ShootMania Obstacle Cheating Investigation

May 13, 2022

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Introduction

What Is ShootMania Obstacle?

ShootMania Storm (developed by Ubisoft Nadeo) is an arena first-person shooter game with many competitive custom game modes. These game modes are created within “titlepacks”, which function as platforms for community developers to maintain their game modes and assets. One of the most popular titlepacks and game modes, Obstacle, is the speedrun/movement mode of the game, where the community has created thousands of maps for players to compete on. Obstacle maps are diverse - some maps are less than 20 seconds long and meant for speedrunning, while others require extreme precision and often hours to finish even for the best players.

You can play maps by either downloading them on your computer and playing them in solo (also known as “local”), or you can join any of the few dozen dedicated servers that are generally open 24/7. When you finish a map in either way, your record will be automatically saved on the in-game leaderboard of that map. Players can manually save a replay of their session, and this is almost always done for world record runs on prestigious maps. It is, however, not a requirement for a run to be recognised as legitimate. Many beginner-friendly maps have thousands of records on their leaderboards. Some extremely difficult maps, like GrandMaster maps, can only have 15, or even less than five records.

It’s not uncommon for top players of Obstacle to have more than 5 000, or even closer to 10 000 hours in the mode. There are often dozens of movement techniques you need to learn to finish a difficult map, and different maps also require different techniques. Some of the most prestigious world records can potentially take hundreds of hours to beat for top level players.

What Is This Document?

This document highlights the results of an investigation into cheating in the ShootMania Storm: Obstacle titlepack. The investigation was conducted by the following people: MiLTanT (Obstacle developer), SBVille and Ouhou (Obstacle Discord admins and top level players) and vasive (top level player).

It is important to know that we, the Obstacle admin team, are not in any way affiliated with Ubisoft Nadeo, nor have they been in any way aware of this investigation. We do not have any authority over what happens in ShootMania Storm itself, but we do have authority over most things that happen in the Obstacle titlepack specifically. The titlepack has been created, maintained and moderated entirely by community members. We do not hold a position on what actions - if any - Ubisoft Nadeo should take as a result of this investigation.

The Reason and Purpose of the Investigation

Over the years, there have been cheating allegations targeted towards many different players. Most of these have been accusing players of using macros - a scripted input sequence that a player can execute by pressing a single key or button. Macros are only beneficial for a few moves: microjumps, which require a very fast double-click with the action key (usually spacebar or right mouse button) to start an optimal sprint, and double- and dashwalljumps, which require a very precise strafe after a stationary walljump. Macros are extremely difficult to monitor, and at the moment it's not possible to get conclusive evidence on whether players use them or not. Fortunately, double- and dashwalljumps on maps are rare and usually not decisive, and optimal microjumps are also possible to do consistently without macros. Because of these reasons, large investigations into macro usage never happened. In the extremely rare cases where a player has admitted to using a macro to complete a niche map (made specifically to practise double- or dashwalljumps for example), those records have been concluded to be illegitimate.

In May of 2021, TrackMania - which is by the same developer and even shares its engine with ShootMania - had a cheating scandal where, after an investigation by donadigo and Wirtual, multiple players admitted to using Cheat Engine to slow down their game in order to beat world records. During the same year, several players in Obstacle started to become suspicious of a top level player, Nampo (also known as kzlv). Some of the most competitive maps in Obstacle are also among the hardest, and only a few players are able to compete for the world records. The best players can do these maps with only a few deaths - or even without deaths at all - but it usually takes extensive practice and dedication from even the best players. Nampo was learning these maps and beating the records at a very unusual rate. For reference, the average rank of Nampo's personal bests done from the beginning of 2021 until July 29, 2021 was 11,23 (169 maps). From July 29, 2021 onwards something seemed to change, and the average rank of Nampo's new personal bests from then until May 12, 2022 is 1,24 (173 maps). There was also other circumstantial evidence that we'll cover later in this document. Among those were rumours that Nampo had shown some other players tests of running the game in slow motion. Given that the TrackMania cheating incident had specifically revolved around slowing down the game, this raised more suspicion.

Nampo was making YouTube videos of many of his records, and nobody had noticed anything illegitimate in those videos. Still, due to the allegations being more severe than in the past, we started planning a cheating investigation in February 2022. It's important to stress that this wasn't an investigation into Nampo specifically, but rather into cheating in the community as a whole. This will be further explained in the section about the methodology. Our priority for this investigation was to investigate speedhacking, which means slowing the game down with a third party program, allowing you to move more precisely, and thus making the game easier. The goal was to find out if any player was cheating in this way - and if someone was, how frequently it was happening. Please read through the document in its entirety to fully understand the investigation.

The Results of the Investigation

After developing speedhack detection, all Obstacle runs from all players were tracked from April 10 to May 12, 2022.

