

# Instructions (PLEASE READ)

**This is the current PvZ1 Modding Document meant for the Original Release of PvZ1. It is maintained and upheld by the new modding group, and it will share all sorts of code findings for people to use in their mods.**

Day	Night	Pool	Fog	Roof	Upgrade	Zombie	Minigame Only	Others
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(A side note; your hex code is dependent on the program you use. Hxd Code starts at "0", whereas Cheat engine code Starts at "400000" Respectively. So if you were using a CE Address, you would have to subtract 4 from the first (last?) digit from the number. So 400400 Would become 400, so on and so forth.)



To get help and join other modders, come join this Discord server! This server is aimed all around teaching you how to mod, and uniting all PVZ 1 Modders in order to enrich the community. (must be 13 years or older to join)

<https://discord.gg/U56Z3zZUfJ>



Subscribe to our PvZ1 Modder Association YouTube channel! This channel will bring a ton of modding tutorials related to this doc, and much more such as event announcements, sneak peeks from the members of the Discord server above and even mod showcases and trailers.

<https://www.youtube.com/@PvZMAOfficial>

Modding doc. for other versions:

[Steam G.O.T.Y.](#)

[Bloom & Doom \(December Build\)](#)

[DS Console](#)

[Mobile \(Android\)](#)

NEXT UP PLANS;

Creation of a new Master Document

Shoutouts to binhgm for having the old copy of the modding document so we could bring it back!

# Modding Tools

## Required

Gameplay Wise	Texture Wise	Music/Sound Wise
<b><i>THE GAME ITSELF OF COURSE!</i></b>		
	PvZ1 OG game for modding (Ver. 1.0.0.1051, unpacked): <a href="#">O.G PVZ 1.zip</a>	
 - Cheat Engine Find / edit advanced addresses, write / run scripts   - OllyDbg Save changes that edited with Cheat Engine permanently	Picture editing tools, for example    - Adobe Photoshop - Paint.NET - Microsoft Paint	 OpenMPT View and edit PvZ .mo3 soundtracks elements, including changing tunes/instruments, composing to an entirely different song, etc.
 HxD Edit most of the known addresses from the doc in an easier way	 PvZ Tools <small>(pw: pvztools)</small> If your game file wasn't obtained from the given .zip / didn't have any other game materials, you need it to unpack the game using main.pak	 - 'Custom Music Stuff' folder - HxD <small>HxD</small> Both are needed so you can insert custom music with the .mp3 extension instead
 PvZ Tools <small>(pw: pvztools)</small> Test temporary changes that you did to make sure they work correctly		 YouTube Most of the songs and sound effects can be found here, especially for PvZ's

## Recommended

Gameplay Wise	Texture Wise	Music/Sound Wise
<a href="#">pvzclass/MemoryAdress List</a> More tons of useful addresses and pointers about advanced stuffs	 Adobe Animate Edit animation of characters in game	Music composing tools, for example - FL Studio - Soundtrap - Bandlab   
 CFF Explorer Expand your mod with adding new code cave for you to save additional scripts	 PvZ Studio 2022 <small>(Thanks Aniq)</small> or  PopStudio <small>(Link provided by Bandit)</small> Mostly used for decompile reanim & particles, unpack console versions of PvZ1 and PvZ2, etc.	 Audacity Edit / Adjust sound effects and .mp3 music in game probably...?
	 Resource Hacker Change the game icon and cursor style with many ways <small>(this is also what I used to extract these apps' icon out)</small>	

# Script Injection Tutorial

This Tutorial was put together by Keifer/ChaosKeif/Keif and TheMaster. It allows you to make your scripts permanent and push your mod even further. (will be revamped in the future)

## [Tutorial to inject scripts](#)

# Mixed

## Seed Packet Shenanigans

Credits to Keif

### Adventure

Peashooter Sun Cost (100) - 29F2C0  
 Peashooter Recharge (750) - 29F2C4  
 Sunflower Sun Cost (50) - 29F2E4  
 Sunflower Recharge (750) - 29F2E8  
 Cherry Bomb Sun Cost (150) - 29F308  
 Cherry Bomb Recharge (5000) - 29F30C  
 Wall Nut Sun Cost (50) - 29F32C  
 Wall Nut Recharge (3000) - 29F330  
 Potato Mine Sun Cost (25) - 29F350  
 Potato Mine Recharge (3000) - 29F354  
 Snow Pea Sun Cost (175) - 29F374  
 Snow Pea Recharge (750) - 29F378  
 Chomper Sun Cost (150) - 29F398  
 Chomper Recharge (750) - 29F39C  
 Repeater Sun Cost (200) - 29F3BC  
 Repeater Recharge (750) - 29F3C0  
 Puff Shroom Sun Cost (0) - 29F3E0  
 Puff Shroom Recharge (750) - 29F3E4  
 Sun Shroom Sun Cost (25) - 29F404  
 Sun Shroom Recharge (750) - 29F408  
 Fume Shroom Sun Cost (75) - 29F428  
 Fume Shroom Recharge (750) - 29F42C  
 Grave Buster Sun Cost (75) - 29F44C  
 Grave Buster Recharge (750) - 29F450  
 Hypno Shroom Sun Cost (75) - 29F470  
 Hypno Shroom Recharge (3000) - 29F474  
 Scaredy Shroom Sun Cost (25) - 29F494  
 Scaredy Shroom Recharge (750) - 29F498  
 Ice Shroom Sun Cost (75) - 29F4B8  
 Ice Shroom Recharge (5000) - 29F4BC  
 Doom Shroom Sun Cost (125) - 29F4DC  
 Doom Shroom Recharge (5000) - 29F4E0  
 Lily Pad Sun Cost (25) - 29F500  
 Lily Pad Recharge (750) - 29F504  
 Squash Sun Cost (50) - 29F524  
 Squash Recharge (3000) - 29F528  
 Threepeater Sun Cost (325) - 29F548  
 Threepeater Recharge (750) - 29F54C  
 Tangle Kelp Sun Cost (25) - 29F56C  
 Tangle Kelp Recharge (3000) - 29F570  
 Jalapeno Sun Cost (125) - 29F590  
 Jalapeno Recharge (5000) - 29F594  
 Spikeweed Sun Cost (100) - 29F5B4  
 Spikeweed Recharge (750) - 29F5B8  
 Torchwood Sun Cost (175) - 29F5D8  
 Torchwood Recharge (750) - 29F5DC  
 Tall Nut Sun Cost (125) - 29F5FC  
 Tall Nut Recharge (3000) - 29F600

Sea Shroom Sun Cost (0) - 29F620  
 Sea Shroom Recharge (3000) - 29F624  
 Plantern Sun Cost (25) - 29F644  
 Plantern Recharge (3000) - 29F648  
 Cactus Sun Cost (125) - 29F668  
 Cactus Recharge (750) - 29F66C  
 Blover Sun Cost (100) - 29F68C  
 Blover Recharge (750) - 29F690  
 Split Pea Sun Cost (125) - 29F6B0  
 Split Pea Recharge (750) - 29F6B4  
 Starfruit Sun Cost (125) - 29F6D4  
 Starfruit Recharge (750) - 29F6D8  
 Pumpkin Sun Cost (125) - 29F6F8  
 Pumpkin Recharge (3000) - 29F6FC  
 Magnet Shroom Sun Cost (100) - 29F71C  
 Magnet Shroom Recharge (750) - 29F720  
 Cabbage Pult Sun Cost (100) - 29F740  
 Cabbage Pult Recharge (750) - 29F744  
 Flower Pot Sun Cost (25) - 29F764  
 Flower Pot Recharge (750) - 29F768  
 Kernel Pult Sun Cost (100) - 29F788  
 Kernel Pult Recharge (750) - 29F78C  
 Coffee Bean Sun Cost (75) - 29F7AC  
 Coffee Bean Recharge (750) - 29F7B0  
 Garlic Sun Cost (50) - 29F7D0  
 Garlic Recharge (750) - 29F7D4  
 Umbrella Leaf Sun Cost (100) - 29F7F4  
 Umbrella Leaf Recharge (750) - 29F7F8  
 Marigold Sun Cost (50) - 29F818  
 Marigold Recharge (3000) - 29F81C  
 Melon Pult Sun Cost (300) - 29F83C  
 Melon Pult Recharge (750) - 29F840  
 Gatling Pea Sun Cost (250) - 29F860  
 Gatling Pea Recharge (5000) - 29F864  
 Twin Sunflower Sun Cost (150) - 29F884  
 Twin Sunflower Recharge (5000) - 29F888  
 Gloom Shroom Sun Cost (150) - 29F8A8  
 Gloom Shroom Recharge (5000) - 29F8AC  
 Cattail Sun Cost (225) - 29F8CC  
 Cattail Recharge (5000) - 29F8D0  
 Winter Melon Sun Cost (200) - 29F8F0  
 Winter Melon Recharge (5000) - 29F8F4  
 Gold Magnet Sun Cost (50) - 29F914  
 Gold Magnet Recharge (5000) - 29F918  
 Spikerock Sun Cost (125) - 29F938  
 Spikerock Recharge (5000) - 29F93C  
 Cob Cannon Sun Cost (500) - 29F95C  
 Cob Cannon Recharge (5000) - 29F960  
 Imitator Sun Cost (0) - 29F980  
 Imitator Recharge (750) - 29F984

## I. Zombie

Zombie/Imp Cost (50) - 067B60  
Buckethead/Bungee/Digger Cost (125) - 067B72  
Football/Zomboni Cost (175) - 067B7E  
Pogo Sun Cost (200)\*\* - 067B48  
Screen Door Cost\* (100) - 067B3D

Balloon/Ladder Cost (150) - 067B78  
Gargantuar Cost (300) - 067B84  
Dancing Cost (350) - 067B6C  
Conehead/Pole Vaulter Cost (75) - 067B66

## Minigames

Beghouled Repeater/Zombiquarium  
    Trophy Cost (1000) - 067B1C  
Beghouled Fume Shroom Cost (500) - 067B27  
Beghouled Tall Nut (250) - 067B32  
Beghouled Shuffle Plants/Zombiquarium  
    Snorkel Zombie\* (100) - 067B3D  
Beghouled Fill Crater Cost (200)\*\* - 067B48

Explode-o-Nut Sun Cost (0) - 29F9A4  
Explode-o-Nut Recharge (3000) - 29F9A8  
Giant Wall-Nut Sun Cost (0) - 29F9C8  
Giant Nut Recharge (3000) - 29F9CC  
Sprout Sun Cost (0) - 29F9EC  
Sprout Recharge (3000) - 29F9F0  
Reverse Repeater Sun Cost (200) - 29FA10  
Reverse Repeater Recharge (750) - 29FA14

