Hi-Octane

4 messages

filip sound <filip.sound@gmail.com> Thu, Jan 12, 2017 at 2:23 AM
To: sean@seantcooper.com

Hello Mr. Cooper,

after Glenn Corpes pointed out on twitter that you might be the right person to talk to, I give it a try now after watching some videos of you talking about the Bullfrog times.

Together with a very talented young friend we took apart everything from Hi-Octane, analysed all data files, compressions, reverse engineered RNCs, TABs all tables of the level data files, models, textures and texture atlases, the sound stuff and various other formats, built our own tools to inspect and modify everything and finally made our own modern engine including multiplayer capability to make a modern version of Hi-Octane. For now we call it "Hi-Octane refueled".

So far everything went very well ...

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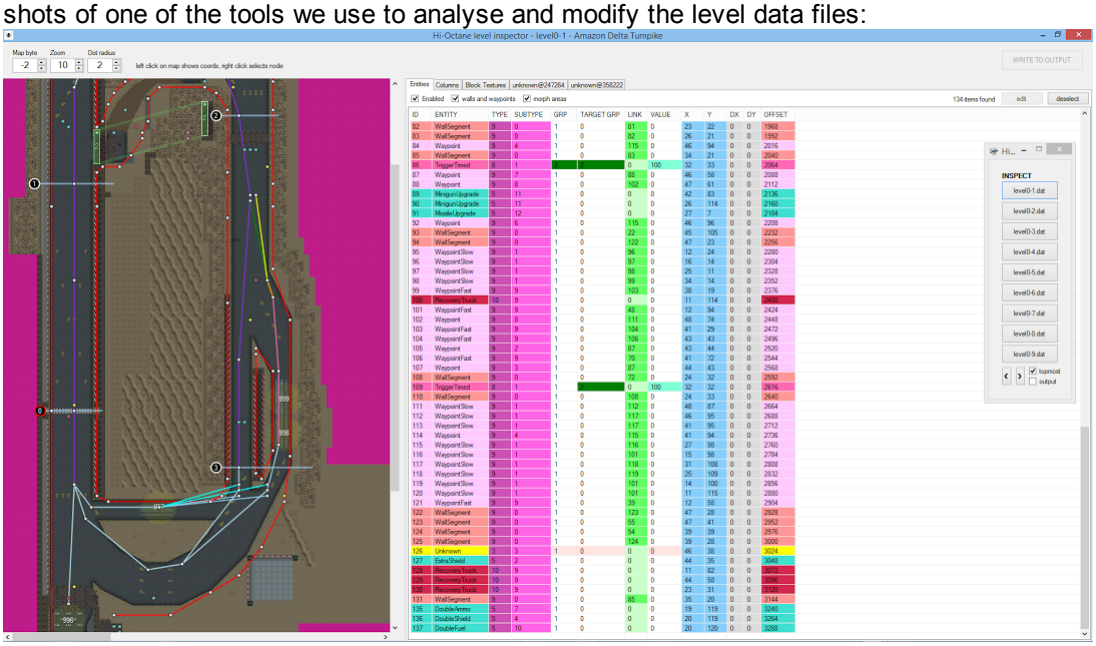
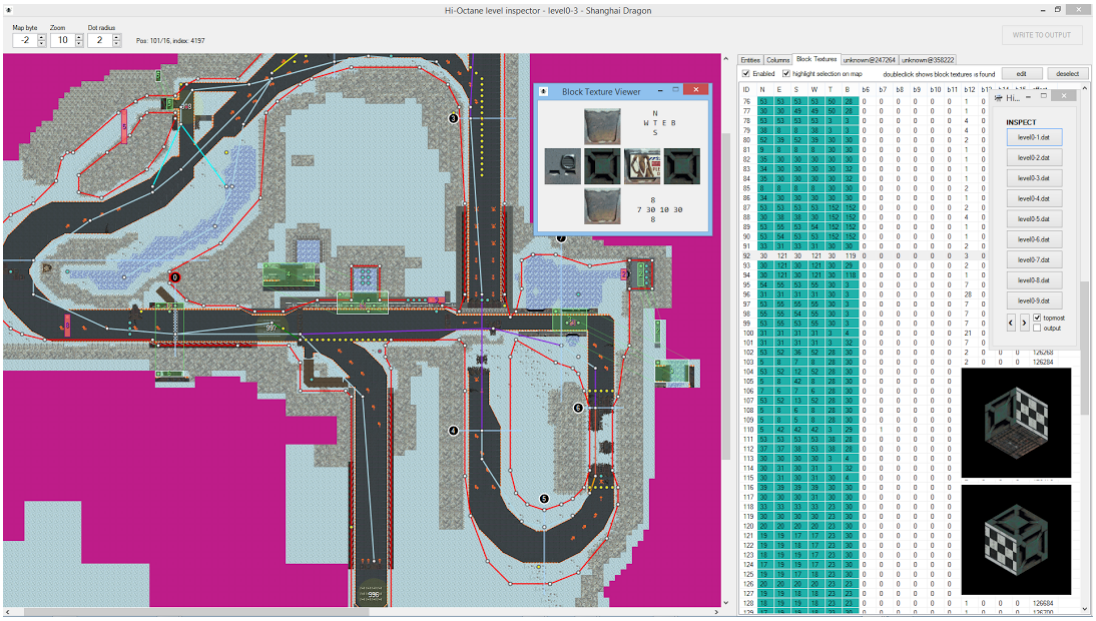
shots of one of the tools we use to analyse and modify the level data files:





... but I'm very curious.
I've found traces of a level editor in the game binary and also would like to know how you did some things in the engine back then.