After concluding the investigation, we allege that Nampo has cheated 82 Obstacle solo runs in April and May of 2022 by speedhacking with a third party software to around 60% game speed. We also suspect that many - if not most - of Nampo's solo runs since at least August 2021 have been cheated in this way. After the completion of the document, Nampo has also confessed to speedhacking records.

No other players were found to be speedhacking leaderboard runs. We did not find evidence of any other types of cheating, though our investigation focused on speedhacking specifically.

In this document, we will explain how the investigation was conducted, why the results support the conclusion that Nampo has cheated records, what the consequences of his actions are going to be and how the Obstacle community will move forward from here.

Methodology

Gathering the Data

In TrackMania, the cheating investigation mostly centred around replay files, because in TrackMania games, replay files also include the exact inputs the player used to complete the run. If the player was speedhacking a run, the replay file might look visually convincing, but the inputs would often appear inhuman in the file. In ShootMania, however, replay files are not as widely available, nor do they have inputs saved in them. On top of this, a ShootMania replay does not represent gameplay precisely - replays done on servers can have slightly laggy or inaccurate movement, and even solo replays can appear to have smoother mouse movement compared to live gameplay. Replays can in rare cases even have very slightly altered game speed. Due to these bugs and properties of replay files and the lack of their availability in general, and due to most YouTube videos using replay files, any kind of retroactive investigation into speedhacking in the past was nearly impossible.

Because it wasn't possible to analyse runs retroactively, the investigation had to be conducted with extreme care. The only option was to develop a speedhack detection system within Obstacle that would analyse all runs that were completed - the downside being that only new runs would be possible to check. This meant that if any players were speedhacking, we would rely on them to continue cheating after the beginning of the investigation to gather data. This also meant that the detection system had to be pushed as an update discreetly, as if someone who had been using speedhacks before heard of the investigation, they would most likely stop cheating, and they would potentially never be caught. MiLTanT developed and pushed the speedhack detection secretly among other updates first on April 5 for testing, and then on April 10 for the final version. This was not mentioned in changelogs, and it is extremely unlikely that any player noticed that the detection had been implemented.

The speedhack detection system analyses every run done in the Obstacle mode by checking for a discrepancy between real time and the final time of the run. This includes:

- Runs done on dedicated servers
- Runs done in solo
- Runs done in local network (LAN)
- Runs done in the editor (which do not appear on leaderboards)
- All runs, regardless of whether they result in a personal best (PB) or not

This does not include:

- Runs done in offline mode, or with no internet access
- Runs done on an outdated version of the Obstacle titlepack (for runs on a dedicated server, only the server has to be updated)

If the real time and final time of the run do not differ, the run passes the check. If there is a discrepancy, the run gets flagged, and the investigation team gets notified with the checkpoint times of the run which can then be used to investigate the possible use of speedhacking.

Personal best runs are archived on the in-game leaderboards that can be viewed on the Obstacle website (https://www.obstacle.ovh/). The website keeps track of the most recent personal bests that have been achieved, and can be used to quickly confirm that a flagged run was also saved on the leaderboard. Additionally, the final personal bests of all players are archived from the time period.

All runs that were flagged for speedhacking were individually analysed by MiLTanT. We were prepared for false flags due to the detection system's possible rounding errors or server lag. Flagged runs that were done on a server also include the server name for this reason. It is worth mentioning that speedhacking does not seem to be usable on dedicated servers - it causes an error and makes the player unable to move. There were a few flagged runs done on servers that were investigated and concluded as false flags - this will be covered later in the document.

The Data & Analysis

Total Data

Between April 10 and May 12, 2022 we have access to data from:

- 4541 final personal best runs
- 3177 final personal best runs done on an Obstacle titlepack version that implements speedhacking detection
- 96 runs flagged by the speedhack detection system

"Final personal best run" means the best run a player was able to achieve on a map during the investigation period. Of course, a player can complete multiple personal best runs on the same map - for example, improving from 58 seconds to 57 seconds. The "final personal best runs" number only takes the 57-second run into account. Both runs, however, would have gone through the speedhack detection system. On top of this, not every run is going to be a personal best. All of the finished runs - personal best or not - went through the detection system. We estimate the amount of these runs below.

In order for the detection system to work on servers, server owners had to first update their servers to include the April 10 Obstacle titlepack update. Different server owners updated their servers at different times, which is why the number is lower. If players did any runs in solo, they would need to update their titlepack locally. The game generally does this automatically when you enter the titlepack.

