GitHub: dtdannen/dcss-ai-wrapper

DCSS-AI-Wrapper

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An API for **D**ungeon **C**rawl **S**tone **S**oup providing both Vector and Symbolic State Representations

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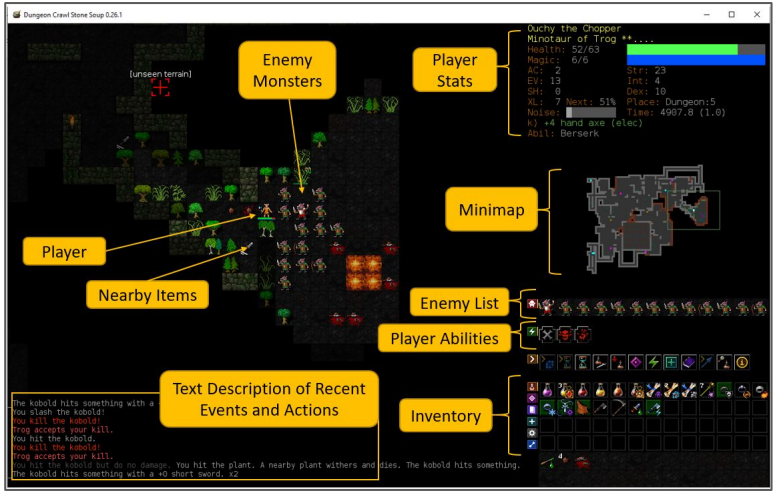
About DCSS

dcss-ai-wrapper is the first AI-friendly API for Dungeon Crawl Stone soup: a single-player, free, and open-source rogue-like video game with a variety of features that make it a challenge for artificial intelligence (AI) research:

- 2D gridworld
- Procedurally Generated
- Partially observable
- Observation actions
- Dynamic
- Stochastic
- "Wide" domain with:
  - ❑ 100's of actions & spells
  - ❑ 650+ monster types
  - ❑ 13K+ starting characters
  - ❑ 31 skills
  - ❑ 100's of unique items

To win requires visiting ~70k tiles



Vector-based API

includes

get_player_stats_vector()
get_player_inventory_vector()
get_player_spells_vector()
get_player_abilities_vector()
get_player_skills_vector()
get_LOS_map_vector()
get_level_map_vector()
get_all_map_vector()

PDDL-based API

includes

get_player_stats_pddl()
get_player_inventory_pddl()
get_player_skills_pddl()
get_LOS_map_pddl()
get_level_map_pddl()
get_all_map_pddl()
...
get_background_pddl()

Create Agents Easily

```python
from dcss.agent.base import BaseAgent
from dcss.state.game import GameState
from dcss.actions.action import Action

class MyAgent(BaseAgent):

    def __init__(self):
        super().__init__()
        self.gamestate = None

    def get_action(self, gamestate: GameState):
        self.gamestate = gamestate
        # get all possible actions
        actions = Action.get_all_move_commands()
        # call your planner or policy instead of random:
        return random.choice(actions)
```

Watch the Agent Play in the Browser

```python
from dcss.websockgame import WebSockGame
from dcss.connection.config import WebserverConfig

def main():
    my_config = WebserverConfig

    # set game mode to Tutorial #1
    my_config.game_id = 'tut-web-trunk'
    my_config.tutorial_number = 1

    # create game
    game = WebSockGame(config=my_config,
                       agent_class=MyAgent)
    game.run()
```

Paper Contributions

1) Version 0.1 of API
2) Support for both vector and PDDL-based state representations
3) First PDDL model of DCSS supporting FastDownward planner