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Unknown Horizons - An Open Source Project Evolves

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TDT10 - New Software Technology: COTS and Open Source
Software

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1 Introduction

1.1 Motivation

*Unknown Horizons*¹ is an open-source real-time strategy game developed by a team of programmers, artists, game designers and many more around the globe. The first revision to the current project was committed in late 2007². The idea started out in 2005 under the name *OpenAnno* and was renamed to *Unknown Horizons* in 2008.

Over the years the project grew to a small team of more than 10 active developers and many patch contributors. The recent release version of *Unknown Horizons* has been downloaded more than 10000 times³⁴, a rather big user-base compared to the team size.

In this document I want to give a personal report on the work I have done on *Unknown Horizons* in the past years and give an overview of how certain parts of the project's organization have evolved.

1.2 About Me

My name is Thomas Kinnen, I'm currently doing my Masters in Computer Science. On the development team and in the code repository I am mostly known by the nick-name *nihathrael*.

I started working on the project in early 2008, shortly after the first commits had been committed to the repository. The project had come to a nearly complete halt when I joined, so I set out to bring it back to life.

Since November 2008 I am one of the two project coordinators, with focus on code direction and introduction of new potential members to the team and code. In this position I got a good view into most of the necessary parts of an open-source game development team. This includes public relations, mentoring new members, graphics, content, programming, code design, leading meetings and many more in the context of an open-source game.

¹Unknown Horizons website: <http://www.unknown-horizons.org>

²First commit to *Unknown Horizons*: <https://github.com/unknown-horizons/unknown-horizons/commit/53eec12fd8bb52ac1a6ccfdb097296c479499dfd>

³Sourceforge download statistics: <http://sourceforge.net/projects/unknownhorizons/files/Unknown%20Horizons/2011.2/>

⁴Chip.de download statistics: http://www.chip.de/downloads/Unknown-Horizons_33713541.html#sp=unknownhorizons&N=0&pos=1

2 History

In this section I present the history before and during my time as part of the *Unknown Horizons* team. I will give only a brief overview of the history before I joined the project as the current state has nothing but the idea in common with the older versions.

2.1 Pre History

The idea for the *Unknown Horizons* project existed long before I joined the team in 2008. The project's first name was *OpenAnno* for which the original sourceforge.net project was registered as early as July 2005⁵. The original announcement for OpenAnno can be found on the german linux forums: <http://linuxforen.de/forums/showthread.php?t=188350>. Version 3.5 (See screenshot in Figure 1) of OpenAnno was released in early 2006⁶. After a rewrite to C++, version 0.0.1.0 of OpenAnno was released in September 2006⁷.



Figure 1: Early screenshot from OpenAnno 3.5 - taken from Softpedia.com

In April 2007 *LinuxDonald* (Thomas Kowaliczek) took over the project from *The Brain* (Martin Gerhardy)⁸.

⁵Original sourceforge.net project: <http://sourceforge.net/projects/openanno/>

⁶Link to a download site: <http://happypenguin.org/newsitem?id=6154>

⁷Release announcement 0.0.1.0: <http://da.zfx.info/developia/viewarticlecomments.php?cid=28999#29101>

⁸Original Blogpost by LinuxDonald (German): <http://www.linuxdonald.de/blog/?p=4>

The project took an interesting turn in August 2007 when the team decided to split the project into a 2D and a 3D version⁹.

OpenAnno 2D was restarted in September 2007, using FIFE¹⁰ as its graphics engine. The team was hoping the collaboration with a dedicated graphics engine would make their work easier, as they had previously stalled on implementing different terrain heights and were having trouble getting all the work done. OpenAnno 3D was dropped in the same decision as the team had realized that the burden of developing two games basically in parallel was not a viable option. This presented a radical cut in the development of OpenAnno, as the core repository had over 1000 commits at that time¹¹. Restarting meant throwing years of development over board to start again from scratch.