Based on these numbers, we estimate that during the investigation period there were around:

- 10-12k total personal bests
- 7-8,5k total personal bests done in a titlepack version with speedhack detection[1]

Of the flagged runs:

- 82 were done by Nampo in solo play
- 9 were done in the map editor by a player on a single map (not resulting in leaderboard records, and thus will be kept anonymous)
- 5 were done on public dedicated servers by different players (which we argue are false flags, and thus will be kept anonymous)

[1] During the investigation period, players finished maps they had never played before 1,5 times on average. We don't have access to statistics for how many times players finished maps that they had already finished before the investigation, but we estimate it to be higher on average. Our estimation is that overall, the average amount of finishes per map per person is roughly around 2,5.

Breakdown of Speedhacked Runs

This list breaks down all of speedhacked solo runs that were flagged for speedhacking during the investigation. All of them were completed by Nampo. Note that not all fastest flagged runs resulted in a personal best - if that is the case, it's mentioned next to the rank. The ranking of those runs means the ranking of the flagged run, and not his personal best.

Map Name	Flagged Run Count	Nampo's Fastest Flagged Run	Flagged Run Rank
Mirror	4	01:20.64	World Record
«A Hard Night»[2]	2	07:20.76	World Record
intensive boot camp	17	02:38.11	World Record
Out of Control	3	02:18.40	World Record
TrumpWall - kys edition	4	01:39.34	World Record
Yump	3	00:12.60	World Record
Neon ☆ Star	7	02:32.84	World Record
satisfied now ?	4	01:45.74	World Record
I CAN'T GET NO SATISFACTION	3	01:44.60	World Record
Pain Overdose[3]	20	01:25.14	World Record
intensive ultraboot camp	2	04:30.86	World Record
velhippe	5	02:45.99	Top 3 (Not PB)
Once Upon A Time (Inter-Hard)	1	07:27.00	Top 9 (Not PB)
BOOT	1	00:19.30	Top 2
Andromeda·	1	02:03.04	World Record
Vit F	5	02:20.71	World Record

[2] The runs were done on two different versions of the map
[3] The runs were done on two different versions of the map

Analysing the Fastest Flagged Runs

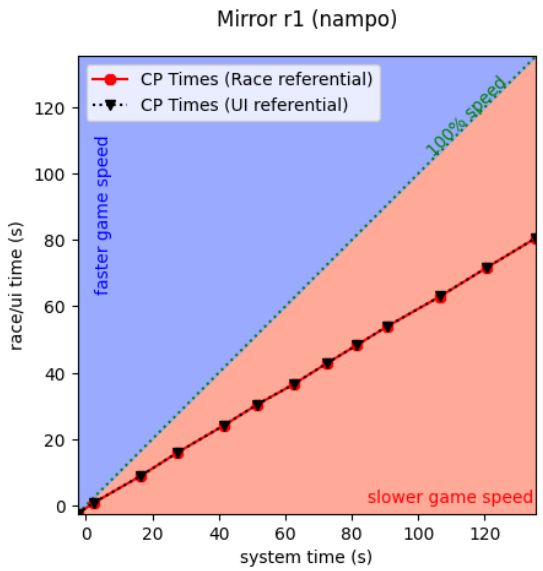
In this section, we will take a closer look at some of the records shown in the list above. There are two different types of timing methods on the graphs:

- UI Time (black), which is not affected by pausing the game
- Race Time (red), which is affected by pausing the game

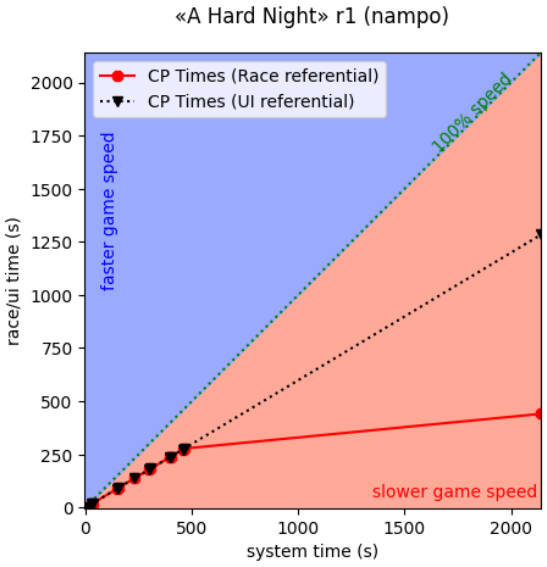
They are compared against the:

- System Time, which is supposed to be closely following either the computer's hardware clock or a distant time server, and has an accuracy of one second

