

## Change log list for versions 0.1 - 0.4.0

### V 0.1:

1. Coroutine-based pathfinding in three-dimensional space algorithm implemented(mod. AStar algorithms);
2. Trajectories smoothing and optimizing tools;
3. Tool for moving across calculated trajectory;
4. Users API for asset integration implemented;
5. Finite state machine for Pursuer class implemented.

### V 0.2:

1. Multithreading implemented;
2. Preliminary scene processing ability implemented;
3. Obstacles variability. Now obstacles can be not only gameobjects with some kind of colliders, but the any other objects you want;
4. All algorithms were rewritten and optimized. AStar pathfinding was accelerated per 30 percents.
5. The event system, based on SendMessage mechanism, was implemented.
6. Ability to update the trajectory to the moving target implemented (trajectory refining).

### V 0.3:

1. Custom inspector for “SpaceManager” and “Pursuer” classes implemented;
2. In editor mode now possible to highlight occupied cells;
3. Accelerating AStar algorithm, about per 5 percents;
4. Jerking bug at trajectory refining process fixed. (Now there is no jerking during recalculating trajectory to the moving target);
5. Wave-trace algorithm implemented. (More effective then AStar for levels with maze-typ configuration);
6. Minor bugs fixed.

### V 0.3.3:

1. Multi-leveled spatial graph implemented;
2. Improving of optimization and smoothing algorithm, based on multi-level cells traversing Now, after optimization and smoothing, the trajectory will contain fewer kinks, loops and excesses;
3. Possibility to search for a path on any spatial graph level implemented;
4. Spatial graph pre-game calculating ability implemented;

5. Serialization/deserialization of the spatial graph implemented (The tool derives from clause 4);

### **V 0.3.4:**

1. Non-blocking dictionary implemented (using for occupied cells storing);
2. Obstacle handling distribution to async tasks was improved;
3. Configuring the use of multithreading placed in the SpaceManager script inspector;
4. Fixed a bug due to which the increment of the counter of processed triangles did not occur correctly;
5. Added XML comments to the following classes: SpaceGraph, SpaceManager, SpaceHandler, Pursuer.

### **V 0.3.5**

1. Fixed a bug in the multithreading, which caused handling to hang when the number of threads is more than 12.

### **V 0.4.0**

1. Asset was transferred to 2018 version of unity. (2018.3.0);
2. Now the spatial graph storage is based on C#-built in ConcurrentDictionary, that much faster, than version, that we used before;
3. Asset work, in general, has become faster and smoother. This was made possible thanks to some improvements in the use of multithreading;
4. Fixed a bug in the work of the obstacles handler, which led to incorrect results in some situations.

### **V 0.4.1**

1. Asset was transferred to 2018.3.4 version of unity.
2. A serious bug in multithreaded code has been fixed, leading to deadlocks and errors on machines with a large number of cores.
3. Fixed a bug in the graph deserialization code, which led to incorrect extraction of the cell size from a binary file.