## Others

Basic Zombie Plant Packet Sun Cost (0) - 29FB30  
Basic Zombie Plant Packet Recharge (0) - 29FB34  
Conehead Plant Packet Sun Cost (0) - 29FB54  
Conehead Plant Packet Recharge (0) - 29FB58  
Pole Vaulter Plant Packet Sun Cost (6977228) - 29FB78  
Pole Vaulter Plant Packet Recharge (6977228) - 29FB7C  
Buckethead Plant Packet Sun Cost (0) - 29FB9C  
Buckethead Plant Packet Recharge (0) - 29FBA0  
Ladder Plant Packet Sun Cost (0) - 29FBC0  
Ladder Plant Packet Recharge (0) - 29FBC4  
Digger Plant Packet Sun Cost (0) - 29FBE4  
Digger Plant Packet Recharge (0) - 29FBE8  
Bungee Plant Packet Sun Cost (6) - 29FC08  
Bungee Plant Packet Sun Cost (0) - 29FC0C  
Football Plant Packet Sun Cost (0) - 29FC2C  
Football Plant Packet Recharge (0) - 29FC30  
Balloon Plant Packet Sun Cost (0) - 29FC50  
Balloon Plant Packet Recharge (0) - 29FC54  
Screen Door Plant Packet Sun Cost (0) - 29FC74  
Screen Door Plant Packet Recharge (6977728) - 29FC78  
Zomboni Plant Packet Sun Cost (0) - 29FC98  
Zomboni Plant Packet Recharge (0) - 29FC9C  
Pogo Plant Packet Sun Cost (0) - 29FCBC  
Pogo Plant Packet Recharge (0) - 29FCC0  
Dancing Plant Packet Sun Cost (6977344) - 29FCE0  
Dancing Plant Packet Recharge (0) - 29FCE4  
Gargantuar Plant Packet Sun Cost (0) - 29FD04  
Gargantuar Plant Packet Recharge (0) - 29FD08  
Imp Plant Packet Sun Cost (6977992) - 29FD28  
Imp Plant Packer Recharge (0) - 29FD2C  
<missing> Sun Cost (6977196) - 29FD4C  
<missing> Recharge (6977196) - 29FD50 (found by jornker)  
<missing> Text offset - 26E3D4 (also found by jornker)

\* \*\* Both used the same address

# Custom Seed Packets Tutorial

(Thanks to lazyPeaster and Peridot Ciocîrlan)

0873E2 - 087469:

```
04 75 29 D9 E8 D8 5E 10 DF E0 F6 C4 01 0F 85 5E 02 00 00 D9 46 14 83 EC 08
D9 5C 24 04 D9 46 10 D9 1C 24 6A 00 6A 00 E9 12 02 00 00 83 FF 06 75 29 D9
E8 D8 5E 10 DF E0 F6 C4 01 0F 85 30 02 00 00 D9 46 14 83 EC 08 D9 5C 24 04
D9 46 10 D9 1C 24 6A 00 6A 01 E9 E4 01 00 00 83 FF 0C 75 29 D9 E8 D8 5E 10
DF E0 F6 C4 01 0F 85 02 02 00 00 D9 46 14 83 EC 08 D9 5C 24 04 D9 46 10 D9
1C 24 6A 00 6A 02 E9 B6 01 00 00
```

- Change it to

```
00 0F 8C 6A 02 00 00 83 FF 4C 0F 8F 61 02 00 00 83 EC 08 D9 46 14 D9 5C 24
04 D9 46 10 D9 1C 24 6A 00 B8 C0 9E 6A 00 8B 00 8B 80 F8 07 00 00 83 F8 27
8B C7 0F 85 39 00 00 00 83 FF 01 0F 84 1C 00 00 00 83 FF 03 0F 84 1D 00 00
00 83 FF 26 0F 85 1E 00 00 00 B8 37 00 00 00 E9 14 00 00 00 B8 35 00 00 00
E9 0A 00 00 00 B8 36 00 00 00 E9 00 00 00 50 E9 C5 01 00 00 90 90 90 90
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90
```



Download: [https://file.garden/XD6TBfFsnnngxM3HA/packet\\_plants.png](https://file.garden/XD6TBfFsnnngxM3HA/packet_plants.png)

Download the above and replace packet\_plants.png in the images folder with this instead.

<Image id="PACKET\_PLANTS" path="packet\_plants" cols="13" />

Open the resources.xml in the properties folder and search for this. Change the cols to 76.



(you can do this)

PvZ1 Variation by LuckNukeHunter99:



Download: [https://file.garden/XD6TBfFsnnngxM3HA/luck%20thing/packet\\_plants.png](https://file.garden/XD6TBfFsnnngxM3HA/luck%20thing/packet_plants.png)

Another PvZ1 Variation by 00ga\_booga:



Download: [packet\\_plants.png \(3800x70\) \(file.garden\)](https://file.garden/00ga_booga/packet_plants.png)

## Action Rates

Peashooter Fire Rate (150) - 29F2CC  
Sunflower Production Rate (2500) - 29F2F0  
Cherry Bomb/Jalapeno Explosion Delay (100) - 05E300  
Potato Mine Surfacing (1500) - 05E34E  
Snow Pea Fire Rate (150) - 29F380  
Chomper Chew Time (4000) - 061551  
Chomper Bite Speed (90) - 0613BC  
Repeater Fire Rate (150) - 29F3C8  
Puff-shroom Fire Rate (150) - 29F3EC  
Sun-shroom Production Rate (2500) - 29F410  
Sun-shroom Grow Time (12000) - 05E3F1  
Fume-shroom Fire Rate (150) - 29F434  
Grave Buster's Timer (400) - 05FCE3  
Scaredy-shroom Fire Rate (150) - 29F4A0  
Ice-shroom Explosion Delay (100) - 0632B0  
Doom-shroom Explosion Delay (100) - 060DFE  
Doom-shroom's Crater Leaving Time (18000) - 066887  
Threepeater Fire Rate (150) - 29F554  
Spikeweed Attack Rate (100, fastest before being unable to attack is 76) - 060361  
Sea-shroom Fire Rate (150) - 29F62C  
Cactus Fire Rate (150) - 29F674  
Blover Blow Time (200) - 05DC5F  
Fog Leave Time (4000) - 066644  
Split Pea Fire Rate (150) - 29F6BC  
Starfruit Fire Rate (150) - 29F6E0  
Magnet-shroom Cooldown (1500) - 06163A  
Cabbage-pult Fire Rate (300) - 29F74C  
Kernel-pult Fire Rate (300) - 29F794  
Kernel-pult's Chance of Throwing Butter (4) - 05F1E1  
Coffee Bean Delay (100) - 05E521  
Marigold Production Rate (2500) - 29F824  
Melon-pult Fire Rate (300) - 29F848  
Gatling Pea Fire Rate (150) - 29F86C  
Twin Sunflower Production Rate (2500) - 29F890  
Gloom-shroom Fire Rate (200) - 29F8B4  
Cattail Firing Rate (150) - 29F8D8  
Winter Melon Fire Rate (300) - 29F8FC  
Gold Magnet Cooldown (200) - 062985  
Cob Cannon First Ammo Cooldown (500) - 05E560  
Cob Cannon Cooldown (3000) - 064D4D  
Imitator Delay (200) - 05E2D9  
Reverse Repeater Fire Rate (150) - 29FA1C  
Pole Vaulter Jump Speed (idk use cheat engine) - 125E7B  
Dancing Zombie Call (150) - 128885  
Zombie Yeti Flee (1500) - 122978  
Bungee Zombie Steal Delay (300) - 125127  
Catapult Zombie First Shot (300) - 125A28  
Catapult Zombie Throwing Rate (300) - 125B28  
Peashooter Zombie Firing Rate (150) - 1275B2  
Gatling Pea Zombie Firing Rate (150) - 127831

## Projectiles

Peashooting Plants (0) - 066ECB

Snow Pea (1) - 066ED5

Spore Mushrooms (4) - 066EFD

Fire Peas [Pea becomes through torchwood] (6) - 06ECC8

Pea [Snow pea becomes through torchwood] (0) - 06EE12

Cactus/Cattail (8) - 066EB3

Starfruit (7) - 05F7FD

Cabbage-pult (2) - 066EDF

Kernel-pult (A/C) - 066EE9/066F29

Melon-pult (3) - 066EF3

Winter Melon (5) - 066F0D

Cob Cannon (B) - 066F17 (does not work properly)

Basketballs (9) - 29F234 (Note: This is the damage address. Please wait for the actual projectile address to be put here, ayban accidentally put the wrong one) (sorry) (its ok)

Zombotany Peas (D) - 127988

## Effects and Timers

52BA52 - Garlic's effect when a zombie bites it

5309DE - Sets which effect snow-pea, winter melon and ice-shroom's deceleration inflicts on zombies

5309C6 - timer for how long the effect from the snow pea and winter melon projectile goes on for

53273B - Both the effect from the butter projectile and timer for how long the effect goes on for

53242A - Ice-shroom's freeze effect

## Zombie Offsets

8 - The zombies x value (not float)

C - The zombies y value (not float)

20 - The layer that the zombie is on

24 - Zombie type

28 - Zombie State (refer to Zombie States)

2C - The zombies x value

30 - The zombies y value

34 - Zombie speed (aka how fast the zombie travels)

51- determines if the zombie is eating 1, is yes, 0 is no (byte)

AC - Decelerate

B0 - Butter

B4 - Freeze

B8 - Hypno (byte)

B9 - Blow Away

BF - Garlic Effect

C0 - nothing

EC - Destroys zombie

11C - Zombie size

## Damage

Pea (20) - 29F1C8  
Cherry Bomb/Doom-shroom/Jalapeno/Cob Cannon (1800) - 132FDC  
Potato Mine (1800) - 01D931  
Snow Pea (20) - 29F1D4  
Chomper Bite (40) - 614DD  
Spore (20) - 29F1F8  
Fume-shroom/Spikeweed/Gloom-shroom/Spikerock (20) - 5EDEF  
Ice-shroom (20) - 132493 (limit is 128)  
Squash (1800) - 0607A9  
Fire Pea (40) - 29F210  
Spike (20) - 29F228  
Star (20) - 29F21C  
Cabbage (40) - 29F1E0  
Kernel (20) - 29F240  
Butter (40) - 29F258  
Melon (80) - 29F1EC  
Winter Melon (80) - 29F204  
Zombie Bite - (36, toward plants) 12FCF3; (04, toward zombies) 12FE14  
Basketball (75) - 29F234  
Gargantuar Smash - 45EC63  
Zombotany Pea (20) - 29F264  
Rake (1800) - 04E7D6

## Health/Armor

Basic Plant Health (300) - 05DC55  
Wall-Nut Health (4000) - 05E1A7  
Tall-Nut Health (8000) - 05E215  
Pumpkin Health (4000) - 05E445  
Garlic Health (400) - 05E242  
Spikerock Health (450) - 05E5C3  
Explode-o-Nut Health (4000) - 05E1BA  
Giant Wall-Nut Health (4000) - 05E207  
Basic Zombies Health (270) - 1227BB  
Conehead Armor (370) - 122892  
Pole Vaulting Health (500) - 122CBF  
Buckethead Armor (1100) - 12292B  
Newspaper Armor (150) - 12337D  
Screen Door Armor (1100) - 122949  
Football Armor (1400) - 122BB0  
Dancing Health (500) - 123530  
Zomboni Health (1350) - 122DE1  
Bobsled Sled Health (300) - 123139

