Game Hacking: How to not be a script kiddie

Chris & Ravi

Write meeting flag on board

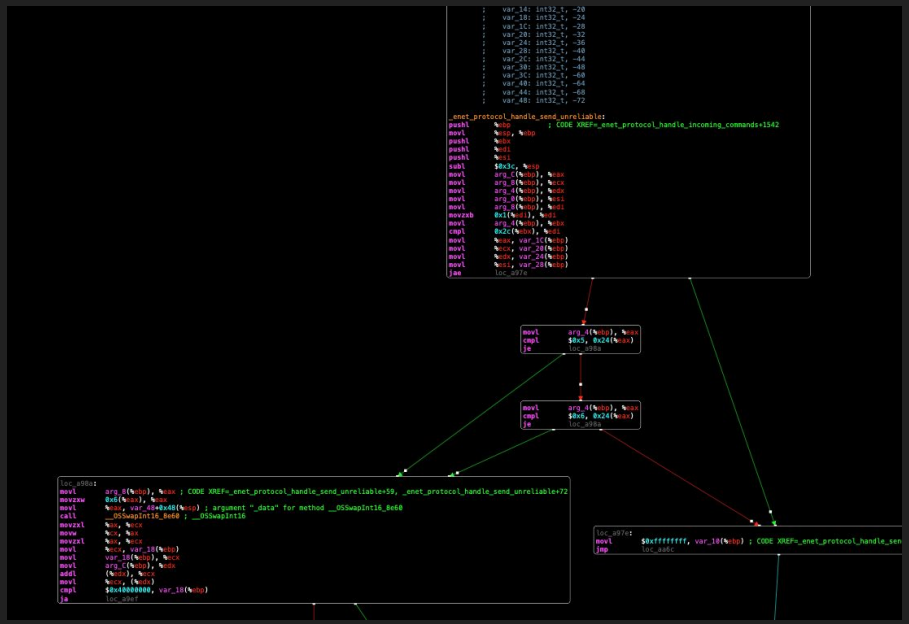
Downloads

Games are just code!

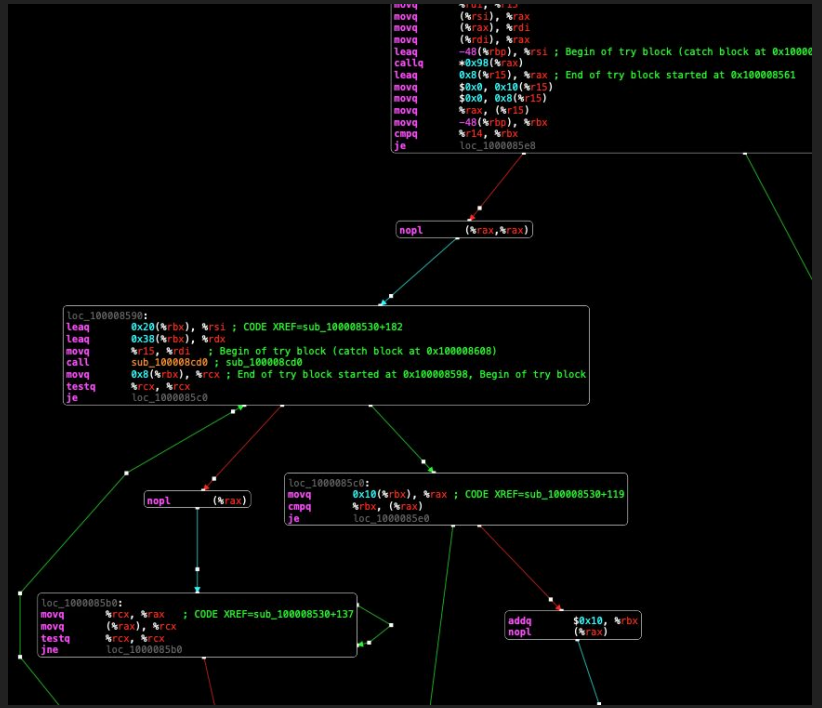
- Stack
- Heap
- Libc
- All reversing concepts apply

Game Code VS Regular Application Code

Assault Cube:



Spotify:



Common Attack Vectors

- Exploit from within game
  - (teleport challenge)
- Recon/ social engineering
- Modify game state in memory
- Exploit bugs in game code- code execution?
- Code injection!

Exploiting In-Game

Minecraft - 1.9 DUPLICATION GLITCH (Anything) [Tutorial] MCPE / Bedrock / Xbox / Switch

Skippy 6 Gaming ✓ 51K views • 3 weeks ago

Help me get to 300k ! Join SQUAD6 🔥✅ https://goo.gl/MOq1tx ✅ How to DUPLICATE ANYTHING and Diamonds Glitch for Minecraft ...

Minecraft Duplication Glitch! EASY DIAMONDS!! DUPLICATE ANY RESOURCE ITEM! PS4/ Console Edition

ThunderCatGaming • 46K views • 1 month ago

YOOO, What is up guys?? This is ThunderCat Gaming here today with another AWESOME **Minecraft Duplication Glitch**!

