**Input and Output files**

Both files are the XML files of the specific structure.

Input file should contain:

* Mandatory tag **<map>**. It describes the environment.

Inside this tag the following tags should be present.

* **<height>** and **<width>** - mandatory tags that define size of the map. Origin is in the upper left corner. (0,0) - is upper left, (*width*-1, *height*-1) is lower right.
* **<startx>** and **<starty>** - mandatory tags that define horizontal (X) and vertical (Y) offset of the start location from the upper left corner. Legal values for *startx* are [0, .., *width*-1], for *starty* - [0, .., *height*-1].
* **<finishx>** and **<finishy>** - mandatory tags that define horizontal (X) and vertical (Y) offset of the goal location.
* **<grid>** - mandatory tag that describes the square grid constituting the map. It consists of **<row>** tags. Each **<row>** contains a sequence of "0" and "1" separated by blanks. "0" stands for traversable cell, "1" - for untraversable (actually any other figure but "0" can be used instead of "1").
* **<cellsize>** - optional tag that defines the size of one cell. One might add it to calculate scaled length of the path.
* **<title>**, **<URL>**, **<coordinates>**, etc - optional tags containing additional information on the map.
* Mandatory tag **<algorithm>**. It describes the parameters of the algorithm.

Inside this tag the following tags should be present.

* **<searchtype>** - mandatory tag that defines the planner algorithm. Possible values - "astar", "theta", "jp\_search", "bfs", "dijkstra".
* **<metrictype>** - defines the type of metric for heuristic function. Possible values - "euclidean", "diagonal", "manhattan", "chebyshev". Default value is "euclidean".
* **<hweight>** - defines the weight of heuristic function. Default value is "1".
* **<breakingties>** - defines the priority in OPEN list when nodes have the equal F-values. Possible values - "g-min", "g-max". Default value is "g-max".
* **<allowdiagonal>** - boolean tag that defines the possibility to make diagonal moves. Setting it to "false" restricts agent to make cardinal (horizonal, vertical) moves only. If Theta\* algorithm is chosen, it will generate only cardinal successors during expansion of current node, but after resetting parent it will probably break this restriction. Default value is "true".
* **<cutcorners>** - boolean tag that defines the possibilty to make diagonal moves when one adjacent cell is untraversable. The tag is ignored if diagonal moves are not allowed. Default value is "false".
* **<allowsqueeze>** - boolean tag that defines the possibility to make diagonal moves when both adjacent cells are untraversable. The tag is ignored if cutting corners is not allowed. Default value is "false".
* Optional tag **<options>**. Options that are not related to search.
* **<loglevel>** - defines the level of detalization of log-file. Default value is "1". Possible values:
  + "0" or "none" - log-file is not created.
  + "0.5" or "tiny" - All the input data is copied to the log-file plus short **<summary>** is appended. **<summary>** contains info of the path length, number of steps, elapsed time, etc.
  + "1" or "short" - *0.5*-log plus **<path>** is appended. It looks like **<grid>** but cells forming the path are marked by "\*" instead of "0". The following tags are also appended: **<hplevel>** and **<lplevel>**. **<lplevel>** is the sequence of coordinates of cells forming the path (in case Theta\* planner is used, this sequence is formed at post-processing step by invoking sequantually line-of-sight procedure on path's segments). **<hplevel>** is the sequence of sections forming the path (in case planner other from Theta\* is used, sections are formed at post-processing step using naive procedure).
  + "1.5" or "medium" - *1*-log plus the information (explicit enumeration) on last iteration's OPEN and CLOSE lists.
  + "2" or "full" - *1*-log plus OPEN and CLOSE lists are written into the log-file after each step of the algorithm. Can make log-files really huge.
* **<logpath>** - defines the directory where the log-file should be written. If not specified directory of the input file is used.
* **<logname>** - defines the name of log-file. If not specified the name of the log file is: "input file name"+"\_log"+input file extension.