Dolphin Rider Health (500) - 122D64  
Jack-In-The-Box Health (500) - 122FC7  
Balloon Zombie Balloon (20) - 1234BF  
Digger Armor (100) - 122BEF  
Pogo Health (500) - 123300  
Zombie Yeti Health (1350) - 12296E  
Bungee Health (450) - 122A1B  
Ladder Armor and Health (500) - 12299C  
Catapult Health (850) - 122E8D  
Gargantuar Health (3000) - 123D26  
Imp (I, Zombie) (70) - 1235AC  
Dr. Zomboss (40000) - 123624  
Dr. Zomboss (Extra Health for Minigames, 20000) - 12361E  
Wall-Nut Zombie Health (1100) - 12382B  
Jalapeno Zombie Health (500) - 123A87  
Tall-Nut Zombie Health (2200) - 12395D  
Giga Gargantuar Health (6000) - 123E4A  
I, Zombie Brain Health (Not Accurate, 70) - 2A8DF

## Owners of Health

Wall-Nut (03) - 05E1A1  
Tall-Nut (17) - 05E20F  
Pumpkin (1E) - 05E43D  
Garlic (24) - 05E23C

# Animations

Peashooter (4) - 29F2B8	Snorkel Zombie Seed (0) - 29FAE0	All basic Zombie: 21
Sunflower (7) - 29F2DC	Digger Zombie Seed (29912) - 29FBDC	Pole Vaulter: 54
Cherry Bomb (10) - 29F300	Balloon Zombie Seed (30912) - 29FC48	Newspaper Zombie: 30
Wall-Nut (5) - 29F324	Pogo Zombie Seed () - 29FCB4	Football Zombie: 29
Potato Mine (23) - 29F348	<missing> (0) - 29FD44	Dancing Zombie: 51
Snow Pea (13) - 29F36C	Seed Packet ID 4F (0) - 29FDD4	Backup Dancer: 62
Chomper (20) - 29F390	Basic Zombie (21) - 29DA84	Snorkel Zombie: 65
Repeater (14) - 29F3B4	Flag Zombie (21) - 29DAA0	Zomboni: 31
Puff-Shroom (18) - 29F3D8	Conehead Zombie (21) - 29DABC	Bobsled Zombie: 63
Sun-shroom (15) - 29F3FC	Pole Vaulter Zombie (54) - 29DAD8	Dolphin Rider: 60
Fume-shroom (17) - 29F420	BucketHead Zombie (21) - 29DAF4	Jackbox Zombie: 64
Grave Buster (70) - 29F444	Newspaper Zombie (30) - 29DB10	Balloon Zombie: 55
Hypno-shroom (19) - 29F468	ScreenDoor Zombie (21) - 29DB2C	Digger Zombie: 58
Scaredy-shroom (42) - 29F48C	Football Zombie (29) - 29DB48	Pogo Zombie: 61
Ice-shroom (28) - 29F4B0	Dancing Zombie (51) - 29DB64	Yeti: 94
Doom-shroom (12) - 29F4D4	Backup Dancer (62) - 29DB80	Bungee Zombie: 66
Lily Pad (6) - 29F4F8	Ducky Tube (21) - 29DB9C	Ladder Zombie: 68
Squash (11) - 29F51C	Snorkel Zombie (65) - 29DBB8	Catapult Zombie: 67
Threpeater (26) - 29F540	Zomboni (31) - 29DBD4	Gargantuar: 56
Tangle kelp (52) - 29F564	Bobsled (63) - 29DBF0	Imp: 57
Jalapeno (33) - 29F588	Dolphin Rider (60) - 29DC0C	
Spikeweed (24) - 29F5AC	Jackbox Zombie (64) - 29DC28	
Torchwood (45) - 29F5D0	Balloon Zombie (55) - 29DC44	
Tallnut (16) - 29F5F4	Digger Zombie (58) - 29DC60	
Sea-shroom (47) - 29F618	Pogo Zombie (61) - 29DC7C	
Plantern (44) - 29F63C	Yeti (94) - 29DC98	
Cactus (50) - 29F660	Bungee Zombie (66) - 29DCB4	
Blover (48) - 29F684	Ladder Zombie (68) - 29DCD0	
Split-pea (46) - 29F6A8	Catapult Zombie (67) - 29DCEC	
Starfruit (53) - 29F6CC	Gargantuar (56) - 29DD08	
Pumpkin (43) - 29F6F0	Imp (57) - 29DD24	
Magnet-shroom (73) - 29F714	Peashooter Zombie (21) - 29DD5C	
Cabbage-pult (75) - 29F738	Wall-nut Zombie (21) - 29DD78	
Flower Pot (49) - 29F75C	Jalapeno Zombie (21) - 29DD94	
Kernel-pult (76) - 29F780	Gatling Pea Zombie (21) - 29DDB0	
Coffee Bean (78) - 29F7A4	Squash Zombie (21) - 29DDCC	
Garlic (86) - 29F7C8	Tall-nut Zombie (21) - 29DDE8	
Umbrella Leaf (79) - 29F7EC	Giga-Gargantuar (56) - 29DE04	
Marigold (80) - 29F810	Zombie ID 21 - 29DE20	
Melon-Pult (77) - 29F834	Zombie ID 22 - 29DE3C	
Gatling Pea (89) - 29F858	Zombie ID 23 - 29DE58	
Twin Sunflower (82) - 29F87C	Ladderless Zombie (68) - 29DE74	
Twin Sunflower (82) - 29F8A0	Zombie ID 26 - 29DEAC	
Cattail (81) - 29F8C4	Zombie ID 27 - 29DEC8	
Winter Melon (88) - 29F8E8	Zombie ID 28 - 29DEE4	
Gold Magnet (87) - 29F90C	Zombie ID 29 - 29DFA8	
Spikerock (25) - 29F930	Zombie ID 31 - 29DFE0	
Cob Cannon (85) - 29F954	Zombie ID 32 - 29DFFC	
Imitator (93) - 29F978	Zombie ID 35 - 29E050	
Explode-o-Nut (5) - 29F99C	Zombie ID 36 - 29E06C	
Giant Wall-Nut (5) - 29F9C0		
Sprout (106) - 29F9E4		
Reverse Repeater (14) - 29FA08		

# Zombotany Head Animations

52321F - what animation id flag zombie's flag uses

523706 - peashooter zombie

52378E - wall-nut zombie

5239EC - jalapeno zombie

523B25 - gatling pea zombie

523C6E - squash zombie

5238B7 - tall-nut zombie

Cool New Legend

Title Screen

**BIG RED TEXT IN THE GAME**

In-game Collectable

Particle

Zomboss Related

Zen Garden

Credits

	0X	1X	2X	3X	4X	5X	6X	7X	8X
00	Sprout	Tall-Nut	Water Splash	Blover	Jack-In-The-Box	Gatling Pea	Nothing.	Adventure Mode Hand	Credits_Flower_petals
01	Zombie Head	Fume-shroom	Jalapeno	Flower Pot	Snorkel	Cattail	Crazy Dave	Stinky the Snail	Credits_Infantry.reanim
02	Sod roll	Puff-shroom	Fire (particle)	Cactus	Bungee	Gloom-shroom	Nothing.	Rake	Credits_Throat.reanim
03	<b>FINAL WAVE</b>	Hypno-shroom	Silver Coin	Dancer	Catapult	Ice Sphere Expanding	Whack-A-Zombie Hammer	Rain	Credits_CrazyDave.reanim
04	Peashooter	Chomper	(Charred) Basic	Tangle Kelp	Ladder	Fire Ball Expanding	Slots Lever	Raindrop	Credits_Bossdance.reanim
05	Wall-Nut	Zombie	Imp	Starfruit	Puff	Cob Cannon	Football + Jalapeno	? effect	Screendoor
06	Lily Pad	Sun	Digger	Pole Vaulter	Sleeping "Z"	Garlic	Jack-in-the-Box	Gold Coin	Conehead
07	Sunflower	Potato Mine	Zomboni	Balloon	Grave Buster	Gold Magnet	Selection Screen	Tree of Wisdom	reanim\Credits_ZombieArmy1.reanim
08	Lawn Mower	Spikeweed	Catapult	Gargantuar	White Screen	Winter Melon	Circle Portal	Cloud	Credits_ZombieArmy2.reanim
09	<b>PLANT!</b>	Spikerock	Gargantuar	Imp	Magnet-shroom	Twin Sunflower	Rectangle Portal	Fertilizer (Tree of Wisdom)	Credits_Tombstones.reanim
0A	Cherry Bomb	Threepeteater head	Scaredy-shroom	Digger	Zombot	Pool Cleaner	Sprout	Credits_Main.reanim	Credits_SolarPower.reanim
0B	Squash	Marigold	Pumpkin	Digger Rise Dirt	Cabbage	Roof Cleaner	Watering Can	Credits_Main2.reanim	Credits_Anyhour.reanim
0C	Doom Shroom	Ice-shroom	Plantern	Dolphin Rider	Kernel	Fire Pea	Fertilizer	Credits_Main3	Credits_WeAreTheUndead.reanim
0D	Snow Pea	Football	Torchwood	Pogo	Melon	Imitater	Bug Spray	Basic Zombie	Credits_DiscoLights.reanim
0E	Repeater	Newspaper	Split Pea front head	Backup Dancer	Coffee Bean	Yeti	Phonograph	Credits_stag.reanim	Flag
0F	Sun-shroom	Zomboni	Sea-shroom	Bobsled	Umbrella Leaf	Zomboss Himself	Diamond	Credits_BigBrain.reanim	Game Crash

# Particles

(Thanks to Kyao for testing)

Dirt

	0x	1x	2x	3x	4x	5x	6x
00	Melon	Pogo Stick	Dirt from Digger	Spudow	Zomboni but back	Zomboss	Candy fly
01	Winter Melon	Newspaper Head	Dirt when spawning Backups	dirt	Catapult	Yellow Flash	Impact puff
02	Fume	Balloon Zombie Head	Pool Sparkle	Fume Constant	Mower smoke	Sparkles from Sunflower Trophy	Football dirt puff
03	Popcorn	Sod Roll Dirt	Nuts Biting Particle	Nothing.	Snow constant	Portal Particles	Daisies
04	Cherry Bomb Powie	Grave spawn dirt	Potato Mine dirt	Seed Packet Cooldown	Cob blast	Portal Particles	Flashbang
05	Jackbox	Dirt when planting	Pea Splat	dirt	Down arrow	Flower Pot Glow	Level Finish
06	Zombie Head	Planting in water	Butter Splat	Ladder	Present stars	Water Pot Glow	Zombie Head Credits
07	Basic Zombie Arm	Zombie rise from grave	Cabbage Splat	Basketball	Imitator puff	Slow Particles	Gift Particle
08	Cone	Dirt digging	Spore Splat	Up Arrow	Zombie head	Hypno Particle	Fog Machine
09	Bucket	dirt	Star Splat	Unfreeze Particles	Zombie arm	Normal Vase Particle	Down Arrow
0A	Football Helmet	Water	Ice-Shroom	Unfreeze	Zombie head	Green Vase Particle	Nothing.
0B	Flag	Pool shine	Snow pea particle	Up arrow	Fireball Particle	Zombie Vase Particle	
0C	Screendoor	Down arrow	Snow pea particle	Gloom Fumes	Fire Circle	Glow+Arrow	
0D	Newspaper	Vaulter hit Tallnut star	Snow Pea Trail	Pogo Head	Ice thing	Seaweed	
0E	Digger Head	Doom!	Plantern Glow	Smoke Puff	Iceball trail	Mustache Fly	
0F	Pow! (whack-a-zombie)	dirt	Level Finish	Zomboni	Fireball trail	Future Glasses Fly	

