

How to run your CGS bot

CGS v1.0.5 now offers the possibility to run bots. This is the documentation that will help you in this process.

If you encountered a problem or have questions that are not covered by the [FAQ](#), please contact a [CGS admin](#).

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Prerequisites

1. Have a player account on CGS
2. Create an account on CGS that will be used by your bot
 - a. Create an account without using google connection, you need to **know your bot account username and your password** for the next steps
 - b. Set all profile information (username, avatar, country, proverb, about), you will not be able to change them later without an admin
3. Contact a [CGS admin](#) and inform him that you want to run a bot on CGS.

Don't forget to include this information:

- a. Your CGS bot username
 - b. Your CGS player username (used to link bot to your player account)
 - c. Why do you want to run a bot on CGS?
 - d. Which bot do you plan to run on CGS? (katago, GNUGo, other)
 - e. How do you plan to run your bot? (personal computer, server, google colab, etc...)
4. Wait until the admin responds to your email.

If your request is accepted, your bot account will be marked officially as bot, you will not be able to change bot profile at this point without the help of an admin.

In the email response you will receive this information:

 - a. CGS Client Id
 - b. CGS Client Secret

Run the Bot

You can run bots on your personal computer or a server using Windows or Linux. Alternatively you can also use [Google colab](#).

Do not kill a bot while it is playing a game, if you can avoid it.

Google Colab (the easiest one)

This is the easiest method because you don't need a good computer and all the setup is ready to run a bot like GNUGo or Katago! The major disadvantage is that it cannot run permanently...

Running a bot on google colab mean, that the bot is running on a google server for free. You can even have GPUs to run bots that need one like Katago.

There are still limitations like the maximum running duration of 12 hours, and the need to keep the webpage active. (or optionally you can pay to remove these limits).

In order to run your bot on colab:

1. You need to have a google account to connect to google colab
2. Open [this colab notebook](#)
3. Make a copy on your google drive
In the top menu bar: File > Save a copy in Drive
4. In your copy, change settings in the first part of the script
 - a. **CGSClientId**: the client id you received from the admin
 - b. **CGSClientSecret**: the client secret you received from the admin
 - c. **CGSUsername**: the username to login with your bot account
 - d. **CGSPassword**: the password to login with your bot account
 - e. **GTPEngine**: select one bot engine available between:
 - i. GNUGo: ~7 kyu bot
 - ii. Katago: very strong bot, **you need to [activate GPUs in the notebook](#)**
In top menu bar: Runtime > Change runtime type > Hardware accelerator
 - f. **Optionally** you can also change [other settings](#)
5. Then to run your bot go in the top menu bar: Runtime > Run All
The script will install all the environment needed to run the bot, just wait a few minutes before your bot runs for real on CGS.

Windows

1. Download and install any Go bot using [GTP](#) that can run on your windows computer (works with [Katago](#) and [GNUGo](#)).
2. Install [.NET Runtime 5.0.17 x64](#) (or if you prefer to use another [version](#))
3. Download and extract [GTP2CGS](#)
4. In gtp2cgs-1.0 folder change settings in Config.json
 - a. **GTPEnginePath**: the path to your bot executable, e.g. :
 - i. [Gnugo] "GTPEnginePath": "C:/Programmes/gnugo-3.8/gnugo.exe"

- ii. [Katago] "GTPEnginePath": "C:/Programmes/Katago-11/katago.exe"
 - b. **GTPEngineParameters**: the parameters of the bot to at least activate the GTP mode, or optionally configure the bot level, eg. :
 - i. [Gnugo] "GTPEngineParameters": "--mode gtp"
 - ii. [Katago] "GTPEngineParameters": "gtp -model C:/Programmes/Katago-11/weight.bin.gz -config C:/Programmes/Katago-11/default_gtp.cfg"
 - c. **CGSClientId**: the client id you received from the admin
 - d. **CGSClientSecret**: the client secret you received from the admin
 - e. **CGSUsername**: the username to login with your bot account
 - f. **CGSPassword**: the password to login with your bot account
 - g. **Optionally** you can also change [other settings](#) in Config.json
5. Then to run your bot, you can execute GTP2CGS.exe

Advanced

You can run multiple bots and use different config files if needed.

To use another config file, you will have to run GTP2CGS.exe in the windows shell with this command:

- GTP2CGS.exe CustomConfig.json

Linux

1. Install dotnet runtime 5.0

```
1. # install dotnet runtime 5.0
   wget
   https://packages.microsoft.com/config/ubuntu/18.04/packages-micro
   soft-prod.deb -O packages-microsoft-prod.deb
2. dpkg -i packages-microsoft-prod.deb
3. rm packages-microsoft-prod.deb
4. apt-get install -y apt-transport-https
5. apt-get update;
6. apt-get install dotnet-runtime-5.0
```

2. Download GTP2CGS

```
# download GTP2CGS
rm -rf ./gtp2cgs-1.0
wget -q https://colorgoserver.com/gtp2cgs/gtp2cgs-1.0.zip -O
gtp2cgs.zip
unzip gtp2cgs.zip
rm gtp2cgs.zip
chmod +x ./gtp2cgs-1.0
```

3. Install any GTP bot engine you want. e.g. for GNUGo:

```
# download GNUGO
rm -rf ./gnugo
```

```
wget -q https://ftp.gnu.org/gnu/gnugo/gnugo-3.8.tar.gz -O
gnugo.tar.gz
tar -xf gnugo.tar.gz
rm gnugo.tar.gz

# build & install GNUGO
cd ./gnugo-3.8
./configure; make
make install

# check gnugo is installed
gnugo -v
```

