PLAYER} will be replaced with the player's slot number if that slot number is greater than 1.
#{number} will be replaced with the counter value of the name.
#{NUMBER} will be replaced with the counter value of the name if the counter value is greater than 1.

MAX_SCIENCE_PACK: This option sets the highest level of science pack you will ever need to produce to launch your rocket or to find required advancement items for other players in your multiworld. Your rocket silo research will always require all science packs up to and including the science pack you have configured. In the example below, logistics science pack (green science) is the max science pack, so your rocket silo technology will require both red and green science to research, and all other technologies in the game

  max_science_pack: # Maximum level of science pack required to complete the game.
   automation_science_pack: 0
   logistic_science_pack: 1
   military_science_pack: 0
   chemical_science_pack: 0
   production_science_pack: 0
   utility_science_pack: 0
   space_science_pack: 0

RECIPE_INGREDIENTS: This option will configure two different things at once. The Rocket setting determines whether the three ingredients to build your rocket parts within your rocket silo are randomized or not. The rocket part difficulty will be tied to your **max_science_pack** setting, so the random ingredients picked for your rocket parts will be of appropriate difficulty (i.e. no nuclear fuel requirements for a game with a max science level of green).

The science_pack setting will randomize BOTH the rocket part ingredients AND the ingredients needed to produce all colors of science packs. The ingredients picked for each science pack will

not exceed a certain difficulty (i.e. no nuclear fuel requirements to produce a green science pack).

Important note: If you set science_pack to 1, it will also randomize the rocket. Your choices are no randomization (Both set to 0), rocket part randomization (rocket set to 1) or both science pack and rocket part randomization (science_pack set to 1). If you set both rocket and science_pack to 1, that is telling the game generator to give you a 50/50 chance of generating a game with only rocket parts randomized, or generating a game with both randomized.

recipe_ingredients: *# Select if rocket, or rocket + science pack ingredients should be random.*
  rocket: 0
  science_pack: 1

TECH_TREE_INFORMATION: This option is used to hide exactly what technologies or items will be awarded when a particular technology is researched. When it is set to **full**, you will be able to see exactly what will be received without having to fully research that technology. When set to **advancement**, you will no longer be able to know what will be awarded when any specific technology is researched. Advancement will split technologies into two different categories, shown by two different icons:

Important Advancement Item	Non-advancement Item

If the setting is set to **none**, then every single technology will be marked as an important advancement item, so you'll never know whether you're researching a new science pack or three rupees.

tech_tree_information: # How much information should be displayed in the tech tree.
   none: 0
   advancement: 0
   full: 50

TECH_COST: This option determines how many science packs it requires to complete a particular research. The default (normal) means that to research any particular technology, it require the same number of science packs as the vanilia game (i.e. Automation requires 10 science packs, Spidertron requires 2500 science packs). Setting the value to kind reduces those science pack costs by 50% (i.e. Automation requires 5 science packs, Spidertron requires 1250 science packs). If you want to play a longer (expensive) game, you can set the value to hard or higher.

 tech_cost: # How expensive are the technologies.
   very_easy: 0
   easy: 0
   kind: 0
   normal: 50
   hard: 0
   very_hard: 0
   insane: 0

TECH_TREE_LAYOUT: This determines how the technologies are laid out in the randomized tech tree. The original tech tree is not used in Archipelago, instead being replaced with several different options. Single makes it so that no technology is a prerequisite of any other tech. Examples of each tech tree shape:

```
Diamond:      Pyramid:       Funnel:     Single:
   O             O          O  O  O         O
  / \           / \          \ / \ /
 O   O         O   O          O   O
  \ /         / \/ \           \ /
   O         O  O  O            O
```
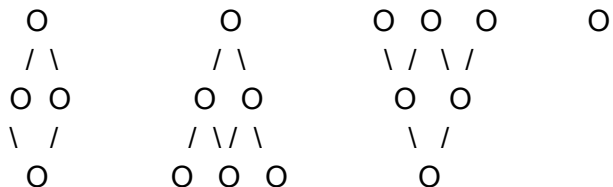
 tech_tree_layout: # Selects how the tech tree nodes are interwoven.
   single: 50
   small_diamonds: 0
   medium_diamonds: 0

large_diamonds: 0
small_pyramids: 0
medium_pyramids: 0
large_pyramids: 0
small_funnels: 0
medium_funnels: 0
large_funnels: 0

FREE_SAMPLES: This option allows all players on the server to receive items whenever a technology is received. In a case where Automation is researched (which provides Factories and Long-handed Inserters), a full stack provides 50 of each item to each player, a half stack provides 25, a single craft provides 1 of each, and none would give no free items.

