

TAG: Advancements in AI-Driven Tabletop Games

Tutorial @ IEEE CoG'23

Getting Started

What is TAG?

The Tabletop Games Framework (TAG) is a Java-based benchmark for developing modern board games for AI research. TAG provides a common skeleton for implementing tabletop games based on a common API for AI agents, a set of components and classes to easily add new games and an import module for defining data in JSON format. At present, this platform includes the implementation of several tabletop games that can also be used as an example for further developments. Additionally, TAG also incorporates logging functionality that allows the user to perform a detailed analysis of the game, in terms of action space, branching factor, hidden information, and other measures of interest for Game AI research.

Getting started with TAG

Exercise 1 Follow the steps below to download, setup and run the Tabletop Games Framework.

TAG requires Java with minimum version 8. In order to get the framework installed and running, follow these instructions:

1. Clone the following repository using git in a Unix or Windows terminal:

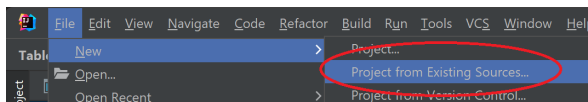
```
git clone https://github.com/GAIGResearch/TabletopGames
```

If you prefer cloning the repository using a graphical user interface, you can try GitHub Desktop.

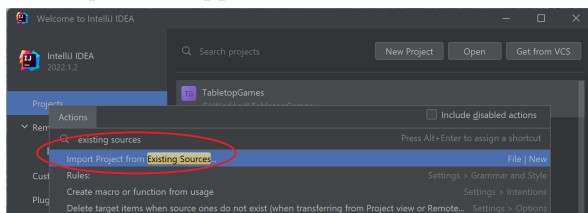
2. Set up your IDE to use the project. These instructions allow you to set it up with IntelliJ IDEA, but you can also use any another IDE you feel more comfortable with.

(a) **With IntelliJ IDEA:**

- i. Open IntelliJ IDEA
- ii. Select 'Create New Project' ... 'from existing sources'
 - A. If you have a project already open, you'll find this option in the 'File' menu, 'Open', etc.

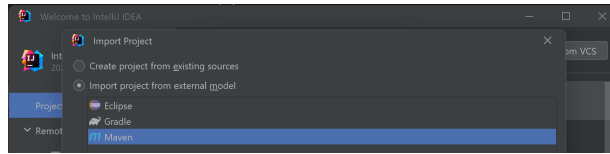


- B. If you see the Welcome to IntelliJ IDEA window, press 'Ctrl' + 'Shift' + 'A' and type "existing sources" for this option to appear:



- iii. Select, as project location, the 'TabletopGames' folder downloaded through the previous step.

- iv. Select the **Maven** framework for import. This process should automatically set up the environment and add any project libraries as well:



- v. Click on 'Create' (or 'Finish'; say 'yes' to overwrite the project folder if prompted).

- (b) **Alternatively:** open the code directly in your IDE of choice, right-click the `pom.xml` file and setup the project with the **Maven** framework. Make sure `src/main/java` is marked as *sources root*.

3. Verify that TAG can execute in the IDE:

- (a) In the IDE, open the file `src/main/java/core/Game.java` (you can navigate files on the left panel - click on *Project* if the folder hierarchy is not displayed).
- (b) With `Game.java` open and visible, click on menu `Run` → `Run`, and click on the `Game` class in the pop up window. Alternatively, right click the file `Game.java` and select the option `Run 'Game.main()'`.
- (c) It'll take a few seconds for the project to be compiled and then it will run a game (likely 'Terraforming Mars', but it may be a different one depending on the state of the repository).