2.2 History - 2008

In March 2008 I joined the project as a novice programmer. When I joined the project had almost come to a halt, amazed by the idea of writing an open-source game in the footsteps of *Anno 1602* I decided to give it a try non-the-less. The entire code was removed and I started from scratch, using only the graphics we had. Motivated by the new start *spq* quickly joined me in my efforts only 18 days later. *spq* and I had a lot of time at our disposal, so with the help of many other old and new members development of *OpenAnno* progressed quickly, we hit 500 commits to the repository by June 2008 and finished our first milestone 2008.1 by July 8th. The 1000. commit followed quickly by July 16th. At the end of July the team had its first meetup at the *Dusmania 2008* hobby game developers conference and was awarded 2nd place in the category best game.

On the October 1st *OpenAnno* hit a major milestone with its first public release: Version 2008.1. The release received quite a lot of coverage and was featured on some big websites like the german magazine *chip.de*¹² and the freegamer blog¹³

During this time it became clear that *LinuxDonald* would not be able to continue doing the project management due to a lack of time on his side. After a long meeting and a vote at the beginning of November it was decided to split the position in two team coordinator jobs. *Nightraven* (Tobias Schröfel) was assigned to public relations and advertising and guiding game design decisions. I was chosen to assign tasks and guide the development of the codebase. Tasks for both project coordinators were defined as posting news updates, guiding discussion on IRC and helping new interested developers join our project. LinuxDonald agreed to continue hosting the website and repository infrastructure, showing it was not the lack of interest but the lack time that caused him to step down.

⁹Splitting 2D/3D blogpost: <http://www.linuxdonald.de/blog/?p=13>

¹⁰FIFE website <http://www.fifengine.net>

¹¹Blogpost about the 1000th commit: <http://www.linuxdonald.de/blog/?p=6>

¹²Chip newsentry to 2008.1: <http://www.chip.de/news/OpenAnno-Strategiespiel-Klassiker-als-Open-Source-33713075.html#sp=openanno&N=0&pos=1>

¹³Freegamer blogpost: <http://freegamer.blogspot.com/2008/10/lavirinto-3d-060-balazar-3-01-openanno.html>

2.3 History - 2009

The year 2009 started with a big change: The project was renamed to *Unknown Horizons*. This was done for two reasons:

- Copyright concerns about the word "Anno" being licensed by *Sunflowers* in Germany
- Separate the game from the original Anno series, underlining it not being a clone

As *Unknown Horizons* is not a formal organization or company any lawsuits against the name (or any other part of the project) would result in the lawsuit going against the project coordinators Nightraven and/or me. Therefore we decided to change the name to something completely new, leaving us on the safe side of things.

This is the original commit from the official repository performing the renaming:

Listing 1: Commit 1831 renaming OpenAnno to Unknown Horizons

```
1 Author: nihathrael
2 Date:   Fri Feb 20 16:39:37 2009 +0000
3     * Renamed all accurances of OpenAnno to Unknown Horizons
4     * openanno.py is now named run_uh.py
5     * openanno.sqlite ist now named game.sqlite
6     * Goodbye OpenAnno ;( Off to new shores we go :)
```

Besides this big change, 2009 was a regular development year for *Unknown Horizons*. The team released three new versions of *Unknown Horizons*:

- 2009.0
- 2009.1
- 2009.2 + bugfix release 2009.2a.

The releases generated over 35 thousand downloads on sourceforge alone.

The release 2009.2 was featured in the big german computer magazine *c't*¹⁴ and was delivered with the magazine's dvd shipped with each copy.

2.4 History - 2010

In 2010 the team decided to move away from the subversion¹⁵ revision control system and switch to git¹⁶. With this switch, the repository hosting was also moved to github.com. Github is a collaborative source-code hosting website which deeply integrates git into the website. It makes it easy for developers to submit patches and even easier for the team to merge it. This also moves the source-code hosting away from our own servers, making it much more reliable and cheaper.

The team only released one release: Version 2010.1. It introduced a network mode, allowing the player to play with other players over the internet or a local area network.