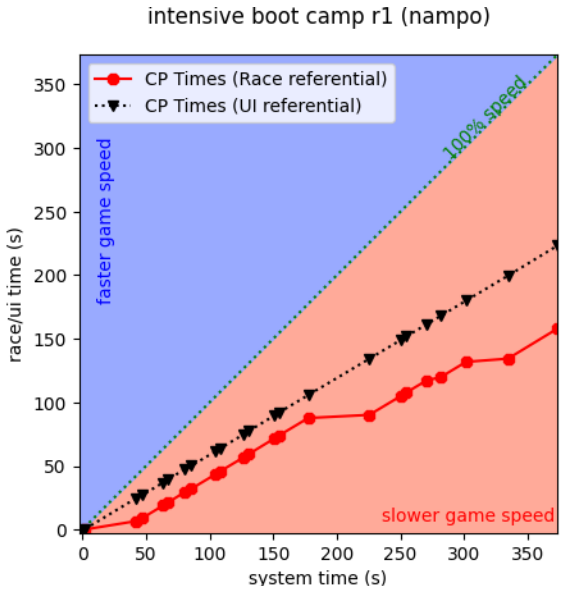
For a run to be legitimate (in terms of game speed), the expected result is that the checkpoint times of UI Time have to always match with the 100% speed line. If there is a pause on a run, the Race Time will differ from the two other lines. We argue that all of these runs were done with 60% game speed, because their UI Times always stay 40% below the 100% line.



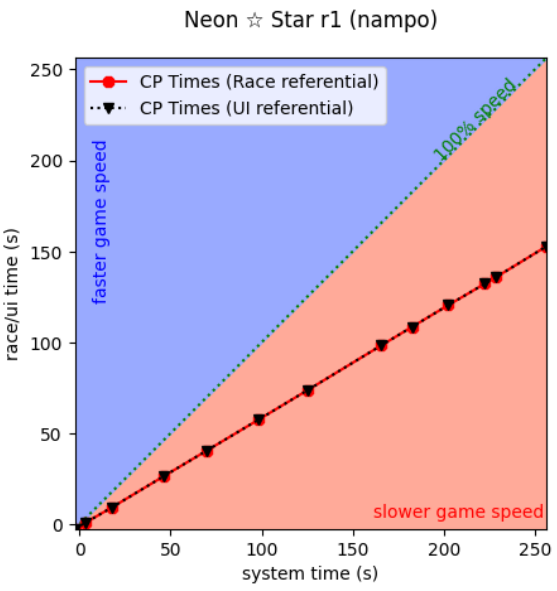
Typical 60% game speed run



60%, but pause before the goal



60%, but multiple pauses



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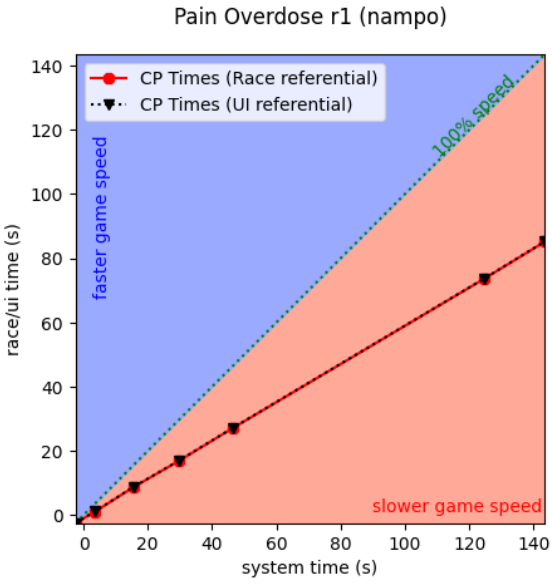
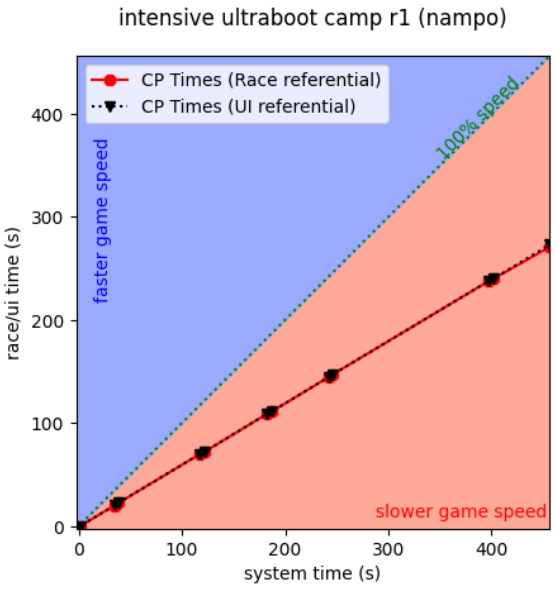
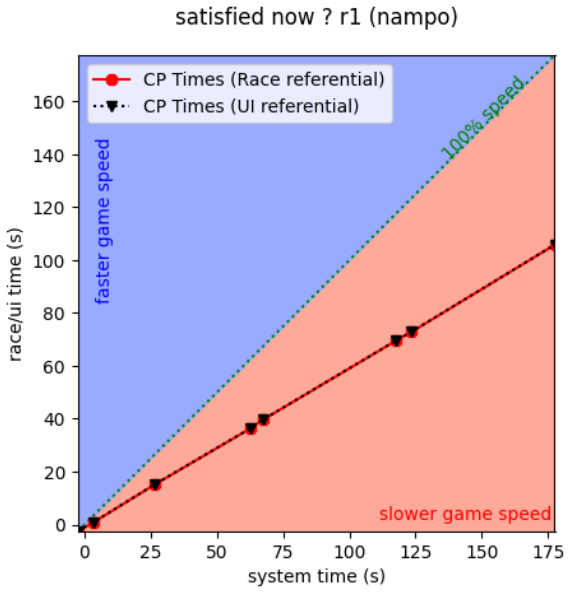