Important Note: This setting can be very important - if it is set to none, you will be required to build the rocket silo itself before you can launch a rocket and win the game. If set to single_craft or higher, then you are provided a free "stack" of one rocket silo when the Rocket Silo technology is researched.

free_samples: *# Get free items with your technologies.*
none: 0
single_craft: 0
half_stack: 0
stack: 50

Part 4: Generating and Hosting Your Game on Archipelago.gg

If you don't want to fight with forwarding ports and hosting your own Archipelago server to play on, the main Archipelago.gg website can host your Archipelago games for you.

You have two options for hosting a game:

A) Generate an Archipelago game locally, and upload that game to the website:

1) Gather up all the .yaml files for the games that you want to play together. Remember that each .yaml file will generate one game. For example, if you wanted to play a multiworld that contained one Link to the Past player and two Factorio players, you would need to have three different .yaml files - one for aLttP, and two different files for the two different Factorio players.

The settings for each game do not need to match - for example one Factorio player could have their max science pack set to blue science in their .yaml file, while the other factorio player could have their max science pack set to green science. This gives each player the option to generate a world specifically to their liking, without affecting any other players' games.

2) Copy all your .yaml files into the \Players\ folder in your local Archipelago installation (typically at C:\ProgramData\Archipelago\Players).

3) In the main Archipelago folder, run "**ArchipelagoGenerate.exe**". This will read each .yaml file contained in your **\Players** folder, and generate an Archipelago server and corresponding files for each requested game, one per .yaml file. The generated game is placed in the **\output** folder as a single .zip file.

4) Go to https://archipelago.gg/uploads, and then click Upload File. Select the .zip file that was generated in your **\output** folder. If everything was generated correctly, you should be redirected to your game-specific room:

Seed Info

Seed: vagqzmk6QVuuCUnj7TbeGw
Created: 10/25/2021, 8:30:06 PM
Spoiler: Download
Rooms:
  • Create New Room

5) To connect your Factorio game to this server, continue to section C) below.

B) Use the website to both generate and host your Archipelago game:

1) Gather up all the .yaml files for the games that you want to play together. Remember that each .yaml file will generate one game. For example, if you wanted to play a multiworld that contained one Link to the Past player and two Factorio players, you would need to have three different .yaml files - one for aLttP, and two different files for the two different Factorio players.

The settings for each game do not need to match - for example one Factorio player could have their max science pack set to blue science in their .yaml file, while the other factorio player could have their max science pack set to green science. This gives each player the option to generate a world specifically to their liking, without affecting any other players' games.

2) Compress all the collected .yaml files into a single.zip file.

3) Go to https://archipelago.gg/generate. You can typically leave the Forfeit and Hint Cost options at their defaults, or adjust them to your preference. Click on Upload File, and then upload the .zip file containing all your .yaml files.

4) If an error is returned due to an invalid .yaml file, correct that error and re-upload the corrected file(s). If the files are accepted, you should be redirected to a newly created room:

5) To connect your Factorio game to this server, continue to section C) below.

C) Connect your Factorio game to the Archipelago server:

1) Click on Create New Room. This will launch the server and provide a link for each mod file required for each player included in your game. The room will also contain a connect string such as "/connect archipelago.gg:62404" that will tell you which port to use when connecting to archipelago.gg in your respective game clients. Share this room link with the other players participating in your generated multiworld game.

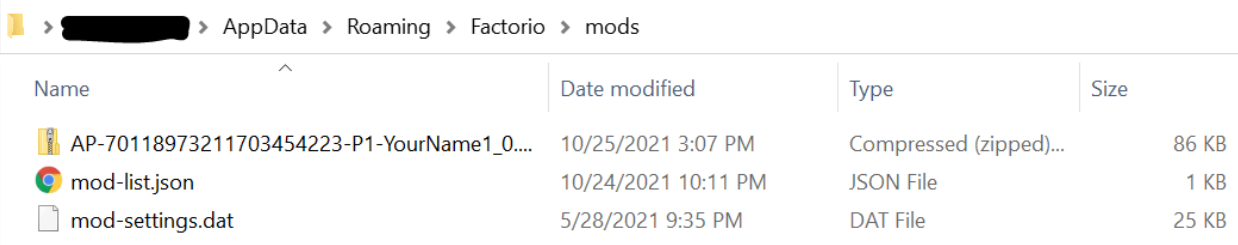**2)** Find the link to your specifically named mod, and download it from the Archipelago.gg room