# Sounds

	0x	1x	2x	3x	4x	5x	6x	7x
00	Sun collected	Zomboni start	(maybe) kernelpult.ogg	Whack Hit	floop.ogg	Grave Rise (?) Quieter	Crazy Dave Normal	
01	Pea hit zombie	Bossexplosion .ogg (i think)	Digger Zombie sound	Raining	Brain Squish PvZ2	Fertilizer	Crazy Dave Long	
02	Lawnmower on	Zombie chilled	Jackbox Scream 1	Dolphin Jump	Newspaper Rage (1&2)	Portal	Crazy Dave Scream	
03	Pea shot	Pool splash	Vase break	Dolphin Arrive	Newspaper Break	Digger Rise/Coffee Bean	Phonograph	
04	Pea shot 2	Bowling Impact (1 and 2)	Pool Cleaner	Water splash	Bungee Steal	Spraying	Disco Zombie Music	
05	Zombie Bite	chompsoft.ogg	Catapult Shoot	Water splash	dirt sound	Noooo	Sunflower Trophy Music	
06	Zombie Bite 2	Balloon Pop	Fire Pea Spawn	Grave Buster	Garg speak	Note Unwrap	Crazy Dave Gabbaroll	
07	Plant on ground	explosion.ogg	Fire Pea Hit	Plant Explosion	Present Open	Coin Pop	Crazy Dave Speak	
08	Plant on ground 2	Snorkel eat brain (i think)	Squash Crush	Jalapeno Explosion	Zombie Garlic	Imp Thrown	Game Crash	
09	tap2.ogg	Head pop	Squash Hm	Pre-Explode	Plant Shoot	Zomboss move 1		
0A	bleep.ogg (i think)	Pogo jump	Magnet	Plastic Hit	sounds like something being put into the ground	Zomboss move 2		
0B	groan6.ogg (or groan5.ogg i cant tell)	snow_pea_sparkles.ogg	Butter	Win Music	Shovel Select	Garg Die		
0C	Another brains thing	Zombie body fall 2	Bungee fall (1 or 2 or 3)	Balloon Arrive	Cob Shoot	Pot Place		
0D	Another brains thing	puff.ogg	Vehicle Explode	Chomper Eat	Watering Can	Zomboss Fireball		
0E	Jackbox theme	Fume Shoot	Bucket	Melon	Pole Jump	Diamond		
0F	Collect diamond	Collect coin	Whack	Plant Grow	Grave Rise(?)	Crazy Dave Short		

## The NEW PvZ1 Modding Info Doc

I don't know what happened here and this doesn't seem to be accurate but this was here before

	0x	1x	2x	3x	4x	5x
00	buttonclick.ogg	Groan 5	sukhbir2.ogg	Dolphin Jump	zombie_entering_water.ogg	Bungee Fall 2
01	Menu Flower Pop	Groan 6	sukhbir3.ogg	Potato Mine	zombie_falling_1.ogg	Bungee Fall 3
02	Groan 1	Groan 7	sukhbir4.ogg	Zomboni Start	zombie_falling_2.ogg	Butter
03	awooga.ogg	Game Over Song	sukhbir5.ogg	Pop	Bubble	Jackbox Scream 1
04	Hover over option	Hypnotize	sukhbir6.ogg	Thunder	Water	Jackbox Scream 2
05	Seed Unavailable	Pause	Select	zombiesplash.ogg	hugewave.ogg	Newspaper Rage 1
06	Zombie Bite 1	Plant	Select	bowling.ogg	slotmachine.ogg	Newspaper Rage 2
07	Zombie Bite 2	Plant 2	Pea Shoot	bowlingimpact.ogg	coin.ogg	
08	Zombie Bite 3	Coin Collect	Pea Shoot 2	bowlingimpact2.ogg	roll_in.ogg	
09	Title Screen Laugh	Select Seed	Blower	Grave Buster	Digger/Sod Roll	
0A	floop.ogg	siren.ogg	Win Music	gravebutton.ogg	hatchback_close.ogg	
0B	Ice-Shroom freeze	Snorkel Eat	Mower Start	Pop	hatchback_open.ogg	
0C	Zombie Gulp	Hit 1	Jackbox Open	Sparkle	Small Impact	
0D	Groan 2	Hit 2	Jackbox Music	Pogo	Zombie Hit	
0E	Groan 3	Hit 3	Present Collect	Snow Pea	Snorkel Drown	
0F	Groan 4	sukhbir.ogg	Dolphin Arrive	Plant in Water	Bungee Fall 1	

## Music

45B8C9 (01) - Grasswalk (Day)

45B893 (02) - Moongrains (Night & Night Roof)

45B86B (03) - Watery Graves (Pool) [required script to change or it'll just play Fog scene music]

45B878 (04) - Rigor Mormist (Fog)

45B8BB (05) - Graze the Roof (Roof)

06 - Choose Your Seeds

07 - Crazy Dave (Main Menu)

45B913 (08) - Zen Garden

45B8D7 (09) - Cerebrawl (Puzzle)

45B8F5 (0A) - Loonboon (Minigames)

45B82F (0B) - Ultimate Battle

45B7C1 (0C) - Brainiac Maniac (Zomboss)

## Seed Packet IDs



### Interesting Discoveries:

All seed packets with red on the top of it will crash the game

3A - Loading Screen Sprout

3B - Loading Screen Zombie

Most I, Zombie Packets - Loading Screen Sprout

48 - Pulsating Cherry Bomb

4B - States that it is missing.

# I, Zombie Seed Packet Spawns

Zombie - 42A044  
 Conehead - 42A04E  
 Polevaulter - 42A059  
 Buckethead - 42A064

Screendoor - 42A0A6  
 Football - 42A090  
 Dancing - 42A0C7

Zomboni - 42A0B1  
 Balloon - 42A09B  
 Digger - 42A07A  
 Pogo - 42A0BC

Bungee - 42A085  
 Ladder - 42A06F  
 Gargantuar - 42A0D2  
 Imp - 42A0DD

## Set Seed Packets

- If it starts with an \*, add 1 to the ID from above to get your desired result.time
- Peashooter can only be changed by modifying a shared variable or through scripting

### 2-5

\*Slot 1 (Potato Mine/05) - B809  
 Slot 2 (Grave Buster/0B) - B81B  
 \*Slot 3 (Cherry Bomb/03) - B835

### Slot Machine

Sunflower (01) - 87093  
 Peashooter (esi) - 87097  
 Snow Pea (05) - 8709F  
 Wall-Nut (03) - 870A7  
 Sun (38) - 870AF  
 Diamond (39) - 870B7

### Zombiquarium

\*Slot 1 (Snorkel/3B) - B32A  
 Slot 2 (Trophy/3B) - B33C

### Whack-A-Zombie

\*Slot 1 (Potato Mine/05) - B85B  
 Slot 2 (Grave Buster/0B) - B86D  
 \*Slot 3 (Ice-Shroom/0F) - B887

### Ice Level

\*Slot 1 (Peashooter/edi) - B298  
 Slot 2 (Cherry Bomb/02) - B2AB  
 \*Slot 3 (Wall-Nut/04) - B2C5  
 Slot 4 (Repeater/07) - B2DA  
 \*Slot 5 (Snow Pea/06) - B2F4  
 Slot 6 (Chomper/06) - B309

### I, Zombie

\*Slot 1 (Zombie/3D) - B35D  
 Slot 2 (Buckethead/3F) - B36F  
 \*Slot 3 (Football/44) - B389

### I, Zombie Too

\*Slot 1 (Zombie/3D) - B3A7  
 Slot 2 (Screen Door/45) - B3B9  
 \*Slot 3 (Buckethead/40) - B3D3

### Can You Dig It?

\*Slot 1 (Zombie/3D) - B3F1  
 Slot 2 (Buckethead/3F) - B403  
 \*Slot 3 (Digger/42) - B41D

### Totally Nuts

\*Slot 1 (Zombie/3D) - B43B  
 Slot 2 (Buckethead/3F) - B44D  
 \*Slot 3 (Ladder/41) - B467

### Dead Zeppelin

\*Slot 1 (Zombie/3D) - B485  
 Slot 2 (Buckethead/3F) - B497  
 \*Slot 3 (Bungee/43) - B4B1  
 Slot 4 (Balloon/44) - B4C6

### Me Smash!

\*Slot 1 (Zombie/3D) - B4E7  
 Slot 2 (Pole Vaulter/3E) - B4F9  
 \*Slot 3 (Buckethead/40) - B513  
 Slot 4 (Gargantuar/49) - B528

### ZomBoogie

\*Slot 1 (Zombie/3D) - B549  
 Slot 2 (Pole Vaulter/3E) - B55B  
 \*Slot 3 (Buckethead/40) - B575  
 Slot 4 (Dancer/48) - B58A

### Three Hit Wonder

\*Slot 1 (Imp/4B) - B5AF  
 Slot 2 (Conehead/3D) - B5C1  
 \*Slot 3 (Buckethead/40) - B5DB  
 Slot 4 (Bungee/42) - B5F0  
 \*Slot 5 (Digger/42) - B60A  
 Slot 6 (Ladder/40) - B61F

### All Your Brainz R Belong to Us

\*Slot 1 (Imp/4B) - B644  
 Slot 2 (Conehead/3D) - B656  
 \*Slot 3 (Pole Vaulter/3F) - B66F  
 Slot 4 (Buckethead/3E) - B685  
 \*Slot 5 (Bungee/43) - B69F  
 Slot 6 (Digger/41) - B6B4  
 \*Slot 7 (Ladder/41) - B6CE  
 Slot 8 (Football/43) - B6E3

### I, Zombie Endless

\*Slot 1 (Imp/4B) - B708  
 Slot 2 (Conehead/3D) - B71A  
 \*Slot 3 (Pole Vaulter/3F) - B734  
 Slot 4 (Buckethead/3F) - B749  
 \*Slot 5 (Bungee/43) - B763  
 Slot 6 (Digger/41) - B778  
 \*Slot 7 (Ladder/41) - B792  
 Slot 8 (Football/43) - B7A7  
 \*Slot 9 (Dancer/49) - B7C1

