**How God Mode Works in Modern Warfare 3 and Ghosts**

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**Intro**

If you could grant yourself one superpower in Call of Duty, what would it be? Would you go for Super speed? Teleporting? Maybe invisibility? Or what about wallhacks? Given that the point of any first-person shooter is to get as many kills as possible without dying, I’m sure the majority of people would respond with invincibility, otherwise known as god mode.

Obviously, any one of the aforementioned abilities and more can be achieved by simply putting on your anonymous mask, hacking into the mainframe, and modifying the game’s code. But for this video, I just want to focus on how these things might arise as unintended features through the exploitation of built-in game mechanics. More specifically, I would like to answer the question, “How is it that in Modern Warfare 3 and COD Ghosts, an oversight in the programming logic allows us to achieve the one thing we should never be able to do? Become invincible.”

**God Mode Tutorial**

In Modern Warfare 3 there have actually been a few ways to get god mode. Since they all work a bit differently, I’m just going to focus on what I believe was the most popular and widespread method at the time. First off, let me just explain how you get god mode to those that are unfamiliar with it:

First, you need to set the game mode to search and destroy, set lives to unlimited, and enable a bomb carrier class. Spawn in on the attacking team and get a predator missile. Begin taking out the predator missile and right as you’re about to enter it, step over the bomb to pick it up. Now, the next time you die, you will be both invisible and invincible. People will not be able to shoot you, and death barriers will have no effect.

But why does this happen? Why does it seem like you died, but yet you can still run around and interact with the environment? What does the predator missile have to do with all this? To answer these questions, we first have to look back at a previous Call of Duty.

**Modern Warfare 2**

Despite killstreaks being in the franchise since Call of Duty 4: Modern Warfare, 2009’s Modern Warfare 2 was the first to offer player-controlled killstreaks such as the predator missile, chopper gunner, and AC-130. Instead of just pressing a button to call in AI-controlled support, players could now take a break from the usual boots-on-the-ground gameplay to fire powerful weapons from hundreds of feet in the air. However, while this is happening, the player’s body is left vulnerable on the ground until the killstreak ends.

Let’s take a step back from killstreaks for a moment. What happens when you die normally in Call of Duty? There are exactly two outcomes. Approximately 98% of the time you will spam the respawn button in order to get through the kill cam as fast as possible because that was the biggest bullshit kill you have ever seen in your life. In the remaining two percent you will actually sit through the entire thing because it’s even bigger bullshit than usual and you want to look for a reason to excuse yourself other than lack of skill.

Either way, the game will force you to respawn at some point. Unless the match is ending or the game mode has limited lives enabled, that is how the game is coded. If the player dies, the player must respawn. This, however, is not the case whilst the player is using a killstreak.

At this point, Infinity Ward had to answer a critical game design question. What happens to the player if they die whilst controlling a killstreak? Well, let’s look at our options. A: The game ignores everything and respawns the player, pulling them out of the killstreak in the process. B: The game ignores everything and respawns the player’s body but keeps them in the killstreak. Or C: The game recognizes the fact that the player is using a killstreak and postpones the respawn until after it’s over.

If you’ve played any Call of Duty, you will know the answer is C. Now, you might say, “So what? The player dies and the game waits to respawn them. It’s just like the killcam we saw earlier.” But what if I told you that’s not the case? What if I told you that when you’re killed whilst using a killstreak, you don’t actually die?

**Faux Death**

So you might be sitting there thinking, “why on Earth wouldn’t you just kill the player like normal when they’re using a killstreak?” While I can’t tell you why Infinity Ward made the decision they did, what I can do is show you what could happen if you let dead players control killstreaks.

In black ops 1, Treyarch coded killstreaks so that they work even when the player is fully dead. This enables exploits such as the gunship aimbot glitch and even the black ops god mode glitch. You can see here that the player has switched to spectator mode, yet they still have enough control of the gunship to fire at everyone. Perhaps Infinity Ward realized that actually killing the player would lead to more glitches than it was worth.