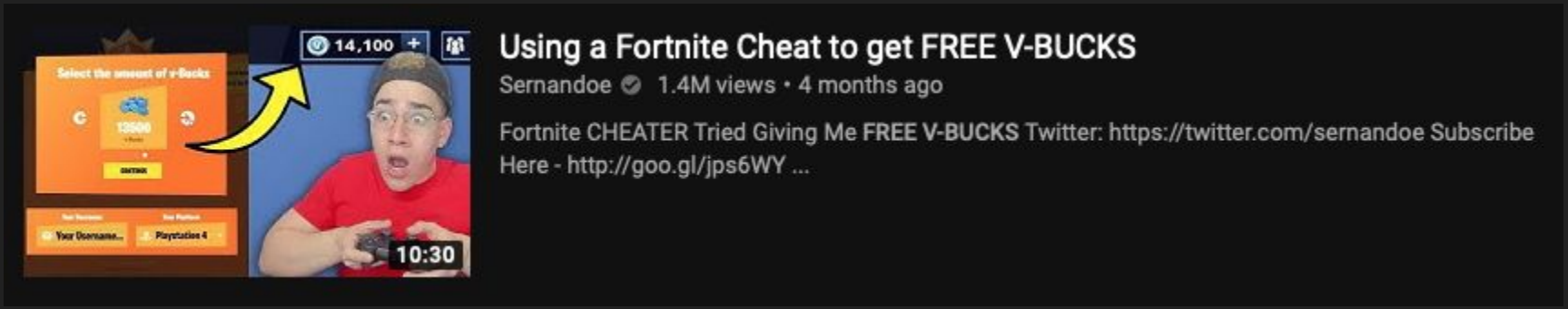
Minecraft - 1.8 DUPLICATION GLITCH [Anything + XP] MCPE / Xbox / Bedrock

Skippy 6 Gaming ✓ 117K views • 2 months ago

Help me get to 300k ! Join SQUAD6 🔥✅ https://goo.gl/MOq1tx ✅ Today I am going to show you how to do a DIAMOND DUPLICATION ...

Exploiting In-Game

Recon/ Social Engineering



Modify Game Memory

- Must be done while game running
- Scan memory for known value
- Change value, rescan
- Eventually find where that value is stored
- ASLR? Never heard of it