# Seed Packets on Conveyor

(Thanks to seemslegithuh & Monika666)

Note: Peashooter can only be changed by modifying a shared variable or through scripting

023089 - Level 1-5 & Wall-nut Bowling

- 02308F - Wall-nut
- 02309F - Explode-o-nut

022E2F - Level 1-10

- 022E32 - Peashooter
- 022E36 / 022E5B - Repeater (cannot change past puff-shroom)
- 022E42 - Cherry Bomb
- 022E4E - Wall-nut
- 022E63 - Snow Pea
- 022E6E - Chomper
- 022E7A - Potato Mine

022E89 - Level 2-10

- 022E8C - Doom-shroom
- 022E94 - Grave Buster
- 022EA0 - Ice-shroom
- 022EB0 - Hypno-shroom
- 022EBC - Scaredy-shroom
- 022EC5 - Fume-shroom
- 022ED0 - Puff-shroom

0230BE - Level 3-5 & Big Trouble Little Zombie

- 0230C6 - Peashooter
- 0230CA - Lily Pad
- 0230D7 - Wall-Nut
- 0230EB - Cherry Bomb

022EE0 - Level 3-10

- 022EEB - Lily Pad
- 022EF6 - Squash
- 022F02 - Threpeater
- 022F0E - Tangle Kelp
- 022F17 - Jalapeno
- 022F1E - Spikeweed
- 022F2A - Torchwood
- 022F36 - Tall-Nut

022F4A - Level 4-10

- 022F60 - Sea-shroom
- 022F6C - Magnet-shroom
- 022F78 - Blover
- 022F84 - Cactus
- 022F94 - Starfruit
- 022FA0 - Split Pea
- 022FAC - Pumpkin

02315A - Bungee Blitz

- 023160 - Flower Pot
- 023170 - Chomper
- 023180 - Pumpkin
- 023190 - Cherry Bomb

01F496 - Level 5-10 & Dr. Zomboss Revenge (given early in constant)

- 01F4A6 - Cabbage-pult

- 01F4B6 - Jalapeno
- 01F4C6 - Cabbage-pult
- 01F4D6 - Ice-shroom
- 022FC7 - Level 5-10 & Dr. Zomboss Revenge**
  - 022FCD - Flower Pot
  - 022FDD - Melon-pult
  - 022FE6 - Jalapeno
  - 022FF5 - Cabbage-pult
  - 023001 - Kernel-pult
  - 02300D - Ice-shroom
- 01F57B - Invisi-ghoul (early given in constant)**
  - 01F587 - Peashooter
  - 01F597 - Ice-shroom
- 023253 - Invisi-ghoul**
  - 02305B - Peashooter
  - 02326A - Wall-nut
  - 023272 - Kernel-pult
  - 02327E - Squash
  - 02328A - Lily Pad
  - 02329A - Ice-shroom
- 0231A6 - Portal Combat**
  - 0231AC - Cactus
  - 0231B5 - Peashooter
  - 0231C4 - Repeater
  - 0231D0 - Torchwood
  - 0231E0 - Wall-nut
  - 0231EC - Cherry Bomb
- 023104 - Dark Stormy Night**
  - 023109 - Peashooter
  - 023110 - Lily Pad
  - 023120 - Cactus
  - 023130 - Puff-shroom
  - 023140 - Cherry Bomb
- 01F50C - Column Like You See 'Em (early given in constant)**
  - 01F519 - Potato Mine
  - 01F529 - Tall-nut
  - 01F539 - Melon-pult
  - 01F549 - Magnet-shroom
  - 01F559 - Coffee Bean
  - 01F569 - Melon-pult
- 0231FF - Column Like You See 'Em**
  - 02320A - Flower Pot
  - 02321A - Melon-pult
  - 023223 - Chomper
  - 02322E - Pumpkin
  - 02323B - Jalapeno
  - 023246 - Squash
- 023051 - Wall-nut Bowling 2**
  - 023054 - Wall-nut
  - 02306D - Explode-o-nut
  - 023075 - Giant Wall-nut
- 02302A - Can You Dig It?**
  - 02302F - Peashooter

# I, Zombie Hack Zombies the wiki didn't talk about

(35) - Game Crash, nameless

Reshuffle (36) - Game Crash, nameless

Fill Hole (37) - Game Crash, nameless

Sun (38) - Game Crash

Diamond (39) - Game Crash

Snorkel Zombie (3A) - Sprout

Trophy (3B) - Sod Rolling

No Icon (4B) - Strange wall-nut that goes through entire animation set and continues rolling after eating a plant, placeable behind zombie line like bungee zombie

## Conveyor Speeds

**00422D17** - The delay between each conveyor belt seed packet

add dword ptr [ebx+5C], **-01** (Choose a speed value between -01 and -08)

**00489C70** - The visual speed of conveyor belt

add dword ptr [esi+0000034C], **01** [Recommend to change the value into 02 (current pvz2's conveyor speed) or 04 (TAT's conveyor speed), the others are just visual speed changes]

## Custom Window Name Tutorial

(Note: You must have a code cave before doing this) Go to 44EC93 in Cheat Engine. This is your character limit. Change it, then go to 0044EC84 and change it to jmp (code cave). At that code cave, use the hex part in Cheat Engine to write your new title. Save it with either OllyDGB or HxD.

## Misc Plant and Card stuff

**00E477 (74)** - Premium plants can be planted without the use of their base plant (Change to EB)

00467B00 - Function that returns the cost of a given packet ID.

0042FFB6 - Card plant type (when given from a zombie/marigold/sunflower etc. only)

004873E9 - change to "int64 670217018343299" to change the col of the seed packets

004234EB it's raining seeds countdown type (eax means random)

004234CF it's raining seeds countdown speed

The number must be divided exactly by seed packet countdown, or else the game won't give any seed packets.

0040F8AD - 112; 00410860 - 112; 00413B55 - 128; 00488391 - 112; 0048882E - 128;

004896D4 - 235; 00489820 - 128, If all the Addresses are changed, it will make conveyor belts require sun.

004873E0 - below this is stuff relating to what plants have specific seed packet images (packet\_plants.png)

00679748 - Gloom shroom's icon's vertical placement (14)

## In-game Texts from the Game .exe

### Cheat Codes

26772C - mustache 267738 - moustache 267744 - trickedout 267750 - tricked out  
26775C - future 267764 - pinata 26776C - dance 267774 - daisies  
26777C - sukhbir

### Crazy Dave's Dialogues

267AC8 - click to continue

### Game Paused State (which shows a Newspaper Zombie idle in the middle)

267578 - Resume Game 267584 - Click to resume game 26759C - GAME PAUSED

### Options/Menu Texts

268378 - Music 268380 - Sound FX 26838C - 3D Acceleration 26839C - Full Screen

### Notifications from Options/Menu

2684A0 - No Windowed Mode 26853C - Not Supported 2685D4 - Warning  
2683A8 - Windowed mode is only available if your desktop was running in either 16 bit or 32 bit color mode when you started the game. If you'd like to run in Windowed mode then you need to quit the game and switch your desktop to 16 or 32 bit color mode.  
2684B8 - Hardware Acceleration cannot be enabled on this computer. Your video card does not meet the minimum requirements for this game.  
268550 - Your video card may not fully support this feature. If you experience slower performance, please disable Hardware Acceleration.

### Main Menu from Options/Menu

267544 - Leave Game?  
267500 - Do you want to return to the main menu? Your game will be saved.

### Entering the Saved Game

257CC4 - CONTINUE GAME? 257DB4 - Restart Level? 257E08 - New Game?  
257CBC - CANCEL 257D18 - Continue 257D24 - Restart Level  
257D74 - New Game  
257CD8 - Do you want to continue your current game or restart the level?  
257D34 - Do you want to continue your current game or start a new game?  
257D80 - Are you sure that you want to restart the level?  
257DD8 - Are you sure that you want to start a new game?

### Profile Name Stuffs

26760C - Enter Your Name 267670 - Name Conflict 2676BC - Are You Sure?  
268824 - RENAME USER 268830 - NEW USER 26E4B4 - WHO ARE YOU?  
26E4C4 - Rename 26E4CC - Delete 26E4D4 - (Create a New User)  
2675A8 - Please enter your name to create a new user profile for storing high score data and game progress.  
267620 - The name you entered is already being used. Please enter a unique player name.  
267680 - This will permanently remove '%' from the player roster!  
26880C - Please enter your name:

## The NEW PvZ1 Modding Info Doc

### Shop Stuffs

26D9E4 - Not enough money      26DA20 - Buy this item?      26DA68 - More slots!  
26D9A0 - You can't afford this item yet. Earn more coins by killing zombies!  
26D9F8 - Are you sure you want to buy this item?  
26DA30 - Now you can choose to take %d seeds with you per level!

### Mini-Games

257504 - Tree of Wisdom      257514 - Squirrel

### Other Button Stuffs

267EA4 - Yes      267EA8 - No      267EAC - Ok      267EB0 - Cancel  
257B7C - OK

### Errors

2586F4 - missing resource '%s'

### *Tips:*

00 - Blank      0A - Enter space      20 - Space  
25 64 - %d (number variable)      25 73 - %s (text variable)

# Plant Specific

## Ranges

Basic Plant Range & Gold Magnet (800) - 68185

Chomper (40) - 6805E

Puff-shroom & Sea-shroom (230, only for detection) - 681A6

Fume-shroom (340) - 680F2

Squash - 46803F

Spikeweed & Spikerock - 681C0 (20), 681C3 (50) (need a lot of messing around there, better use CE)

Magnet-shroom (column) - 620F9 (270, actual range); 62100 (320, range while metallic armor zombie's eating a plant)

Magnet-shroom (row) - 6209E (02, the starting row); 620A1 (04, the amount of row used from the starting row)

## Plant Abilities

Which plant does double shoot anim (Repeater), changing this will cause repeater to only shoot 1 pea (07) - 45F940

Same case but for Cattail (2B) - 45F922

Scaredy-shroom (0D) - 4633D3

Squash (11) - 463269

00464A9C - Makes threepeater only shoot one pea and crashes the game when another plant has this