- <u>Mod for player 1 - YourName1</u>

Copy the Factorio mod .zip file into your stand-alone Factorio installation. For the stand-alone Factorio, the mods file should be contained directly wherever you extracted your stand-alone Factorio to. If this folder is missing, be sure to launch this copy of Factorio once to generate the mods folder and other files that may be missing:

> This PC > Lenovo (D:) > Program Files > Factorio			
Name	Date modified	Type	Size
bin	6/4/2021 8:55 PM	File folder	
config	6/4/2021 9:07 PM	File folder	
data	10/23/2021 6:16 PM	File folder	
doc-html	10/23/2021 6:16 PM	File folder	
mods	10/24/2021 2:35 PM	File folder	
saves	10/24/2021 2:31 PM	File folder	
script-output	6/25/2021 6:31 PM	File folder	
temp	10/24/2021 10:09 PM	File folder	

> This PC > Lenovo (D:) > Program Files > Factorio > mods			
Name	Date modified	Type	Size
AP-70118973211703454223-P1-YourName1_0.1.9.zip	10/25/2021 3:07 PM	Compressed (zipped)...	86 KB
mod-list.json	10/24/2021 11:58 AM	JSON File	1 KB

Next, copy the Factorio mod into your main installation of Factorio. If installed from Steam (and possibly if also installed directly from the Factorio download page), your default mods folder will be **"C:\Users\%USERNAME%\AppData\Roaming\Factorio\mods"**

Name	Date modified	Type	Size
📦 AP-70118973211703454223-P1-YourName1_0....	10/25/2021 3:07 PM	Compressed (zipped)...	86 KB
🔵 mod-list.json	10/24/2021 10:11 PM	JSON File	1 KB
📄 mod-settings.dat	5/28/2021 9:35 PM	DAT File	25 KB

> AppData > Roaming > Factorio > mods

3) Once the mods are copied to their respective mod folders, go to your Archipelago folder and launch **"ArchipelagoFactorioClient.exe".** Once that client is launched and waiting, use the /connect command provided by your archipelago.gg room, such as:

```
Established bridge to Factorio Server. Ready to connect to Archipelago via /connect
1.282 Info RemoteCommandProcessor.cpp:241: New RCON connection from IP
ADDR:({127.0.0.1:59851})
/connect archipelago.gg:62404
```

If the connect is successful, you should see the welcome screen:

```
Connecting to Archipelago server at ws://archipelago.gg:62404
Connected
-------------------------------
Room Information:
-------------------------------
Server protocol version: 0.1.9
Server protocol tags: AP, WebHost
Forfeit permission: auto
Remaining permission: goal
A !hint costs 20% of your total location count as points and you get 1 for each location
checked. Use !hint for more information.
No player connected
YourName1 (Team #1) playing Factorio has joined. Client(0.1.9), ['AP']).
```

4) Launch your main (Steam) Factorio installation. Once at the main menu, go to Multiplayer -> Connect to address, then type in 127.0.0.1

This will connect you to your local, personal Factorio randomized world, and you're now ready to play.

Appendix A: Beginner Factorio yaml file v0.1.9 (copy this into a factorio.yaml file):

```
# What is this file?
# This file contains options which allow you to configure your multiworld experience while allowing others
# to play how they want as well.

# How do I use it?
# The options in this file are weighted. This means the higher number you assign to a value, the more
# chances you have for that option to be chosen. For example, an option like this:
#
# map_shuffle:
#   on: 5
#   off: 15
#
# Means you have 5 chances for map shuffle to occur, and 15 chances for map shuffle to be turned off

# I've never seen a file like this before. What characters am I allowed to use?
# This is a .yaml file. You are allowed to use most characters.
# To test if your yaml is valid or not, you can use this website:
# http://www.yamllint.com/

description: Default Factorio Template # Used to describe your yaml. Useful if you have multiple files
# Your name in-game. Spaces will be replaced with underscores and there is a 16 character limit
name: YourName{number}
#{player} will be replaced with the player's slot number.
#{PLAYER} will be replaced with the player's slot number if that slot number is greater than 1.
#{number} will be replaced with the counter value of the name.
#{NUMBER} will be replaced with the counter value of the name if the counter value is greater than 1.
game:
  Factorio: 1
requires:
  version: 0.1.9 # Version of Archipelago required for this yaml to work as expected.
# Shared Options supported by all games:
accessibility:
  items: 0 # Guarantees you will be able to acquire all items, but you may not be able to access all locations
  locations: 1 # Guarantees you will be able to access all locations, and therefore all items
```