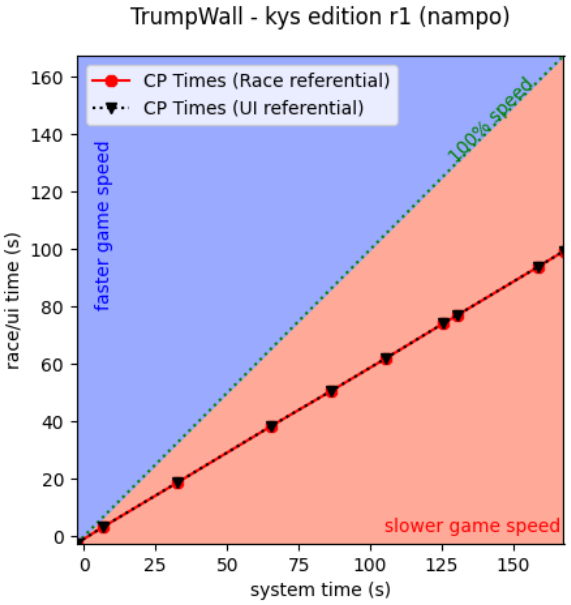
Typical 60% game speed run



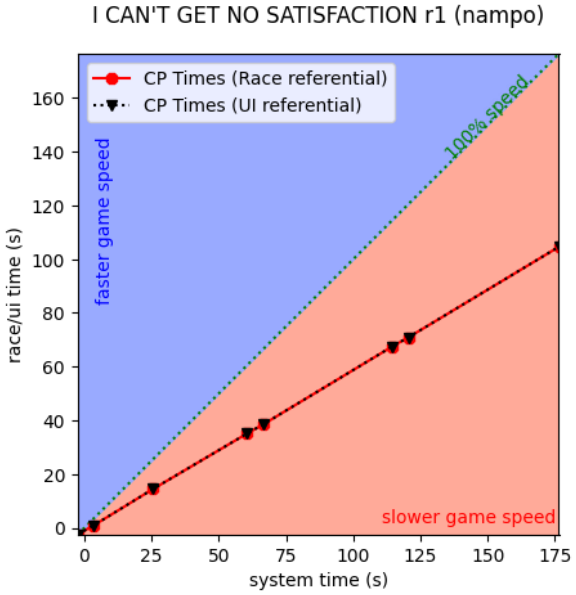
Typical 60% game speed run



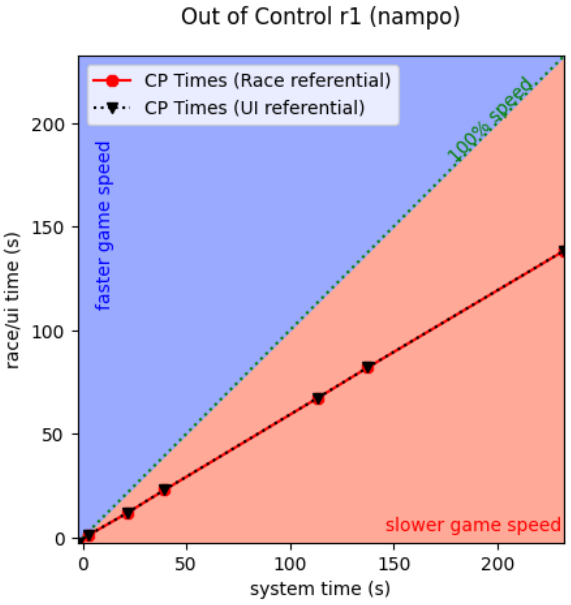
Typical 60% game speed run



Typical 60% game speed run



Typical 60% game speed run



Typical 60% game speed run

False Flags

Dedicated Server Runs

During the investigation period, a total of 14 runs were flagged for speedhacking from players other than Nampo. 5 of these were done by different players on dedicated servers, and we argue that those were falsely flagged by the detection system. There are two reasons for this:

