

A.I. Tutorial Pack 1  
- experimental stuff for XC\_Engine -  
- extension used in UT'99 -

**Introduction:**

This stuff is about playing a MH (MonsterHunt) map with incomplete Bot Support and creating Bot Support during game play in company of Engine Extension called XC\_Engine (v20-21). One of goals is to figure how to build a mutator creating run-time paths for coders which want a challenge and for mappers/players in some learning purpose. Why XC\_Engine ?

Answer: Because Plain UT'99 will NEVER ADD A.I. (Artificial Intelligence - Bot) paths in run-time so you can stop dreaming at brain-farts and save your energy. PathLogic is not that useful as expected, it does triggers not NavigationPoint actors. By using XC\_Engine we don't only have NavigationPoint actors, but we can connect them with current NavigationPoint actors split in two or more networks and creating a single paths network usable by Bot in plain maps - Bot might cover you then.

**Stuff introduction - requirements:**

- XC\_Engine set/installed in UT;
- MonsterHunt Mod installed in UT;
- A small map designed for this paths creation task having recommended markers (like a flag looking as a HomeBase) being keypoints having nothing in common with Pawn's Navigation;
- Mutator called **PTest** or such with INT file for accessing it from game's menu;
- Another mutator MH Paths Tester called **MHBotyMan4**, this one will respond with red marked paths when a Network from a map heads to a MH specific objective.

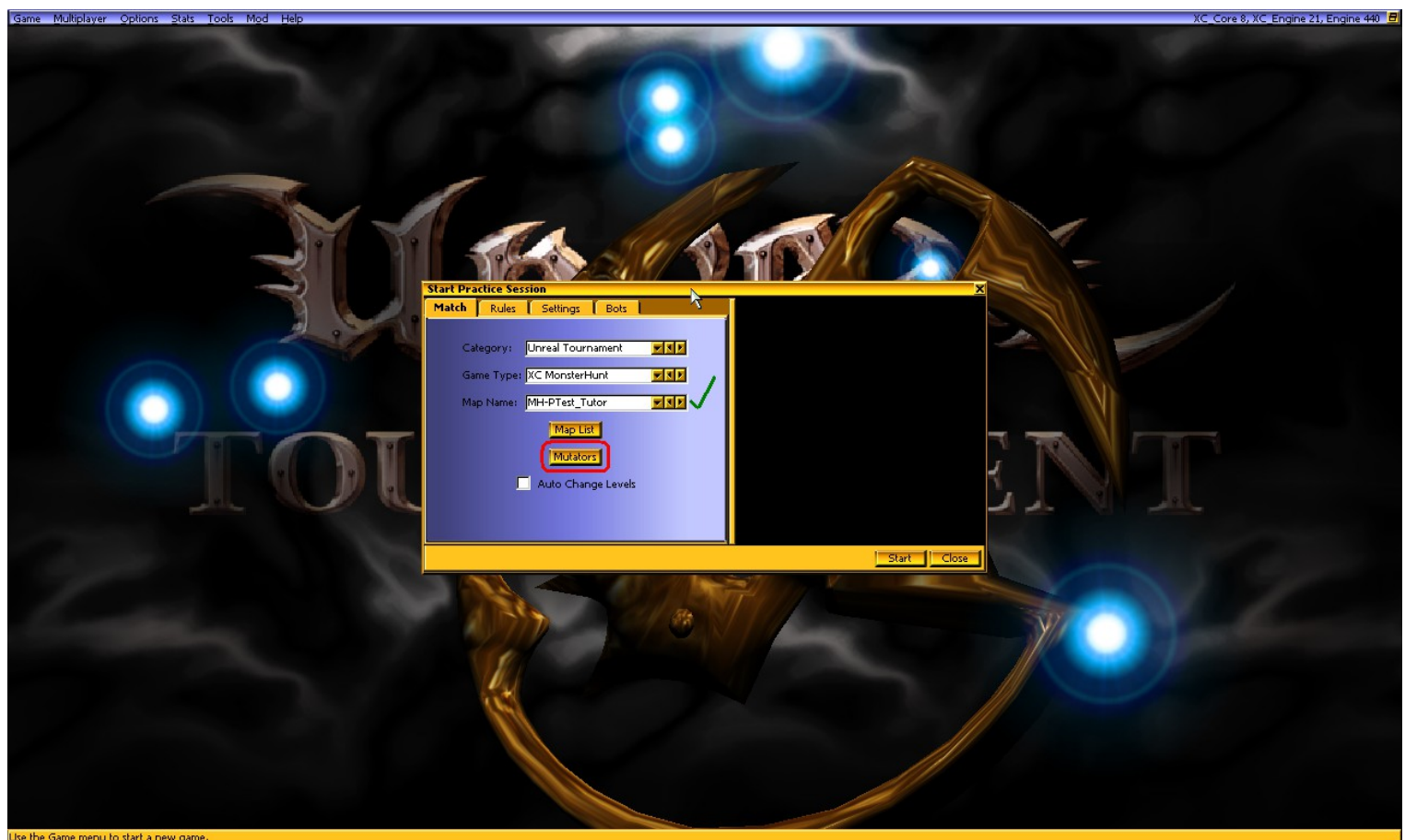
Except XC\_Engine and MonsterHunt mod, the map and the two tools are provided here for learning/testing purpose.