4. In GTP2CGS folder change settings of Config.json

- a. **GTPEnginePath**: the path to your bot executable, e.g. :
 - i. [Gnugo] "GTPEnginePath": "gnugo"
 - ii. [Katago] "GTPEnginePath": "../Katago-11/katago"
- b. **GTPEngineParameters**: the parameters of the bot to at least activate the gtp mode, or optionally configure the bot level, eg. :
 - i. [Gnugo] "GTPEngineParameters": "--mode gtp"
 - ii. [Katago] "GTPEngineParameters": "gtp -model
../Katago-11/weight.bin.gz -config ../Katago-11/default_gtp.cfg"
- c. **CGSClientId**: the client id you received from the admin
- d. **CGSClientSecret**: the client secret you received from the admin
- e. **CGSUsername**: the username to login with your bot account
- f. **CGSPassword**: the password to login with your bot account
- g. **Optionally** you can also change [other settings](#) in Config.json

5. Run GTP2CGS

```
# run GTP2CGS
cd ./gtp2cgs-1.0
dotnet GTP2CGS.dll
```

Advanced

You can run multiple bots and use different config files if needed.

To use another config file use this command:

```
# run GTP2CGS with CustomConfig.json
dotnet GTP2CGS.dll CustomConfig.json
```

You can also run your bot in the background and detach it from the shell, in order the bot will never stop, use this command:

```
# run GTP2CGS in background and detach it from the shell
dotnet GTP2CGS.dll & disown
```

If you also want to keep track of the logs you can use:

```
# run GTP2CGS in background + log output in output.log
dotnet GTP2CGS.dll | rotatelog -n 5 output.log 1M & disown
```

To kill a process running in background you need to know its PID and use this command:

```
# kill GTP2CGS process
kill -9 PID
```

You can use this command to list all running process, find the PID of the GTP2CGS process

```
# list all running process
ps aux
```

eroot	2452559	0.0	0.2	5884	4160	?	Ss	18:52	0:00	/usr/lib/open
eroot	<u>2452705</u>	1.2	3.5	3084168	71368	pts/1	Sl	18:54	0:02	<u>dotnet GTP2CG</u>
eroot	2452719	0.3	1.1	27352	21900	pts/1	S	18:54	0:00	gnugo --mode

Optional settings

- **Challenge settings**
 - **ChallengeBoardSize**: the board size of the challenge (supports: 9, 13 or 19)
 - **ChallengeMaxDeltaRank**: the max delta rank limit of the challenge (from 0 to 9).
 - 0 => need the same rank of your bot
 - 9 => if your bot is 10k, players from 1k to 19k will be able to accept the challenge
 - **ChallengeClockSpeed**: the clock preset of the challenge (supports: BLITZ, FAST, NORMAL or CORRESPONDENCE)
 - **ChallengeRanked**: if the game is ranked
- **Game settings**
 - **GameAllowUndo**: to allow opponent to undo (not working at the moment)
 - **GameAdditionnalOfflineTimeLimit**: if opponent is offline more than the default serveur permission (2min) the bot will ask to win by time, this parameter allows to add an additional offset to the default time
- **Bot settings**
 - **BotMaxTimeOnline**: maximum time in minute that the bot can be online and create a challenge, if 0 no limit, if not the bot will stop creating/waiting challenge in X minutes. If a game is running he will complete it before closing
 - **StartGameMessage**: the message your bot will write in the game chat at the start of the game, you can use {BOTVERSION} to print the name and the version of your bot. It's recommended to warn the user he is playing against a bot
 - **EndGameMessage**: the message your bot will write at the end of the game
- **Other settings**
 - **BotMaxHttpNewAttempt**: when http request failed (eg. connection lost), make a maximum of X attempts before closing the program (0 => never exit)
 - **BotDelayBetweenHttpAttempt**: delay between HTTP attempts (In seconds)
 - **CGSURL**: use "<https://colorgoserver.com>"

F.A.Q.

- Bot can't play against another bot
- Each bot can play only one game at a time
- You can run multiple bots, but for each bot account you need the validation of an admin
- You can't edit bot profiles without an admin
- Your bot will be banned If by running it you enter in violations of the [CGS Terms of Service](#)
- Players can avoid playing against bot in automatch settings

If you have further questions, please contact a [CGS admin](#)

GTP2CGS Error codes

- 200 - Unknown app error
- 201 - Config file not found
- 202 - Invalid config file
- 203 - Invalid json in config file
- 204 - Config file - Invalid ChallengeBoardSize
- 205 - Config file - Invalid ChallengeClockSpeed
- 206 - Config file - Invalid HTTP attempt settings
- 210 - CGS Server is unreachable (unknown error)
- 211 - CGS Server is unreachable (wrong url or not internet)
- 212 - Invalid CGS url format
- 220 - Impossible to connect to GTP Engine
- 221 - Impossible to connect to GTP Engine: wrong path or cmd
- 222 - Impossible to communicate with GTP Engine
- 230 - CGS Login error
- 231 - CGS Login error: Invalid client id or secret
- 232 - CGS Login error: Invalid client id for bot
- 233 - CGS Login error: Not allowed to log in to a human account
- 234 - CGS Login error: Wrong username or password