Many parts of the level data files have very much impressed us. It was so much fun to figure out what everything does and how everything is connected. The morphing walls by just sampling a different location of the map was the best one to discover. The grouping of entities and the triggers connected to them was another highlight.

So, if you dont mind, I'd like to ask some questions that came up and/or are still a mystery to us:

1. Is the level editor still in the binary - maybe disabled by a removed menu item? (would be awesome! :))

2. How is the editor working? The column layout for the building blocks (and raising/lowering areas on the map) makes it impossible to design a level in 2D so I'm assuming that the editor was in-game with options to place/configure columns and put/rotate textures on each side of the boxes of a column.

3. Some items in the entity table of the level files seem to be some kind of models that was removed from the game or simply not used in the final release. It could be the barrels or the sign. Do you know anything about this? (for example: Type 3, Subtype 3)

4. Where are the spawnpoints for the players? We've found the spots (spawn and spots for each refill station) in the map data but they seem to reference items of a table that is unknown to us (maybe because it contains only a very little amount of items which makes it difficult to identify). The IDs are unusually high, in most levels 996, 997, 998 and 999 but they do not represent the same things in the individual levels.

5. How did you do collisions in your engine? My wild guess is that you did it as efficient as possible by simply sampling the height from the heightmap and checking the columns for boxes at a specific height - not going into triangle collisions at all, right?

6. It is very difficult to replicate the ship controller. Could you explain how far you went with physics/friction/bouncing/repulse and how gravity is added to the equation?

I hope this was not too much for a first contact and I'm looking forward to hear from you!

Greetings from Salzburg/Austria,
Philip Wagner (movAX13h)

https://twitter.com/movAX13h
http://blog.thrill-project.com/

Sean Cooper <sean@theemporiumsomerset.co.uk> Thu, Jan 12, 2017 at 6:50 PM
To: filip sound <filip.sound@gmail.com>
Cc: bulkpaint@gmail.com

Dear Philip,

Well let's start by saying I did spend 6.5 weeks of life writing this game using the Syndicate and Magic Carpet code, including the design skills I had learnt from both. In addition we used both the editor code from Syndicate and Magic Carpet. It must be a massive mess of glued together code. My wife just said "So they hacked the game and now asking questions?", the kids love it.

My memory is not what it used to be and I have included Alex Trowers (he'll know the editor like the back of his hand):

1. We may have taken the editor out due to memory constraints but highly unlikely as it would have a lot of game code in it. So it must be in there somewhere.

2. Alex can answer this if he can remember, I cannot. Not sure how the 3d side was achieve as the editor would have been 2d.

3. Not sure, it can't be anything form the other games as none of them had 3D models in them. It is probably something from another game.

4. No memory of these, but I'll have a deeper think over the coming days.

5. The collision was achieve in 2d, simple (but quite complex at the time) intersection of line test and breaking down the steps so the object could not completely cross over. the collision on the ground was 4 points height of ground (the cubes were not included).

6. No physics model really, the collision produced some kind of deflection bounce vector thingy and then it left the ground simply by the motion vector, i.e. where the position was going and then brought back down by z-=gravity. So you could some serious climbs and create a massive jump. The craft (and everything other thing) was represented by position and delta. Oh z was up and down in the game code and probably in the graphics engine (as Glenn wrote that).

Happy to have a Skype and maybe more will come and get some of the other smaller questions you have.

Hope this is helpful.

Regards,

Sean Cooper

On 12 Jan 2017, at 1:23 am, filip sound <filip.sound@gmail.com> wrote:

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Philip Wagner (movAX13h)

https://twitter.com/movAX13h
http://blog.thrill-project.com/

Alex Trowers <bulkpaint@gmail.com> Thu, Jan 12, 2017 at 7:01 PM
Reply-To: bulkpaint@gmail.com
To: Sean Cooper <sean@theemporiumsomerset.co.uk>
Cc: filip sound <filip.sound@gmail.com>

There were a couple of modes in the editor. Everything was tile-based - we could toggle between painting textures down or the height of each vertex in the top-left corner of each tile. That's how we built the basic geometry of the world.
Then there was the 'building' editor that enabled us to create structures out of cubes. These cubes formed 4x4x4 meta cubes that we could place on the landscape. The editor worked by placing tiles in either the top, front or side elevation of the meta cube. The tiles were then projected through the cube and where they intersected, they created a quad. In that way, relatively complex shapes could be made but it was a bit tricky to get your head around at first. Also, because of the hangover from the Dungeon Keeper engine, these buildings would also follow the contours of the landscape. Creating things like the caves meant doing lots of interesting height-field manipulation just out of sight...
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filip sound <filip.sound@gmail.com> Sat, Jan 14, 2017 at 4:33 PM
To: bulkpaint@gmail.com
Cc: Sean Cooper <sean@theemporiumsomerset.co.uk>

Hi,

Thank you both for your responses!

I think there are no more obstacles to finish the game, and the 3D level editor for new maps that will also be playable in the original game, the 2D level inspector/bytebased editor and modding tools for textures and crafts. We will put everything on github when we're done.

The spawnpoints would still be interesting though.

My skype ID is filip_sound, but I rarely have my mic plugged in ... but we can text if you like.

Have a nice weekend,
Philip Wagner

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