Instead of letting players use killstreaks even after they die, Infinity Ward decided that players must remain alive to use them. What you really need is a way to keep the player alive, but have everyone think they are dead. This is where Infinity Ward came up with a clever solution. They devised a ternary player state that exists between life and death. They called this state the faux death, or being faux dead. When faux dead, players are technically still alive, but they are both invisible and invincible. The player remains locked in the killstreak until it ends, at which point they are killed and respawned.

So from an outside perspective, killing a player who’s in a killstreak will look like a normal death. Their body will drop to the ground and there will be no one left. In reality, the player is still standing there. They are just invisible and invincible. There is no way for another player to interact with them until the killstreak comes to an end.

**Predator Missile**

We previously posed intriguing questions about Modern Warfare 3: When executing the god mode glitch, why does it appear as though you've been killed, yet you remain alive? And what role does the predator missile play in this? By now, it should be evident that the god mode glitch and the faux death are intrinsically linked. That is, the faux death is the foundation upon which god mode works.

When using a predator missile and seemingly 'dying', the faux death occurs. However, it's the interaction with the bomb carrier class that allows the player to overcome this state and move freely within the game. This leads to a pivotal question: What does picking up the bomb do that causes the faux death system to break? To fully understand this, we must first delve into what goes on behind the scenes when the player uses a killstreak.

The normal life cycle of a predator missile can be categorized into three distinct stages. Taken directly from the game’s code, they are: “try use predator missile”, “initialize ride killstreak”, and “missile eyes”. The killstreak process begins when the button to deploy the predator missile is pressed, propelling us into the “try use predator missile” phase.

This stage only does one thing and it happens immediately. It sets the player attribute, “using remote”, to true. In other words, the game is taking note that the player currently has the laptop out and is using a remote killstreak such as the predator missile, chopper gunner, or AC one thirty. The significance of this attribute cannot be understated. When a player dies, the game needs to decide if it will be a regular death or a faux death. We know faux deaths only occur when the player is using a killstreak. “Using remote” is the attribute it checks to make this decision. If “using remote” is false, it will be a normal death. However, if “using remote” is true, it will be a faux death.

In the second stage, termed "initialize ride killstreak," we verify if the player can still use the predator missile. A one-second timer begins, during which the game checks for any of three specific events: disconnection, death, or initiating a weapon switch. If any of these events happen to the player within the time frame, the "using remote" attribute is reset to false, and the predator missile is canceled. Other than that, the purpose of this stage, or more specifically the one second interval, is to give the laptop opening animation some time to play out before the player fully enters the killstreak.

The third and final stage is called “missile eyes”. Here, the player gets to take control of the predator missile and see the map from a bird’s eye view. We have passed the point of no return. The player’s camera gets linked to the rocket, and so do their controls. Any buttons the player presses will no longer affect their soldier on the ground. From this point, there are only three things the player can do to exit the predator missile, and each case is handled by the game. Disconnecting or changing teams will end the killstreak prematurely, but in both cases, “using remote” gets reset to false and the ability to control the predator missile is disabled. Changing teams will also fully kill the player in the process. The only other way out is to use it until it ends. At which point, “using remote” is still reset to false and the predator missile comes to a close. In terms of making sure nothing breaks, every I is dotted, and every T is crossed.

**Killstreak Use Waiter**

Although you can visualize the stages of the predator missile as separate entities on a timeline, another useful way to visualize them is by thinking of them in layers, like onions, or ogres. Each inner section is just a part of a larger whole. So if we are currently in the “initialize ride killstreak” stage and one of the three checks fails, not only do we throw this stage out the window, but we also throw out all of the stages that are contained within it. In this case it would include “missile eyes”, the stage where you’re actually controlling the predator missile.

But how many layers does the predator missile have? To answer this question, we must first watch the entirety of the film Shrek. Actually, never mind. I can probably explain it on my own.

There is only one additional layer that wraps around the predator missile. This layer is called “killstreak use waiter”, and it constantly runs from the moment the player spawns in. The main purpose of this function is to wait until the player presses the killstreak button, and then it figures out which killstreak needs to be called in.

However, the most important part of “killstreak use waiter” is that only one instance of it can exist per player. Furthermore, newer instances will always be prioritized over older ones. This effectively means that the player can only use one killstreak at a time. What this also means is that any killstreak the player is using will be completely wiped if they respawn because the new instance of “killstreak use waiter” will overwrite the old one. As stated previously, due to the layered nature, any stages within the one being tossed out will also be tossed along with it.

