

Ogame Bot

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Abstract

Ogame is a complicated strategy game which is known for banning players who use bots, the bot created for this paper didn't not get discovered and banned and did achieve the goal of getting 10s of thousands of point in a short time.

This bot still has a ways to go before it can truly conquer the universe, however this is a difficult game that takes time and effort to truly be good at.

I. INTRODUCTION

Ogame, the online strategy game is notorious among it's community as both a long fund and tedious game as well as a brutal banner of players who don't obey the rules. Nonetheless, some developers have made attempts to create bots to automate the tedious tasks involved in this game. Most bots have ceased development due to ogame upgrades and increases in banning of players using them.

The most profitable of which is Ogame Automizer which charges players money to bot their account. This bot has ceased development since the latest version of ogame has been released, yet still players on the forum ask for continued development.

This paper address my attempt to create a bot for this game and the challenges and results of my efforts.

II. GAMEPLAY

Ogame is an online multiplayer strategy game. The game starts out with you selecting a universe and creating an account. There are many universes and each one is completely seperated from each other. Once you've created an account, you are given a planet to build onto.

The game revolves around the concept of

upgrading and waiting an amount of time for the upgrade to complete. Upgrades falls into 3 categories: buildings, research and ships. Each category has a blocking item; an item to which another of the same category can't be built. A time decreasing item; an item to which the time it takes to improve the level of that category is decreased. And lastly an improvement tree; the tree by which you can improve items to a specified level to unlock other items.

Resources are vital to the game, without which, the player literally can't do anything. There are three main forms of resources: metal, crystal, and deueterium. All forms of improvements on all three categories require some proportion of these three resources. Each improvement means the next level will follow an exponential curve of the next cost, usually by a power of 2. Dark Matter could be considered a resource, however this is a mostly real money paid resource and can be gathered in game in minute quantities, this resource isn't needed to improve the categories, but to decrease the time or decrease the resource gap needed for the improvement. Finally, energy, this resource is needed, but not consumed by a few category improvements. Energy's main point to power the producers, to which won't function at top efficiency without a specified amount of energy available.

Ogame also has ways to generate resources,

these will be called produces for this paper. The game doesn't have any built in resources (except for a tiny amount supplied at the beginning of the game), resources can only be acquired by either you improving producers, or by you raiding another player who has improved upon producers (you cannot raid energy or dark matter from other players). There are also a few other ways to get resources, all using ships. This includes harvesting, or getting resources from another player's planet's debris field after their, or opposing player's ships have been destroyed and you can harvest a fraction of the resources used to make the ships. This method only allows harvesting of metal and crystal. Lastly, expedition, which is like the in-game lottery. You can send ships on an expedition to either lose all your ships, get some resources (including dark matter), or get some ships.

Combat is an essential part of the game. It fuels the competition and to some extent the fun of the game. Some players choose to live a solitary career, these players are known as turtles, they simply build defenses and producers. This may be the simplest way to play, but it is also the slowest to advance due to diminishing returns of your own producers. By stealing or raiding other players you can increase your resources by a tremendous amount. However this means that other players view you as a way to increase their resources. Thus a method known as fleet/resource saving was invented. Fleet/resource saving is the method by which using your ships to transfer all resources and ships off your planet if you get attacked by another player.

Most gameplay is preordained by formulas, very few aspects of the game is random. This makes it a great game to simulate and automate.

III. GOALS

The main goal of this project was to automate the entire game. Selenium webframework was the main tool used to accomplish this goal. Phantomjs allowed selenium to be run on a

headless browser. Create a bot which could use an email address and create a new user. This user would then utilize algorithms to level up and conquer the universe. Twitter bots exist and this bot will have a few similar outcomes to the Twitter bot in that it will need to bypass the internal bot detection system built into ogame.org.

Another goal was to create bots to work in tandem like a hive mind. By creating multiple bots to communicate together.

IV. METHODS

Selenium framework with the phantomjs browser was the tool to automate this web game. Some http requests were mimicked to easily access data or perform some actions. Data was then saved to a database.

The bot began by using a list of created email addresses using One.com. It would then create a user using one of these email addresses on ogame.org and then verify the email address.

Once in the game, the bot would proceed to develop levels using a build simulation which devised to optimal build strategy for a particular goal. The main initial goal of the bot was to get to the point of being able to create small cargo ships. Small cargos are critical to gather more than the improved producers could create.

The attacking algorithm works as follows, initially get to small cargos, using verified gift of dark matter, this could be achieved nearly immediately in the start of the game. Then using an api's request for players, find the nearest inactive player with low points and blindly attack that player. A blind attack is one that the bot is unsure of the outcome. Then work to get espionage probes while maintaining a steady stream of attacks on that player, which if the attack becomes successful is now considered a safe target. If the attack was unsuccessful meaning the player had defenses, then that player is marked on the do not attack list in the database.

Once probes have been achieved, then probe all inactive players that are attackable. Using

the probes report you can determine if the players are safe targets, ie they have no defense. The probes can also tell you how much resources you can steal, if you don't have enough cargos to get all the resources then develop more cargos.

This constant stream of attacks on players allows the bot to quickly rise in the ranks until eventually it will get to the point of being able to get more advanced technology.

V. RESULTS

The bot was successful in achieving all goals for a single bot. The bot ran for months and still hasn't been detected as a bot. The bot achieved 10s of thousands of points and millions of resources at it's disposal as well has hundreds of cargos without any human intervention.

VI. FUTURE

The future holds a vast array of improvements to the bot including the fabled hive mind of bots. Unfortunately at this point, the bot only works on my ide thus a more user friendly program would be very beneficial.

Other features of the game are still yet to be developed, like fleet/resource saving. Right now this is untested and only works to save the fleet, resource movement is still a feature to be added. Multiple colonies are an important improvement as this would massively increase the resource output and reach of the empire. Missiles are needed to attack players with defenses and many other improvements to attack active players.