none: 0 # Guarantees only that the game is beatable. You may not be able to access all locations or acquire all items
progression_balancing:
  on: 1 # A system to reduce BK, as in times during which you can't do anything by moving your items into an earlier access sphere to make it likely you have stuff to do
  off: 0 # Turn this off if you don't mind a longer multiworld, or can glitch/sequence break around missing items.
Factorio:
  max_science_pack: # Maximum level of science pack required to complete the game.
    automation_science_pack: 0
    logistic_science_pack: 1
    military_science_pack: 0
    chemical_science_pack: 0
    production_science_pack: 0
    utility_science_pack: 0
    space_science_pack: 0
  tech_tree_layout: # Selects how the tech tree nodes are interwoven.
    single: 0
    small_diamonds: 1
    medium_diamonds: 0
    large_diamonds: 0
    small_pyramids: 1
    medium_pyramids: 0
    large_pyramids: 0
    small_funnels: 1
    medium_funnels: 0
    large_funnels: 0
  tech_cost: # How expensive are the technologies.
    very_easy: 0
    easy: 0
    kind: 1
    normal: 0
    hard: 0
    very_hard: 0
    insane: 0
  silo: # Ingredients to craft rocket silo or auto-place if set to spawn.
    vanilla: 1
    randomize_recipe: 0
    spawn: 0
  free_samples: # Get free items with your technologies.
    none: 0
    single_craft: 0
    half_stack: 0
    stack: 1

```yaml
  tech_tree_information: # How much information should be displayed in the tech tree.
    none: 0
    advancement: 0
    full: 1
  starting_items:
    burner-mining-drill: 19
    stone-furnace: 19
    gun-turret: 10
  recipe_time: # randomize the time it takes for any recipe to craft, this includes smelting,
chemical lab, hand crafting etc.
    vanilla: 1
    fast: 0
    normal: 0
    slow: 0
    chaos: 0
  recipe_ingredients: # Select if rocket, or rocket + science pack ingredients should be random.
    rocket: 0
    science_pack: 1
  imported_blueprints:
    false: 0
    true: 1
  world_gen:
    autoplace_controls:
      coal:
        frequency: 2
        richness: 5
        size: 6
      copper-ore:
        frequency: 2
        richness: 5
        size: 6
      crude-oil:
        frequency: 2
        richness: 5
        size: 6
      enemy-base:
        frequency: 1
        richness: 1
        size: 1
      iron-ore:
        frequency: 2
        richness: 5
        size: 6
      stone:
```

```
      frequency: 2
      richness: 5
      size: 6
    trees:
      frequency: 1
      richness: 1
      size: 1
    uranium-ore:
      frequency: 2
      richness: 5
      size: 6
  cliff_settings:
    cliff_elevation_0: 10
    cliff_elevation_interval: 40
    name: cliff
    richness: 1
  enemy_evolution:
    destroy_factor: 0.002
    enabled: true
    pollution_factor: 9.0e-07
    time_factor: 4.0e-06
  enemy_expansion:
    enabled: true
    max_expansion_cooldown: 216000
    max_expansion_distance: 7
    min_expansion_cooldown: 14400
    settler_group_max_size: 20
    settler_group_min_size: 5
  peaceful_mode: false
  pollution:
    ageing: 1
    diffusion_ratio: 0.02
    enabled: true
    enemy_attack_pollution_consumption_modifier: 1
    min_pollution_to_damage_trees: 60
    pollution_restored_per_tree_damage: 10
  property_expression_names:
    control-setting:aux:bias: 0
    control-setting:aux:frequency:multiplier: 1
    control-setting:moisture:bias: 0
    control-setting:moisture:frequency:multiplier: 1
  seed: null
  starting_area: 1
  terrain_segmentation: 0.5
```

```
    water: 1.5

progressive:
  off: 0
  grouped_random: 0
  on: 1
evolution_traps: # Trap items that when received increase the enemy evolution.
  # you can add additional values between minimum and maximum
  0: 1 # minimum value
  4: 0 # maximum value
  random: 0
  random-low: 0
  random-high: 0
attack_traps: # Trap items that when received trigger an attack on your base.
  # you can add additional values between minimum and maximum
  0: 1 # minimum value
  4: 0 # maximum value
  random: 0
  random-low: 0
  random-high: 0
evolution_trap_increase:
  # you can add additional values between minimum and maximum
  1: 0 # minimum value
  100: 0 # maximum value
  random: 0
  random-low: 0
  random-high: 0
  10: 1
local_items: # Forces these items to be in their native world.
  []

non_local_items: # Forces these items to be outside their native world.
  []

start_inventory: # Start with these items.
  {}

start_hints: # Start with these item's locations prefilled into the !hint command.
  []

start_location_hints:
  []

exclude_locations:
```

[]