

PLANET TERRAFORMING PDDL

F29AI-CW1 PDDL Part

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Task

For this part of the coursework, I was asked to design a planetary exploration activity planner in pddl. The planet has different regions which are traversable. There are several types of personnel on the planet who are responsible for different types of activities. The base, which is located on the planet also contains equipment that are useful in terraforming operations.

The Domain File

"planet-domain.pddl" is the domain file of this task. This file contains all the predicates and actions for the exploration team. For the personnel and equipment to move from one region to another, the regions must be adjacent to each other. Personnel cannot travel to mountainous regions.

The engineer can carry and deploy upto two shield emitters. The science officer can carry and use only 1 terraforming machine.

The terraforming machine can be activated only in flat or hilly regions.

If a terraforming machine is operated without a shield being active in that region, it will get damaged.

If three shield emitters are activated, then a planetary shield can be activated from the base only by the commander.

A science officer can recharge a terraforming machine while an engineer can fix a damaged machine only at the base.

There are two problem files. The first file tests if personnel can move between regions. The second file tests if a region can be terraformed.

All domain and problem files were tested on <http://editor.planning.domains/>.