1. Speedhacking with Cheat Engine on servers makes the game jitter, and the player is unable to move at all
2. The game speeds of these runs do not make sense from a cheating perspective

To elaborate on the second point, the discrepancy ratios were as follows:

- 99.9331%
- 99.9751%
- 100.784%
- 92.9973%
- 131.917%

The first four are difficult to explain, but they all exhibit a very small time discrepancy that can be explained by lag and/or rounding errors. In the fourth one, it looks like the discrepancy is bigger, but the run in question is very short (20 seconds), which also affects the discrepancy percentage. Either way, the graphs and especially the UI Time of these runs do not suggest speedhacking. The fifth run on the list is much more surprising, as it suggests the game was running at a faster speed, which would only make playing it harder (keep in mind that the in-game timer would similarly run at a higher speed). We suspect that this unusual discrepancy was caused by a punctual synchronisation between the player's system time and a remote time server.

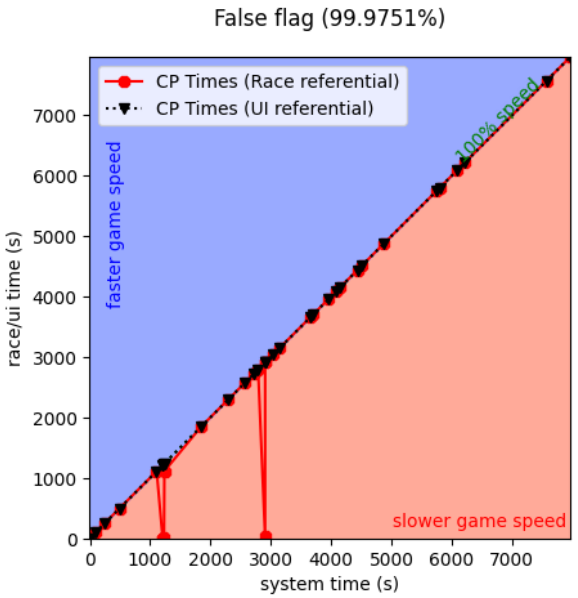
As mentioned, all of these runs were done on dedicated servers, where according to our tests, speedhacking with Cheat Engine is practically impossible anyway.

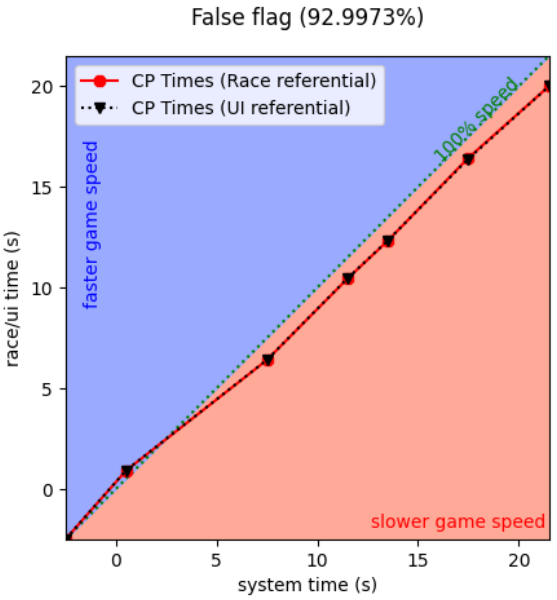
Editor Runs

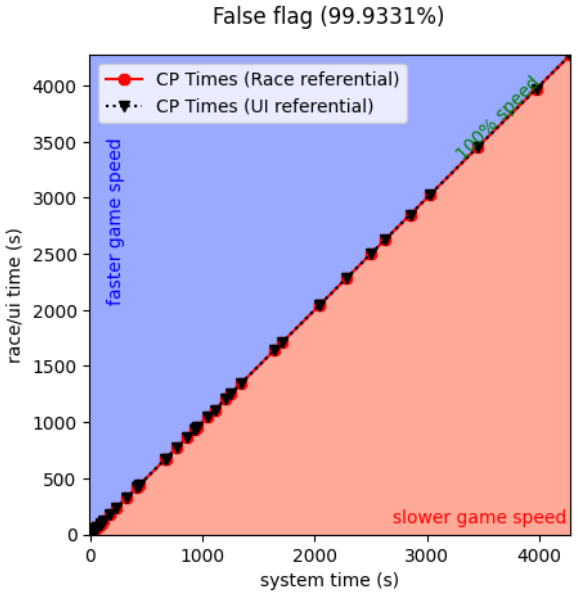
Of the 14 runs, the other 9 were completed by a single player in the map editor. All custom maps are created in the in-game map editor, and players can similarly open already-created maps by other community members and play them there. Runs done in the editor are not seen as official, and they will not submit times on the leaderboards. The player in question did all of these runs with 70% speed on the same map, and then went on a dedicated server to complete a legitimate