0045F05B - Who can shoot four peas at once

0052B967 - Hypno-shroom

06336C - Which plant collects coins

0040D37B/0040E2E3 - pumpkin ability

633AE - potato mine grow up action

632B9 - chomper ability

63394 - grave buster eat action

Doom-shroom ability: 63279

Ice-shroom ability: 6328A

tangle kelp ability: 633C6

spikeweed ability: 633BC

spikerock ability: 633C1

Cob Cannon ability: 6333C

blover animation thing: 632CA

41D3F4 - umbrella leaf ability

## Plants States ID

00 - Default

01 - Chomper, Scaredy-shroom, Magnet-shroom & Gold Magnet's recover idle

02 - Ice-shroom, Doom-shroom & Coffee Bean's effect

03 - Squash staring

04 - Squash transition

05 - Squash jump up

06 - Squash squash down

07 - Squash squashed

08 - Grave Buster planted

09 - Grave Buster devouring

0A - Chomper about to eat

0B - Chomper can devour  
0C - Chomper can't devour  
0D - Chomper devouring  
0E - Chomper digesting  
0F - Potato Mine rising up  
10 - Potato Mine ready  
12 - Spikeweed & Spikerock attacking  
14 - Scaredy-shroom about to hide  
15 - Scaredy-shroom hiding  
16 - Scaredy-shroom rising up  
17 - Sun-shroom in small state  
18 - Sun-shroom growing up  
19 - Sun-shroom in normal state  
1A - Magnet-shroom attracting  
1B - Magnet-shroom attracted  
1C - Wall-nut roll to the top  
1D - Wall-nut roll to the bottom  
1E - Cactus normal state  
1F - Cactus rising up  
20 - Cactus tall  
21 - Cactus getting down  
22 - Tangle Kelp pulling zombies  
23 - Cob Cannon without ammo  
24 - Cob Cannon reloading an ammo  
25 - Cob Cannon reloaded  
26 - Cob Cannon firing  
27 - Kernel-pult throwing a butter  
28 - Umbrella Leaf  
29 - Umbrella Leaf  
2A - Imitater spinning  
2C - Zen Garden related  
2D - Zen Garden related  
2F - Flower Pot being planted  
30 - Lily Pad being planted

## Remove Plant Warnings

085340, change int64 to 102052892144341187 (will rework this soon)

Or change the bytes to C3 90 90 90 90 90 6A 01

## Make Upgrade Plants Independent

1D7D3 (28) - Gatling Pea	1D80B (29) - Twin Sunflower	
1D864 (2A) - Gloom-shroom	1D87B (2B) - Cattail	1D7F0 (2C) - Winter Melon
1D84D (2D) - Gold Magnet	1D822 (2E) - Spikerock	1D839 (2F) - Cob Cannon

Change the ID to FF to make it independent (HxD)

## Premium Plants that Need To Be Planted on Their Base Plants

67EC2 (28) - Gatling Pea  
67EC7 (2C) - Winter Melon  
67ECC (29) - Twin Sunflower  
67ED1 (2E) - Spikerock  
67ED6 (2F) - Cob Cannon  
67EDB (2D) - Gold Magnet  
67EE0 (2A) - Gloom-shroom  
67EE5 (2B) - Cattail

Change the ID to FF to make able to be planted independently (HxD)

## Chomper Biting Only

06144A - 74 to EB

## Plants that Can Be Upgraded

### Downgrade/Upgrade

Repeater (07) - 063487, Gatling Pea (28) - 06347E  
Sunflower is not changeable, Twin Sunflower (29) - 0634B5  
Fume-Shroom (0A) - 06353D, Gloom-Shroom (2A) - 063537  
Lily Pad (10) - 063553, Cattail (2B) - 06354D  
Melon-Pult (27) - 0634A0, Winter Melon (2C) - 06349B  
Magnet Shroom (1F) - 463520, Gold Magnet (2D) - 46351B  
Spikeweed (15) - 4634D4, Spikerock (2E) - 4634CF  
Kernel-Pult (22) - 4634EE, Cob Cannon (2F) - 4634E9

## Plants that Sleep During the Day

05DE4E (8) - Puff-Shroom  
05DE58 (9) - Sun-Shroom  
05DE5D (A) - Fume-Shroom  
05DE62 (C) - Hypno-Shroom  
05DE76 (D) - Scaredy-Shroom  
05DE6C (E) - Ice-Shroom  
05DE67 (F) - Doom-Shroom  
05DE53 (18) - Sea-Shroom  
05DE71 (1F) - Magnet-Shroom  
05DE7B (2A) - Gloom-Shroom

## Scenes Plants Don't Sleep In

0045DE8B (1) - Night  
0045DE90 (3) - Fog  
0045DE95 (5) - Aquarium  
0045DE9A (6) - Moon (Night Roof)  
0045DE9F (8) - Mushroom Garden

## Plant Picking Warnings

### **NOCTURNAL - SLEEPS DURING DAY**

1CC65 - Puff-shroom	1CC8D - Scaredy-shroom	1CC6A - Sea-shroom
1CC6F - Sun-shroom	1CC83 - Ice-shroom	1CC92 - Gloom-shroom
1CC74 - Fume-shroom	1CC7E - Doom-shroom	1CC88 - Magnet-shroom
1CC79 - Hypno-shroom		

### **NOT RECOMMENDED FOR THIS LEVEL**

1CCE7 - Grave Buster	1CCBB - Coffee Bean
1CD4C - Lily Pad	1CD0D - Flower Pot
1CCFA - Plantern	

## Plants that can have ladders placed on them

Wall-Nut (03) - 12E629      Tall-Nut (17) - 12E633      Pumpkin (1E) - 12E638

## Planting Conditions

*(Credits to KeijiX in MA server)*

0040E21E - Water only (Sea-shroom, Lily pad and Tangle Kelp) planting conditions (has to be a water tile)

0040E230 - Ground only (Spikeweed and Spikerock) planting conditions (has to be a grass tile)

## Potato Mine Explodes in 3x3 Area

66A61 - 00 > 01 (vanish > become ash)

66A63 - 00 > 01 (affect 3 rows)

66A65 - 3C > 73 (range in horizontal)

## Cactus Related Shenanigan

0045EB16

jne 0045EB18 - plants can only attack balloon zombie in flight form and cactus attacks all

jmp 0045EB18 - all plants except for cactus are able to hit balloon zombie

jne 0045EB1A - identical to above

jne 0045EB1F - identical to above

jne 0045EB22 - identical to vanilla

jne 0045EB25 - plants can only attack balloon zombie in flight form and cactus attacks all

jne 0045EB28 - vanilla

## Magnet-shroom Related Stuffs

### Determine which armor can be attracted by Magnet-shroom

004620C3 - Buckethead	004620A8 - Pickaxe while Digger's underground
004620C8 - Football helmet	004620AD - Pickaxe after Digger raised up
004620D3 - Screendoor	004620B2 - Pickaxe while Digger's walking
004620D8 - Ladder when being holded	0046209F - Pogo
004620DD - Jack-in-the-box	

## Marigold Related Stuffs

[Edit them using Data Inspector in HxD] Green: Default

**5FAFC** - The first item that Marigold will produces

**5FAFF** - Something important for 5FAFC (well I can't figure out how it is important so...)

5FAFC	219	220	221	222	223	224	226	233	234	235	236
5FAFF	99	98	97	96	95	94	92	85	84	83	82

**5FB0B** - The second item that Marigold will produces (2: Gold coin)

**5FB5C** - The second item that Marigold will produces at the same time in Big Time (1: Silver coin)

Please refer to [Currency Types](#) for the ID of the items

**5FB07** - The rate of dropping the second item (1-100)

**5FB10** - What animation the item uses when it's popping out in normal form

**5FB5A** - What animation the item uses when it's popping out for the second item in Big Time

	<b>0</b> Sun dropping from the top		<b>1</b> Seed card dropping in It's Raining Seeds
	<b>2</b> Sun producing from Sunflower		<b>3</b> Item dropping while zombies are in death
	<b>4</b> Auto collect		<b>5</b> Auto collect but delayed about 1 second
	<b>6</b> Prize pathway after the Zombot has been destroyed		<b>≥7</b> Stay on the top

## Special Almanac Backgrounds

Puff-shroom (8) - 067E62  
Sun-shroom (9) - 067E6C  
Fume-shroom (A) - 067E71  
Grave Buster (B) - 002354  
Hypno-shroom (C) - 067E76  
Scaredy-shroom (D) - 067E8A  
Ice-shroom (E) - 067E80  
Doom-shroom (F) - 067E7B  
Lily Pad (10) - 0022BB  
Tangle Kelp (13) - 0022C4  
Sea-shroom (18) - 067E67 (night), 0022D6 (pool)  
Plantern (19) - 002359  
Magnet-shroom (1F) - 067E85  
Flower Pot (21) - 00235E  
Gloom-shroom (2A) - 067E8F  
Cattail (2B) - 0022CD

## Other Stuff

5FACB - (4) What Sunflower produces

5FABE - (5) What Small Sun-shroom produces

5FADF/5FAF0 - (4) What Twin Sunflower produces

0045EB2B - 0045EB58 Controls what plant can attack the snorkel zombie in his underwater-state.

0045EB13 (1A) - Controls which plant can attack balloon zombie

46CAF9 - controls which plants cant be attacked by peashooter/gatling pea zombotany (from Kim Reno)

0041A6FD - Determines what plant can light up the fog.

00462D49 - What horizontal pixels bowling Wall-nuts disappear at (800)

004630D4, 235 - 00462D30, 112 - If the 2 Addresses are changed this will make bowling wall-nut go super fast and not bounce vertically off zombies

0045DE8B/0045DE9F - Between those two values are the pieces of codes that contain what scenes allows the mushrooms to be awake.

0045DE4C/0045DE79 - Between those two values are the pieces of codes that contained all the plants that would sleep during the day.

00483F1A - Change that to a jmp and dave will never pre-select seeds

0045F1DB - Seems to be related in determining what plant ends up having the kernel pult rng thing although it doesn't work with it only making it so the kernel pult doesn't shoot the butter even if it's locked in to do it.

00466601 - Changing this to jmp makes blover blow all the zombies away.

0045FD12 - Changing this value will make it so grave buster does nothing to the graves.

0041C6DE - Changing this makes plants ignore the roof slope.

00461447/0046144C/00461451 - Determine what zombies can't be eaten by Chomper. (doesn't work if you have chomper bite every zombie)

0052BA59 - Garlic's effect offset.

0045DF32 - Seems to mess with the Blover's animations when he's blowing.

00679690 - Cactus's visual shoot speed.

0045F113 - Cattail's visual shoot speed.

0045FAFC - Determines What Marigold will give.