Modify Game Memory

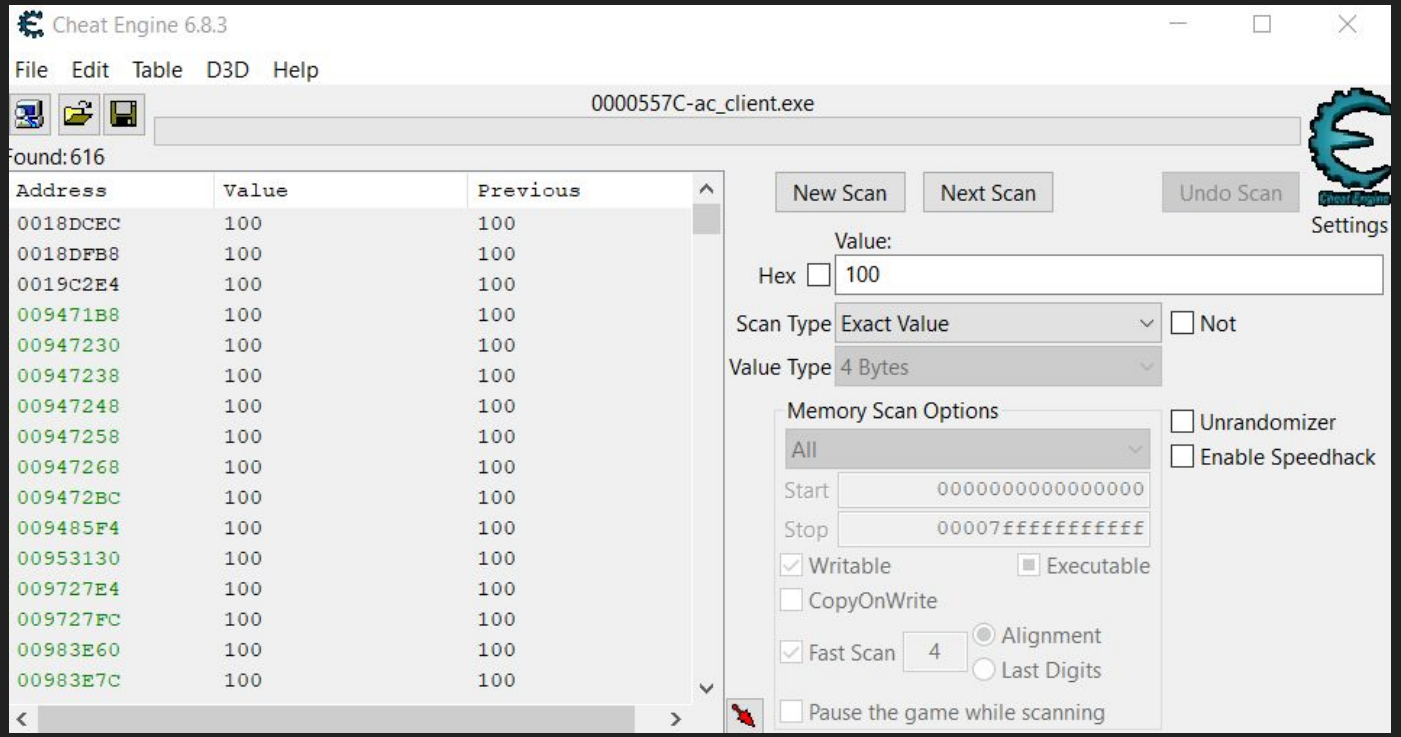
Exploit Bugs in Game Code

Example: Integer overflow/ underflow (Civilization)

Code Injection

- The crown jewel of game hacking
- Layer escalation: low level (C++) -> C# (.NET)
- Unmanaged: C++/ Machine Code
- Managed: C#/ IL/ CLR

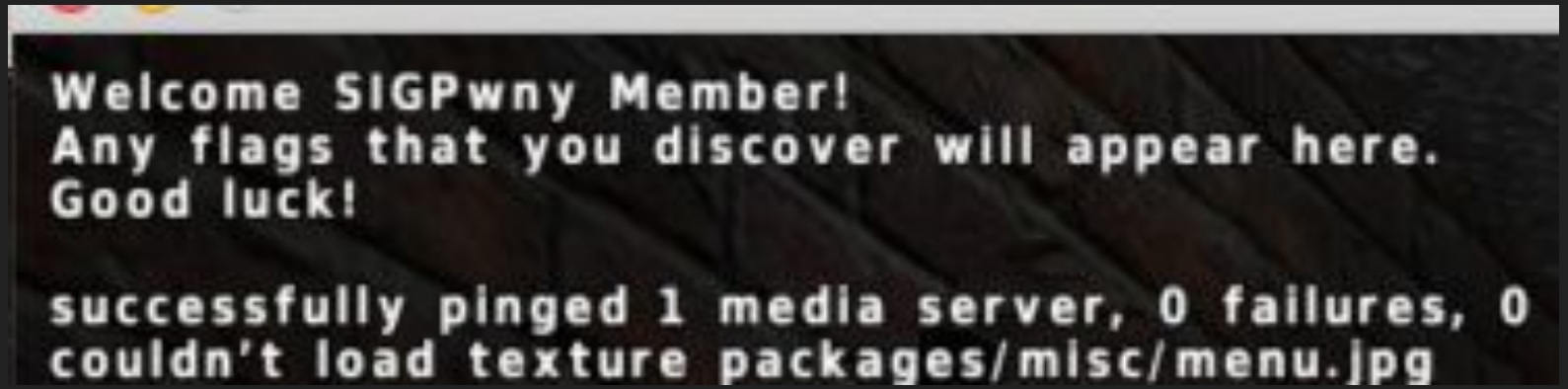
Cheat Engine



The Target: AssaultCube

Flags will be reported to the console in the top left!

To exit the game, type ‘exit’ into the chat (open chat with ‘T’)



Challenge 1

Set your ammo to a very large value!

Challenge 2

Set your X coordinate to > 1000 for a flag!

Challenge 3

Disable the part of the code that causes health to decrease.

Challenge 4

Use static analysis to find a hidden flag in the binary!

Challenge 5: Buffer Overflow

Goal: Overwrite a stack variable to a desired value

Challenge 5: Buffer Overflow

Input Vector: the chat field!

To try this, send a message where the first character is '%'

Challenge 5: Buffer Overflow

Called every time a message is sent where the first character is '%':

```
void sigPwny_vulnerable_buffer_1 (char* buf) {
    int canary = 0xDEADBEEF;
    char local_buffer[4];
    int length = 0;
    char* cursor = buf;
    while (*(cursor++)) { length++; }

    length = (length > sizeof(local_buffer) + 4) ? sizeof(local_buffer) + 4 : length;

    memcpy(local_buffer, buf, length);

    conoutf("The canary is: %x", canary);

    if (canary == 0x78786168) {
        conoutf("sigpwny{xxxxxxxxxx}");
    }
}
```

Challenge 6: Format String Attack

Goal: Leak a variable from the stack.

Challenge 6: Format String Attack

The variable is of the form:

0x50XXXX50 and is on the stack near the problematic call.

Challenge 6: Format String Attack

To try it, send a message where the first character is ‘#’. The output in the top is the result of your format string.

Challenge 6: Format String Attack

When you have the variable, convert it from ASCII and send the 4-character message (without a # sign).

Creative 👏 Challenge 👏

- Create the best hacked client you can!
- Work alone or with a partner
- Post a cheats montage á la 2009 to Youtube
- Coolest hacks win lots of pwnypoints!