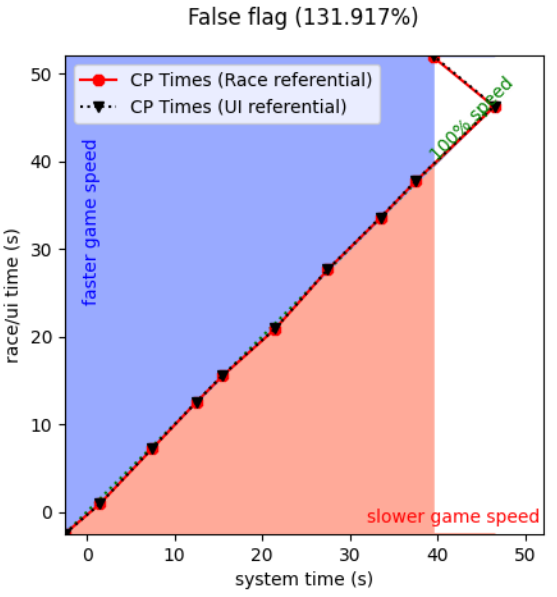
run (that did not get flagged) on the same map. When approached, the player admitted to playing around with Cheat Engine in the editor. No other runs by this player were flagged for speedhacking, and as the player completed numerous non-flagged runs during the investigation period, we argue that the player has not speedhacked any runs outside of the editor. For this reason, the player hasn't affected the competitive integrity of Obstacle, and thus hasn't committed any punishable actions.

Here are the graphs for some of the false flags:







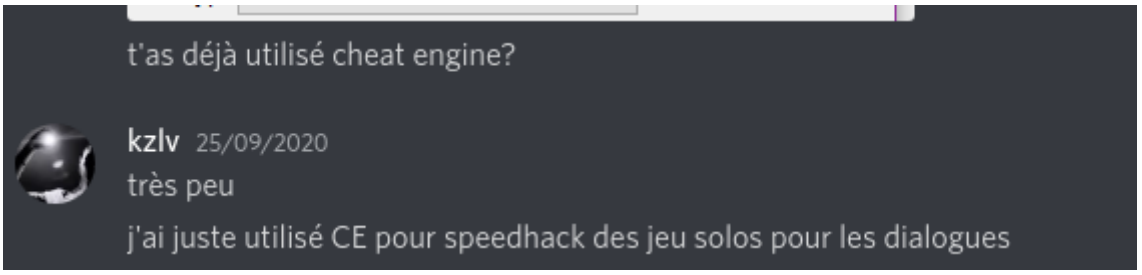


Circumstantial Evidence

As mentioned in the beginning of the document, general suspicion of Nampo's runs being possibly illegitimate started at the end of 2021. This section covers the abnormalities of Nampo's progress and improvement, as well as confirmation that he had used Cheat Engine before. Nothing in this section is meant to function as standalone evidence, but rather as support to the evidence from the investigation period.

Usage and Knowledge of Cheat Engine

On September 25, 2020, Nampo approached MiLTanT on Discord private messages, asking for help for finding a grip vector value with Cheat Engine. Grip vectors essentially modify how air control functions in ShootMania. During this discussion, MiLTanT asked Nampo if he had any experience using Cheat Engine. Nampo says that he had used it to speedhack dialogues in single-player games.



Translation from French:
MiLTanT: "have you ever used cheat engine?"
Nampo (kzlv): "very little" "i've only used CE to speedhack single-player games for the dialogues"

Two hours after this conversation, Nampo uploaded a YouTube video titled "the real nampo jump aka rebranded casquette jump 2k20". Though he does not explicitly say that he used Cheat Engine for the gameplay, it is well understood that manipulating air control in the way the video displays is not possible with default physics of the game. Nampo later unlisted this video on YouTube. Note that the video is reuploaded, but was originally uploaded on Nampo's own channel.

the real nampo jump aka rebranded casquette jump 2k20 - YouTube video

Unusual Sudden Improvement

Nampo's progression throughout 2021 is very unusual compared to other top players. Overall, he set a new personal best to 636 maps in 2020 and 255 maps in 2021. So far, he has set a new personal best to 87 maps in 2022 (by May 12). The average ranking of Nampo's personal bests took a notable turn around the end of July, 2021.

Note that the amount of maps with new personal bests can be slightly inaccurate if the player improved their personal bests on those same maps at a later date. For example, if the player played the same map on January 1, 2020 and January 1, 2022, only the latter would be counted.