**Other needs:** Some human logic in understanding how do these work. Not provided here...

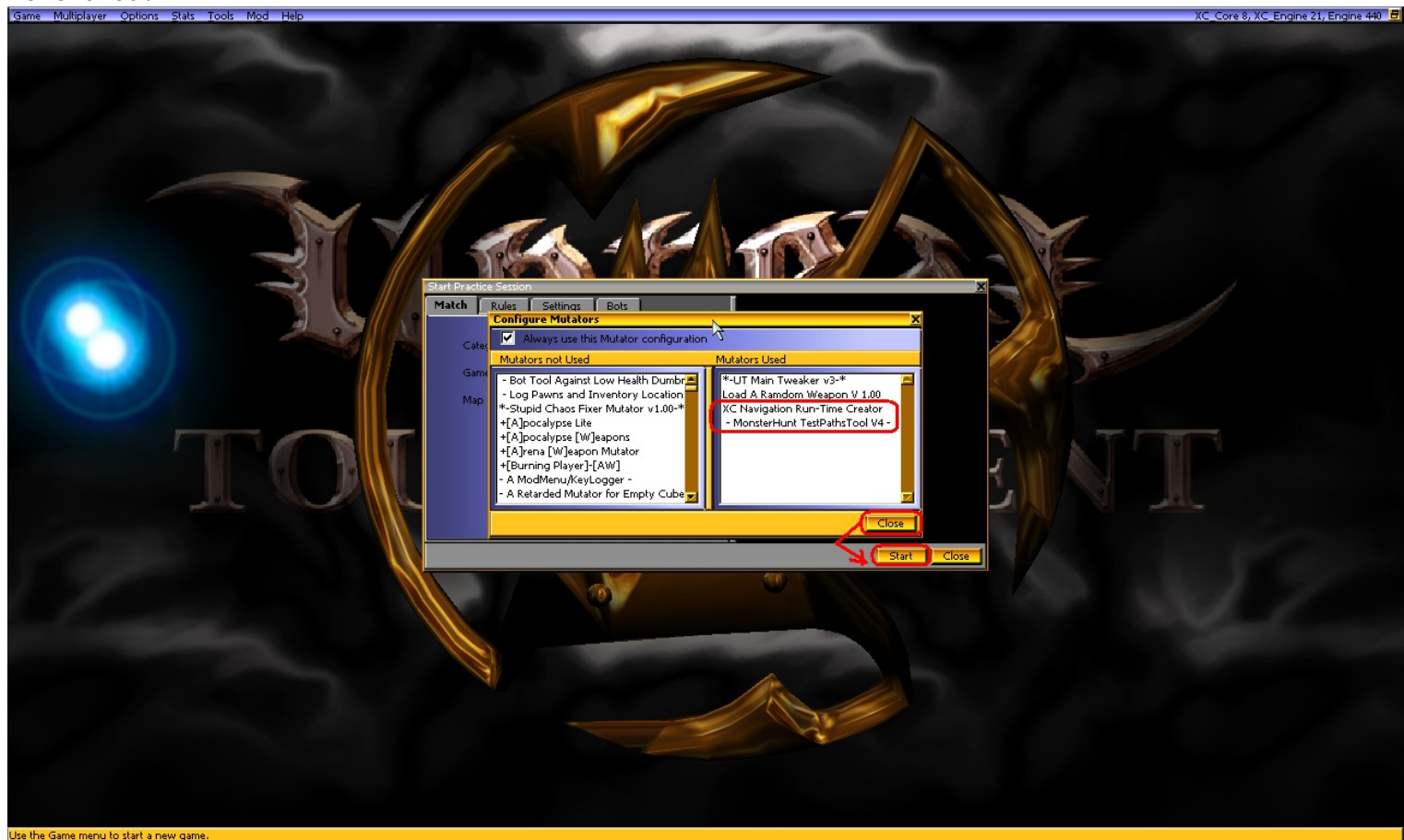
**Getting in action:**

Drop **PTest** and **MHBotyMan4** files in System folder, and map file in Maps folder then start game.

Pick some MonsterHunt game-type from Menu with Bot Support and map as shown bellow - my case is XC MonsterHunt because it's logic, I have XC\_Engine here:



Access Mutators button and look for these two mutators caused by INT and U files fore-mentioned.



If you have these loaded from list (you should not have a bunch of mutators because UT is limited at this point) if you can see them through mutators. Close mutators Window and start game as usual.

You should have this map:



Map has a house with two default PathNodes on top and PlayerStart actors registered in Network (go figure in Editor). Translucent flags are places recommended for standing there while you send some mutate command to **PTest** mutator like `mutate donode`. You can bind a key for



this mutate command. My case was `set input n mutate donode` console command (tilde ~ usually). Later, when I press `n` key a node is being spawned exactly in my location.

Before starting to mess with paths you might want to break glass from house's entrance...



For the first stage these marked spots don't have paths, so Bots are wandering around or running in place for default MonsterHunt (lol Shrimp).

If you are camping on such a recommended spot or another good location and sending mutate command from this spot, a SmartNode is added and connected with nearby nodes showing some messages.



SmartNodes added are a bit visible for figuring their location and if are properly added. Deletion is not implemented here, you need another session for other tests.





The placement is according to Player/Bot height and should be good for navigation in easy zones.

You have to input this mutate command while sitting on each such recommended spots or... your desired ones, in order to create nodes and paths - here are added ReachSpecs and SmartNodes are registered as map paths.

You have to add SmartNodes until you can see an original PathNode, a monster is around that zone. When you are done with adding paths, map will have a single network and Bots will start moving - the best is order FreeLance by default.





