The purpose of this document is to define the file format.

There are 2 file formats:

1. Legacy, which can handle the original file format such as what is used in Assignment 4.
   1. This format is localized to test scenario files only.
   2. Refer to lines 1 through 7 of *General Format Definition* table.
2. Version 2, which allows the file author to pre-define parameters for the modifications.
   1. This format is used by both test scenario files and saved simulation files.
   2. Refer to lines 1 through 20 of *General Format Definition* table.

The reason for this approach is to maintain backwards compatibility with legacy file format.

# General Format Definition

|  |  |  |
| --- | --- | --- |
| Line | Description | Valid Values |
| 1 | Width (x-axis) of the space region | Min: 1, Max: 20 |
| 2 | height (y-axis) of the space region | Min: 1, Max: 15 |
| 3 | # of drones | Min: 1, Max: 10 |
| 4 - # of drones | See *Drone Line Definition* table | ~ |
| 5 | # of suns | Min: 0, Max: 50% of space |
| 6 - # of Suns | Location of suns, one line per sun  (x, y coordinate for each sun) | x, y location in space |
| 7 | Max # of turns | Min: 1, Max: 200 |
| 8 | File format version | 2 (for version 2) |
| 9 | <Not implemented> | -1 |
| 10 | Current turn | int ≤ max # of turns |
| 11 - # of drones | Fuel amount for each drone | Min: 0 |
| 12 | Charge rate | Min: 0 |
| 13 | Gallons per thrust | Min: 0 |
| 14 | Gallons per steer | Min: 0 |
| 15 | Gallons per scan | Min: 0 |
| 16 | Gallons per pass | Min: 0 |
| 17 | # of explored spaces | int ≤ width \* height |
| 18 - # of explored spaces | Location of explored spaces, one space per line (x, y coordinate for each space) | x, y location in space |
| 19 | # of known spaces | int ≤ width \* height |
| 20 - # of known spaces | Location of known spaces, one space per line (x, y coordinate for each space) | x, y location in space |

# Drone Line Definition

|  |  |  |  |
| --- | --- | --- | --- |
| X-Location | Y-Location | Direction | Strategy |
| int ≤ width | int ≤ height | See *Direction* below | See *Strategy* below |

## Direction:

## Definition: which direction the drone is facing

## Valid values: north, northeast, east, southeast, south, southwest, west, northwest

## Strategy:

Valid values:

0 = select an action randomly

1 = leverage environment info and drone collaboration to select “best” action

2 = allow the user to select an action via the input prompt (diagnostic only!)

# Example file:

Note 1: This example is of version 2, stop after maximum turns for legacy format

Note 2: Comments are not allowed in file itself, remove content to the right of //

6 //Width (x-axis) of 6 spaces

5 //Height (y-axis) of 5 spaces

1 //1 drone

3,2,north,1 //drone 0 is in x-space 3, y-space 2, direction north with strategy of 1

3 // 3 suns

4,3 // sun 0 is in x-space 4, y-space 3

0,2 // sun 1 is in x-space 0, y-space 2

1,4 // sun 2 is in x-space 1, y-space 4

100 // 100 turns maximum

2 // File format version 2

-1 // Not Used, should be -1

2 // Current turn is 2

2000 // Drone 0 has 2000 fuel

2 // Drones have a charge rate of 2

3 // Drones have a 3 gallons per thrust fuel cost

2 // Drones have a 2 gallons per turn fuel cost

1 // Drones have a 1 gallons per scan fuel cost

0 // Drones have a 0 gallons per pass fuel cost

2 // 2 spaces have been explored

2,3 // 1st explored space is at x-space 2, y-space 3

3,2 // 2nd explored space is at x-space 3, y-space 2

2 // 2 spaces are known i.e. visible to the drones

2,3 // 1st known space is at x-space 2, y-space 3

3,2 // 2nd known space is at x-space 3, y-space 2