Time Period	Nampo's Average Ranking (on PBs achieved within the time period)	Amount of Maps with new PBs
Jan 1, 2020 - Dec 31, 2020	15,00	636
Jan 1, 2021 - Jul 29, 2021	11,23	169
Jul 29, 2021 - May 12, 2022	1,24	173

Compared to other top players, this is essentially unheard of. Players are certainly expected to improve over time, but Nampo had already been a world record contender for several years. An average rank this close to 1 is unprecedented and made other community members question the legitimacy of the records. For comparison, here are the statistics from a few other top level players:

Kiwi:

Time Period	Kiwi's Average Ranking (on PBs achieved within the time period)	Amount of Maps with new PBs
Jan 1, 2020 - Dec 31, 2020	14,56	709
Jan 1, 2021 - Jul 29, 2021	7,71	483
Jul 29, 2021 - May 12, 2022	7,24	1691

SBVille:

Time Period	SBVille's Average Ranking (on PBs achieved within the time period)	Amount of Maps with new PBs
Jan 1, 2020 - Dec 31, 2020	8,48	712
Jan 1, 2021 - Jul 29, 2021	6,62	332
Jul 29, 2021 - May 12, 2022	9,01	174

Radon:

Time Period	Radon's Average Ranking (on PBs achieved within the time period)	Amount of Maps with new PBs
Jan 1, 2020 - Dec 31, 2020	10,87	610
Jan 1, 2021 - Jul 29, 2021	11,21	227
Jul 29, 2021 - May 12, 2022	4,32	309

Having a better average rank could be explained by a few things:

- Tendency to go for difficult maps that have less competition and less players on the leaderboards
- Not finishing maps with a "weak" time (intentionally resetting the run before the goal)
- Having very few finished maps during the time period

Nampo's sample size is still significant, but admittedly the other two explanations could apply. Radon is a fairly comparable player - they both regularly attempt world records on very difficult maps that not many people are able to contest. Even then, while Radon's average ranking after July 29, 2021 has improved significantly, it is far from Nampo's 1,24 average during the same time period.

Confrontation & Nampo’s Response

When confronted about the allegations, Nampo admitted to having completed runs illegitimately. Nampo was cooperative with us and explained how he cheated. His explanations were in line with our analysis.

Apology

Nampo (also known as kzlv) has come forward with this statement:

“Hello fellow obstaclers,

I'm making this apology towards the community and taking it as an opportunity to come clean about my motives.

As the document explains, I used tools to have an advantage in-game.

To be fair, no explanation or excuses can be accepted to justify what I have done and I completely accept the consequences.

For the ones that are a bit more curious about why I did this, I'm gonna provide a short answer here, and for those who are closer to me, you can DM me for more details.

I started using this method to get harder runs for my youtube videos, seeing the people enjoying the runs and their the feedbacks motivated me to make even more impressive runs and as the time went by to the point I was stuck in this spiral of cheating. I'm glad that this goes out because it frees me from a burden that was stuck in my head, the community will benefit from that by having an anti-cheat to protect the competitive integrity of Obstacle. But then again, that by no means is a valid argument for doing what I did.

So here are my sincere apologies to everyone, especially the people who grinded the same runs as mine.

I haven't been enjoying obstacle for a long time now, due to the urge to keep making new videos but knowing what I was doing was wrong, so I'm wishing you all farewell.

-kzlv”

Conclusion and Consequences

Consequences for Nampo

After analysing and considering all of the evidence and our findings during the investigation, we conclude that Nampo has been speedhacking records, both during the investigation period and at least for several months before it. The investigation did not find evidence of any other player having cheated records, or evidence of any other types of cheating.

Due to a great, deliberate disregard for competitive integrity and a severe lack of respect towards other community members, Nampo will be temporarily banned from Obstacle. More specifically, he will receive:

- 2-year ban from Obstacle titlepack from May 14, 2022 until May 14, 2024
- 6-month ban from leaderboards from May 14, 2024 until November 14, 2024

Additionally, all of Nampo's runs will be removed from the Obstacle leaderboards.

Moving Forward

In the following weeks after the investigation has been published, the Obstacle community must have a conversation about how to prevent incidents like this from happening in the future. Obstacle has always had relaxed proof standards - which might make the community more welcoming and inclusive - but perhaps it's time to rethink if our approach has been correct, and consider raising the proof standards for at least top runs on prestigious maps. An additional discussion to have is one regarding the usage of Cheat Engine for practice or testing purposes, or for creating tool-assisted speedruns.

Nampo was also one of the creators of the Faith Benchmarks -project, which introduced skill tiers into Obstacle. How this project will move forward should ultimately be decided by team Faith.

Contact/Questions

The investigation was conducted by MiLTanT, vasive, Ouhou and SBVille. This document was written by SBVille. You can contact me with any questions or concerns regarding this project on Discord: sbv#5984