0045FB0A (2) - other thing marigold can give

0046035E and 004603B3 - Spikeweed attack speed

004672CD/004672D6/004672DF/004672E8-determines which plants have the lobbing effect

00460663/004606BE-determines which projectile will turn into pea on contact with torchwood (snowpea)  
0053184F- replace this with nop and fumes will damage the screen door instead.  
00472198 (GOTY) -Related to starfruit.  
00540674 (GOTY)-The item that is produced when a zombie eats a sunflower in I, Zombie.  
004623CD/004623D2/004623D7-determines which item gold magnet can pick  
00462544/00462552/00462560-gold magnet item pick up visual  
004648B3 -fume particles position  
004648F7 -gloom particles position  
0046ECC8-determines which projectile normal pea turned into after passing torchwood  
0046ED5D-fire pea animation  
004121E1 - makes the plant with this not usable  
004124FF - makes plants glow when a plant is above them  
004389A2 - changing this to 1 causes plants to appear as wheelbarrows when their seed packets are clicked  
0045FB05 - marigold rng which makes it spawn gold coins  
0046138F - Chomper Attack Animation Speed  
004614E5 - Chomper state after biting  
004639E5-determines which plants are visually bigger  
00491763-determines which plants are banned in last stand  
462FBC-wallnut bowling wallnut damage to body  
462FAC-wallnut bowling wallnut damage to helmets  
462F74-wallnut bowling wallnut damage to hand armor (screendoor, ladder, etc)  
463A14 - which plant is smaller than normal (coffee bean)  
52D337 - chill color  
52E569 - what plant can be eaten by digger zombie when he's underground

# Zombie Specific

## Zombie Adventure Spawns Stuffs

### PvZ Zombie Adventure Mode Spawns

### Zombie Tiers, First Level & Lowest Wave They Appear, and Weights

Adventure Mode Spawns Chart for personal use (Make a copy of it)

[https://docs.google.com/spreadsheets/d/1x7Oc12\\_g5mcZk85unDPARe89gxOLh-YtVZvtkBQQg/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1x7Oc12_g5mcZk85unDPARe89gxOLh-YtVZvtkBQQg/edit?usp=sharing)

Put EB at 00D6A3 **PvZ Adventure Spawns** to have zombies spawn before they normally appear in vanilla PvZ.

## Zombie Minigame Spawns

Survival/Can You Dig It? - 425C00	Zombie Nimble	Zombie Quick - 425888
Survival (Hard) - 425A6A	Last Stand	- 425ACE
Zombotany - 425BA0	Zombotany 2	- 425BBC
Wall-Nut Bowling - 425CBF	Wall-Nut Bowling 2	- 425C2F
It's Raining Seeds - 4259DB	Pogo Party	- 4258B3
Invisi-Ghoul - 425B60	Sunny Day	- 4258FB
Beghouled/Beghouled Twist - 425CE5	Big Time	- 42599B
Big Trouble Little Zombie - 42596D	Air Raid	- 425AA9
Portal Combat - 42593B	High Gravity	- 425A2D
Column Like You See 'Em - 425B2F	Dark Stormy Night	- 425C7C
Bobsled Bonanza - 425A8D	Bungee Blitz	- 4258CD
Slot Machine/Unsodded/Art Challenge/Unlimited Waves - 425CA2		

### How to add Zombies to spawning (Click [HERE](#) for tutorial, made by Tirix)

Scripts are necessary to add zombies to the already existing list of zombies. You have to follow the pattern of edx, eax, ecx.

Zombie	54D4	Digger Zombie	54E5 '
Flag Zombie	54D5	Pogo Zombie	54E6 '
Conehead Zombie	54D6	Yeti Zombie	54E7 '
Pole Vaulter Zombie	54D7	Bungee Zombie	54E8 '
Buckethead Zombie	54D8	Ladder Zombie	54E9 '
Newspaper Zombie	54D9	Catapult Zombie	54EA '
Screen Door Zombie	54DA	Gargantuar	54EB '
Football Zombie	54DB	Imp	54EC '
Dancing Zombie	54DC	Zomboss	54ED '
Backup Dancing Zombie	54DD	Peashooter Zombie	54EE '
Ducky Tube Zombie	54DE	Wall-nut Zombie	54EF '
Snorkel Zombie	54DF	Jalapeno Zombie	54F0
Zomboni	54E0 '	Gatling Pea Zombie	54F1
Zombie Bobsled Team	54E1 '	Squash Zombie	54F2
Dolphin Rider Zombie	54E2 '	Tall-nut Zombie	54F3
Jack-In-the-Box Zombie	54E3 '	Giga Gargantuar	54F4
Balloon Zombie	54E4 '		

# Zombie Spawn Meta

## Basic Spawn Rate Changing

1. Go to 00983A in HxD, change **117** in Int8 from Data Inspector to **112**
2. Go to 00983E, change **73** in Int8 to
  - **nothing** (yes, don't change anything) will make the spawn rate multiply by 6 (*possibly spawn 6 units\* of zombies at the beginning*)
  - **8**, will make the spawn rate multiply by 2 (*possibly spawn 2 units of zombies at the beginning*), but it'll break 2nd round of Adventure's spawn rate into massive
  - **10**, will make the game spawn 2 units of zombies at the beginning, and add 4 units of zombies in every 3 waves, but it'll ruin every huge wave spawns into massive
  - **9**, will make the spawn rate multiply by 4 (*possibly spawn 4 units of zombies at the beginning*)
  - **16**, will make the game not spawn zombies at the first 3 waves, then normally spawn with 2 multiplier (*possibly spawn 2 units of zombies at the beginning*), but it'll ruin every huge wave spawns into massive, and also will break 2nd round of Adventure's spawn rate into massive
  - **7**, will make the spawn rate go extremely high

\* Without changing any other codes, **1 unit = 1 basic**; **2 units = 1 conehead / 2 basic**; **3 units = 1 conehead + 1 basic / 3 basic**; **4 units = 1 buckethead / 2 conehead / 1 conehead + 2 basic / 4 basic**; **5 units = 1 buckethead + 1 basic / 2 conehead + 1 basic / 1 conehead + 3 basic / 5 basic**; and so on

^ Note that this change will affect the entire game spawn rate schedule, including Column Like You See 'Em, Wall-nut Bowling, Portal Combat, Big Trouble Little Zombie and more

spawn increase factor:

4096ca: last stand tier increase

40970a: survivals tier increase

409734: adventure replay tier increase

409748: all other levels tier increase

formula is the value representing value between 0 and 1. the tier can be determined by (wavenum((value)/100000000))rounded down + 1, or in other words up 1 every 100000000/(value) waves, starting at 1. For example:

10000000: up 1 every 16 waves

11111112: up 1 every 15 waves

22222223: up 1 every 7.5 waves

33333334: up 1 every 5 waves

40000000: up 1 every 4 waves

55555556: up 1 every 3 waves (used for most levels)

66666667: up 1 every 2.5 waves (used for last stand, survivals, and adventure replays)

77777778: up 1 every 2.14285714... waves

80000000: up 1 every 2 waves

9999999A for up 1 every 1.666666 waves

AAAAAAAB: up 1 every 1.5 waves

BBBBBBBC: up 1 every 1.363636 waves

CCCCCCCD: up 1 every 1.25 waves

DDDDDDDE: up 1 every 1.15384615 waves

EEEEEEEF: up 1 every 1.07142857 waves

note: anything over 77777778 requires changing command below from imul to mul or else it will break spawning (no zombies spawn except first 3 and flags)

For up 1 every 1 wave, replace the mov eax,(value) and imul ebx/ecx with mov edx,ebx/ecx and 5 nops

minigame spawn multipliers:

409833: column like you see em

409887 - the 4x multiplier code for Wall-nut Bowling & Wall-nut Bowling 2

other minigames are also around here

(409960 or 4098E6 - 4x multiplier. 409962 - 2x multiplier. 409964 - normal. lea ebx,[ecx+ecx\*2] is 3x multiplier and higher lea's could also be used. These stack with the 409960/62 multipliers, so for example lea ebx,[ecx+ecx\*2] followed by 409962 is 6x multiplier)

## Zombie IDs



## Zombies Drops

(Original info by Aniq, and rearranged by PvZ1 Gaming)

1CF10: Change it to 235 to make the WAZ sun drops apply in every level

1CFE6 (4): The first item for the drops

1CFF6 (4): The second item

1D006 (4): The third item

## Zombie Abilities

Pole Vaulter Zombie (03) - 12B174, changing this causes pole vaulter to never leap

Newspaper Zombie (05) - 12B1B4, changing this causes newspaper zombie to stand still when the newspaper is destroyed

Dancing Zombie (08) - 12B21E, changing this causes dancing zombie to phase through all plants except for brains and he walks away from the house after eating brains

Backup Dancer (09) - 12B22B, changing this causes the backup dancers to not spawn, but changing it to 08 causes dancing zombie to never spawn zombies, also changing 528820 can spawn the zombie you want

Snorkel Zombie (0B) - 12B19A, changing this causes snorkel zombie to never enter the pool

Zomboni (0C) - 12B1F9, changing this gives the zombie the ice trail

Bobsled Zombies (0D) - 12B1EC, changing this prevents the bobsled team from stopping and slows down the zombie with this ability

Dolphin Rider Zombie (0E) - 12B18D, changing this causes dolphin rider to never enter the pool

Jack-In-The-Box Zombie (0F) - 12B1CD, changing this prevents jack from exploding

Balloon Zombie (10) - 12B1A7, changing this prevents the balloon zombie from moving or being seen when the balloon is popped

Digger Zombie (11) - 12B1C0, changing this causes digger zombie to never rise

Zombie Yeti (13) - 12B211, changing this causes the yeti zombie to never run away

Ladder Zombie (15) - 12B204, changing this causes ladder zombie to phase through plants he would place ladders on

Catapult Zombie (16) - 12B180, changing this causes catapult to never shoot

Imp (18) - 12B238, changing this causes imp to never land, but the zombie that gargantuar throws (127005) does land

Peashooter Zombie (1A) - 12B245, gives the zombie the ability to shoot

Jalapeno Zombie (1C) - 12B252, gives the zombie the ability to explode in a lane

Gatling Pea Zombie (1D) - 12B25F, gives the zombie the ability to shoot four peas

Squash Zombie (1E) - 12B26C, gives the zombie the ability to squash plants

How to make Zombies crush like Zomboni

[pvz自制植物僵尸渣教程\(1\)\(大佬勿喷\\_\(:зゝ∠\)\\_\)](#)

## Force Zombies to Explode on Spawn

Change either of these to 80 to explode, and 81 to never explode.