The second mutator `MHBotyMan4` will confirm if you have routes to the end, nearby monster by responding at `mutate mebot` console command. If paths are linked properly, some circles are showing up according to RouteCache points used by Pawn's Native Navigation - available for human pawn too.



In image above is shown how MHBotyMan4 has started guiding me to the MonsterEnd trigger according to original MonsterHunt controller. Here if I would be a Bot I would start moving to point marked 0 (zero), this is that variable used in Pawn named `MoveTarget` not only Bot can use that. MHBotyMan4 do works in a state code having breaks, you can move how you want around Paths without the need to touch them. If you are too far from paths, circles are vanished appearing again if you have access to navigation network. Pawn jumping and falling won't find paths - routes aren't updated, it's falling so won't track normal navigation. If you are getting used with MHBotyMan4 you can check MH maps how do works, this is my default debugger for Bot Pathing in MonsterHunt. In this case I'm using it to figure Bot's routes to any MH goal.

#### Plonks and borks:

Some mappers having no clue what they do, have removed some paths without to rebuild Level's Navigation Network, such a map might crash game instantly when a Pawn (any) is checking paths in map - I believe XC\_Engine has some mitigations here - just get rid of craps and don't learn to live in trash-can.

Plain Engine also does a funky crash when Human Pawn is nearby a WarpZone. A WarpZone usually uses a WarpZoneMarker which it's an utter sh!t, not fixed by anybody - UTPG were blabbering around rather than fixing engine's critical points. My server is not crashing here because this stuff has fixes - pretty easy, so I can check a lot of maps supposed with Bot Support.

#### Note:

You might want to have some knowledge about Bot Pathing when you want to play a MH map with poor paths, too many nodes in spot are causing more troubles than help, go figure.

This is what I could do so far for chapter run-time Bot Pathing, feel free to improve and share such stuff, I will be happy to test improved things.