So, what’s the problem? During the development of Modern Warfare 2, when these mechanics were being created, Infinity Ward did so under the assumption that every time a player respawns, it means they must have died first. Because of this, every check the game makes to safely exit the predator missile relies solely on checking if the player has died, not if they have respawned. So what would happen if there was a way to respawn without dying?

**Bomb Carrier Class**

During the development of Modern Warfare 3, a decision was made to introduce the “bomb carrier class” feature to the private match version of Search and Destroy. When a player picks up the bomb, their class and loadout are altered temporarily to one configured within the pregame lobby settings.

This feature works similarly to how the "try use predator missile" function is triggered when activating a killstreak. When a player steps over the bomb, the "apply bomb carrier class" function is initiated. This function essentially tells the game to switch the player's loadout the next time they spawn. To apply this change immediately, the game respawns the player at their current location with the new class.

One might wonder why the developers chose to respawn the player to change their loadout, especially when everyone’s favorite perk from Modern Warfare 2 could adjust the loadout without a respawn. The answer might lie in the evolved game mechanics of Modern Warfare 3. Unlike its predecessor, where killstreaks were stacked and players could only activate the most recent one, Modern Warfare 3 allows players to choose their desired killstreak. Furthermore, in this installment, killstreaks are intrinsically tied to specific classes, meaning changing classes also changes the available killstreaks. With these differences in killstreak mechanics, it's plausible that the developers found respawning the player to be the most straightforward solution. However, what they did not foresee is that this decision would inadvertently allow players to achieve invincibility.

**The God Mode Glitch**

At this point, we have all of the prerequisite knowledge needed to piece together how the god mode glitch works. Let’s take an in-depth, step-by-step look at everything that happens when a player performs the god mode glitch in Modern Warfare 3.

When the player spawns in, an instance of “killstreak use waiter” is created. We know that every time a player spawns in, a new instance of this function is generated. Any previous instance, as well as its entire contents, is tossed out the window.

After earning a predator missile, the “use killstreak button” is pressed, and the player begins walking towards the bomb. This propels us into the first stage of the predator missile life cycle, “try use predator missile”. We will now add this as a part of “killstreak use waiter”. Immediately, the player property, “using remote” is set to true. We know this is what decides if the player will have a normal or faux death.

Next, the function “initialize ride killstreak” is called. Since it’s a part of the predator missile, we will add it inside “try use predator missile”. A one-second timer begins, during which the game checks for any of three specific events: disconnection, death, or initiating a weapon switch. If any of these events happen to the player within the time frame, the "using remote" attribute will be reset to false.

At this precise moment, within the one-second interval, the player steps over the bomb, triggering the “apply bomb carrier class” function. The new loadout is primed, and the player respawns at their current position. Because the player has respawned, all of the code that comes with that is run. A new instance of “killstreak use waiter” shows up and Thanos snaps the old one out of existence. Everything within the original instance is gone, and the predator missile is canceled.

Since we have exited the predator missile without triggering any of the three events, the player attribute, “using remote”, remains set to true. The next time the player dies, the game will check the “using remote” property, see that it is true, and force the player into a faux death. When faux dead, a player will be both invisible and invincible. However, because the predator missile was canceled, the player isn’t locked into the killstreak like they usually are. They are free to run around and shoot at other people. The player has achieved the one thing you should never be able to do in Call of Duty. They have become invincible.

**Conclusion**

As we've delved deep into the intricacies of the god mode glitch in Modern Warfare 3, it's not just the exploits that have left an indelible mark, but the stories and memories we've created whilst uncovering and sharing them with all of you. These programming oversights remind us that behind every game, there's a human touch, an aspiration to craft a perfect world. Discovering these vulnerabilities isn't just about gaining an upper hand; it's about connecting with the heart and soul of the game, finding beauty in its imperfections. To many, the allure of god mode might be about gaining an advantage online. But to me, and to many others, it is a reflection of our shared human desire to explore and understand our world… even if it’s about an insignificant, decade-old video game.