¹⁴http://www.heise.de/software/download/cdd_95_9

¹⁵<http://subversion.tigris.org>

¹⁶<http://git-scm.com/>

2.5 History - 2011

2011 has been an exciting year for *Unknown Horizons* so far. Early 2011 the team decided to apply for the *Google Summer of Code*¹⁷ program. The application was accepted and *Unknown Horizons* was granted 3 student slots. The team had applied together with the graphics engine FIFE and it was decided that 1 slot would go to FIFE and 2 to *Unknown Horizons*. The three students which were chosen, were chosen for the following projects:

- Artificial Intelligence Player for *Unknown Horizons*
- Combat for *Unknown Horizons*
- Performance Improvements for the Rendering Pipeline in *FIFE*

Before the students started their work, the team released version *2011.1* of *Unknown Horizons*.

The three students did excellent work during the 3 months of their active work on both *Unknown Horizons* and *FIFE* and all easily passed the final evaluation. Following up on the *Summer of Code* Google invited two members of each organization to participate in the mentor summit at their campus in Mountain View. Christoph Ölmüller, who did the administrative work for GSoC for *Unknown Horizons*, and me got the chance to go and meet many fellow open-source game developers from other projects like *Battle for Wesnoth*, *Worldforge* and *Hedgewars*.

FIFE released version *0.3.3* of their engine on October 7th, followed by bugfix release *0.3.3r2* on November 2nd. This release includes all changes done by their student *kozmo* (Kajetan Świerk). *Unknown Horizons* will release *Unknown Horizons* version 2011.2 during the 2nd week of November, containing all changes made during the *Summer of Code* and the regular development.

3 Project Organization

In this section a description on how the project's members are structured and how the project is organized using different tools like meetings and bugtrackers.

3.1 Member structure

There are only two defined jobs on the team: The two project coordinator jobs held by *Nightraven* and me. It was specifically named project *coordinator* and not project *leader* as the purpose of this position is not to make all the decisions and tell everyone what to do. The intention is that the project coordinators guide the project on its path, making sure basic communications work correctly. For example the project coordinators usually hold the weekly IRC meetings and make sure the general tone of communication is friendly and helpful. This is based on the foundation that it is not possible to force

¹⁷Official GSoC website: <http://www.google-melange.com/gsoc/homepage/google/gsoc2011>

anybody to do anything on an open-source project, as everyone works on it in their free time and because they enjoy it. It is the project coordinators task to make sure stays an enjoyable project to work on.

Unknown Horizons does not follow any other strict structure of members. The team is not divided into different subteams. Much thought has been given the idea of forming different appartments for programming, game design and graphics but the team found that the team size of about 10 active members is not big enough to split it into different subgroups and thereby adding a lot of overhead to the project communications. It has been agreed that this step could be undertaken when the project grows further and communication becomes slow if everyone talks to everyone else all the time.

Over time basic structures naturally emerged, meaning that those members spending the most time on a certain area became a *go-to* person in case of questions. For example *totycro* (Bernhald Mallinger) and me are most experienced with the code, making us the *go-to* persons for this area. Since this emerged over time and is not an artificially created structure, it automatically changes over time if new members come in and become more experienced or are available a larger amount of the time.

3.2 Language

Unknown Horizons started out as an entirely german project and remained so until I joined in 2008. It quickly became clear that a mainly german development would not attract foreign developers easy, if at all. At the time there was only one non German member on the team, *Greyghost* (Tushar Sawant) from India, who had recently joined. He used to use google translate to understand wiki pages and the discussions on IRC.

The team quickly realized this would not be benificial and decided to set english as the main language on IRC, the website and the wiki. The change was not easy as there was some disagreement if this was really necessary. This was one of the main points on my personal agenda when I was voted project coordinator and is the only time I ever used my informal "power" – to enforce english language if necessary.

Today this is no longer an ongoing issue, as we have many people from countries around the world on our IRC channel, automatically making english the language of choice.

*In my opinion the decision to switch to english is the most **important and valueable** decision the team has ever made.* It allowed us to grow the team globally and is the foundation for our participation in Google's *Summer of Code* program.