Jack-In-The-Box Zombie (8F) - 126AFC

Jalapeno Zombie (85) - 1275DD

## Time until the First Zombie Arrives

Level 1-2 (5000) - 00AC38

Normal Levels (1800) - 00AC6B

1-10, 2-10, 3-10 & 4-10 (100) - 01FF91

Beghouled & Beghouled Twist (200) - 01FE19

Whack-A-Zombie (200) - 01F746

Column Like You See 'Em (2400) - 01FFDE

Bobsled Bonanza & Air Raid (4500) - 01FFFD

Pogo Party (5500) - 020015

## Timers between Waves

### Countdown between normal waves

4140CA (2500) - Countdown of every next wave after the current wave

413E45 (add dword ptr [edi+0000559C], **-01**) - The multiple of the above address's value (not really recommend to change this)

### Countdown between A HUGE WAVE OF ZOMBIES IS APPROACHING! advice text

413FB5 (750) - The timer for the next wave of zombies after the advice shown up

41406B (4500) - The timer before the advice show up if the current wave still has zombies on screen

## Zombie Armors

change "jmp 523E4E" to any address below to give armor

523E4E - normal

522810 - cone

5228A9 - bucket

52333D - newspaper

522939 - screendoor

522B6E - football

52299B - ladder

52369B - peashooter head

523719 - wall nut head

523977 - jalapeno head

523ABA - gatling head

523be7 - squash head

523842 - tall nut head

5227EE - Basic Zombie

523298 - Flag Zombie

522896 - Conehead Zombie

522D52 - Pole Vaulter Zombie

52292F - Buckethead Zombie

523389 - Newspaper Zombie

522959 - Screendoor Zombie

522BBE - Football Zombie

523537 - Dancing Zombie

52356C - Backup Dancer

5227FD - Ducky Tube Zombie

522FAE - Snorkel Zombie

522E74 - Zomboni

5231DA - Bobsled

522DB3 - Dolphin Rider

523063 - Jack-in-the-box Zombie

5234D5 - Balloon Zombie

522CA6 - Digger Zombie

523333 - Pogo Zombie

5231B0 - Zombie Yeti

522B64 - Bungee Zombie

5229FF - Ladder Zombie

522F39 - Catapult Zombie

523E2F - Gargantuar (changing not recommended, breaks giga-garg)

5235B0 - Imp

523691 - Zomboss

523BD9 - Peashooter & Gatling Zombie

523834 - Wall-nut Zombie

523AAC - Jalapeno Zombie

523D0B - Squash Zombie

523969 - Tall-nut Zombie

## Zombie States

0052B476 - Pole Vaulter's jump state.  
00525D1E - Newspaper's state after the paper is destroyed.  
00526481 - Dolphin Rider's jump state.  
00525B70 - Balloon Zombie State when born  
00525B9C - Balloon Zombie State after balloon is popped  
00528345 - Digger Zombie's State after Rising  
52A9B2 - The state of the Ladder Zombie when he starts to put down the ladder.  
526ECF - Gargantuar's state after smashing a plant.  
5270EB - Zombie State after being thrown by gargantuar.

Any number not listed causes the zombie to act like a basic and makes garg walk fast and die

01 - Death  
02 - Becomes black  
03 - Instant Death  
04 - Bungee's target drop  
05 - Bungee dropping down  
06 - Bungee stays  
07 - Bungee grabbing  
08 - Bungee going away  
0B - Pole Vaulter Running State  
0C - Pole Vaulter Jumping State  
0D - Pole Vaulter Walking State after losing pole  
0E - Rising from ground  
0F - Jack-in-the-Box walking (with jack-in-the-box)  
10 - Jack-in-the-Box about to explode  
11 - Bobsled Team about to ride  
12 - Bobsled Team riding their bobsled  
13 - Bobsled Team's bobsled disappearing  
14 - Pogo Jumping State  
15 - Pogo jumping over a plant  
1F - Newspaper Rage State  
21 - Turn Around  
22 - Digger Underground (when losing pickaxe) with a '?' State  
23 - Digger Rising Up (after losing pickaxe) State  
24 - Digger Dizzying State  
33 - Dolphin Rider Riding & Running State  
36 - Dolphin Rider Jumping State  
47 - Thrown by Garg  
49 - Flying  
4A - Balloon Popped  
4D - Put Down Ladder State

## Zombie Speeds

### Memory View

Flag Speed - 524C50  
Minimum Football Speed - 524C34  
Maximum Football Speed - 524C27  
Minimum Newspaper Speed - 533740  
Minimum Dolphin Rider Speed - 524BE2  
Maximum Newspaper/Dolphin Rider Speed - 524BD5

## Float Addresses (Add Address Manually > Fill in the address > Type > Float > OK)

(Original text from pvzclass/MemoryAddressList by Lazuplis-Mei, translated by seemslegithuh, and rearranged by Bayant)

- The addresses in this section are floating-point constant addresses. They are **REALLY not recommended to modify**, since other things will be affected like seed packet icons.
- To split them, you should do PvZ2-styled seed packets, like what lazypeaster do, then you can edit the image to be PvZ1-styled if you're not gonna do PvZ2 style

665424 - MaximumHPRatio (before hand cut moment)

6793C0 - Relative speed of Dancing Zombie when entering lawn for the first time & MinimumHPRatio (before hand cut moment)

6795CC - Relative speed of Snorkel Zombie while diving (after triggered him to rise up from the pool)

67966C - Relative speed of Digger Zombie when walking (excluding I, Zombie variant)

679668 - Relative speed of Imp Zombie (I, Zombie variant)

679664 - Relative speed of Yeti when walking to the house

664A5C - Relative speed of Yeti when running to right side

67963C - Relative speed of Dancing Zombie, Backup Dancer, Pogo Zombie and Flag Zombie (set this to very speedy, and Pogo Zombie will jump over all plants without waiting time)

679640 - Minimum speed of Digger Zombie when digging, Pole Vaulter Zombie before jump, Football Zombie, Snorkel Zombie when running and Jack-in-a-box Zombie

679644 - Maximum speed of Digger Zombie when digging, Pole Vaulter Zombie before jump, Football Zombie, Snorkel Zombie when running and Jack-in-a-box Zombie

679648 - Minimum speed of Ladder Zombie when bringing ladder and Squash Zombie

67964C - Maximum speed of Ladder Zombie when bringing ladder and Squash Zombie

679650 - Minimum speed of Newspaper Zombie when losing newspaper and Dolphin Rider Zombie before jump) & [Data delete] (????)

679654 - Maximum speed of Newspaper Zombie when losing newspaper and Dolphin Rider Zombie before jump) & [Data delete] (????)

679670 - Minimum speed of other zombies & Relative speed of Digger Zombie when digging (I, Zombie variant)

679660 - Maximum speed of other zombies

(The addresses in this section are Imp Zombie and Gargantuar mechanic. Most of them are in Double Float. Still, it is REALLY not recommended to modify, since it will affect other stuffs such as seed packets.)

679498\\[floating point] basic value error (error is base value + [bunches of] random value so that it can make rng-ish data) of Imp Zombie's longitudinal velocity when is thrown by Gargantuar, or in other words, the error distance of Imp Zombie being thrown. Example, set it to 1000, and Imp will fall down very close to his "dad".

679380\\[double-floating point] basic value (the base this time) of Imp Zombie's longitudinal velocity when is thrown by Gargantuar, or in other words, the base distance of Imp Zombie being thrown. Example, set it to 1000, and Imp will fall down very close to his "dad".

679330\\[double-floating point] basic value of the Imp Zombie's height velocity when is thrown by Gargantuar. Set it to 1 for surprising jump :jerma\_sus: :trollgod:

679300\\[double-floating point] basic value of the Imp Zombie's correction longitudinal velocity when is thrown by Gargantuar, but is REALLY, REALLY NOT recommended to modify, since it will glitch your pvz exe file to death.

6796D8\\[double-floating point] combination of 679380 and 679498 i believe

6798AC\\[double-floating point] same as 679498 eh? but any number you input will result in epic flying fail.

67A2B0\\[floating point] same as 679380 eh? but it's in float instead

67A2B8\\[double-floating point] the length of the Imp throwing, i believe. set it to 1000 for epic flying win.

## Zombies Spawn in Pool

Determines which zombies can fall into the pool

Conehead - 52F87F

Snorkel - 52F893

Jalapeno - 52F8A7

Buckethead - 52F884

Dolphin - 52F898

Gatling - 52F8AC

Flag - 52F889

Peashooter - 52F89D

Tall-Nut - 52F8B1

Balloon - 52F88E

Wall-nut - 52F8A2

Determines which zombies can spawn in the pool lane

Conehead - 532064

Snorkel - 532078

Jalapeno - 53208C

Buckethead - 532069

Dolphin - 53207D

Gatling - 532091

Flag - 53206E

Peashooter - 532082

Tall-Nut - 532096

Balloon - 532073

Wall-nut - 532087

## Zomboss Related Addresses

(Credits to Drunken Cat)

00534CB6/00534CCC/00534CE2 - related to zomboss spawning timer

00534DC3/00534DCF/00534DDD - zombies that are sent out before the random zombies get sent

00534E6F - stomp attack countdown

005350FC -bungee attack countdown

005353C5 - head lowering countdown

## Other Stuff

00536D0D/00524101-change this to 0 and zombie will always have a mustache

00536D9D/00536DA6/00536DAF/00536DB8/00536DC1/00536DCA-determines which zombies can't have future head

00536CAA/00536CB3/00536CBC/00536CC5/00536CCE/00536CD7-determines which zombies can't have mustache

0052AE4B- changing this to 75 03 makes all zombies ignore the roof's slope

# Currency Specific

## Currency Types

	- 1		- 10		- 17, 19, 25, 26, 27
	- 2		- 11		- 18, 20
	- 3		- 12		- 21
	- 4		- 13		- 22
	- 5		- 14		
	- 6		- 15		- 23, 24
	- 8		- 16*		
	- 9				

\* Change 42FFB6 to get your wanted seed plants.

## Currency Prices

Starting Sun 1-1 (150) - 00B08F

Starting Sun Not 1-1 (50) - 00B09B

Sun (25)\* - 0309F0, 01B9B8

Normal Coin (1)\* - 030A46, 01BA28

Gold Coin (3)\* - 030A53 (50 ingame, divide by 10 and subtract by 2 to get wanted cost), 01BA34

Diamond (100)\* - 030A63 (1000 ingame, divide by 10 to get wanted cost), 01BA47

Small Sun (10)\* - 0309FD (15 ingame, add 5 to get wanted cost), 01B9C4

I, Zombie Starting Sun (150) - 00B06F

Big Sun (50)\* - 030A0D, 01B9D7

Last Stand Starting Sun (5000) - 00B058

\* included the value that will be added into the currency bank and the true value of the currency

## Prize Bags

### Rewards of money bag in Vasebreaker levels



0322ED (2) - Amount of Prize  
0322EF (2) - Prize Type

### Rewards of money bag in normal levels / trophy while winning a Vasebreaker level



0323CF (5) - Amount of Prize  
0323D1 (2) - Prize Type

### Rewards of trophy while winning a mini-game



0323B0 (1) - Amount of Prize  
0323B3 (3) - Prize Type

### Rewards of Silver Sunflower Trophy (specifically for 5-10)



03230D (3) - Amount of Prize  
03230F (3) - Prize Type

### Rewards of Gold Sunflower Trophy



032322 (5) - Amount of Prize  
032324 (3) - Prize Type

## Shop Item Prices

(credits to Jefferisa)

8 slots, Gatling Pea, Twin Sunflower (500) - 8C652  
Gloom-shroom, Spikerock (750) - 8C658  
Cattail, Winter Melon, Gold Watering Can, Tree of Wisdom (1000) - 8C65E  
Roof Cleaner, Stinky the Snail, Gold Magnet (300) - 8C664  
Cob Cannon (2000) - 8C66A  
Imitator, Mushroom Garden, Aquarium Garden (3000) - 8C66F  
Sprout, Tree Food (250) - 8C676  
7 slots, Fertilizer (75) - 8C67C  
Phonograph (2000) - 8C682  
Pool Cleaner, Bug Spray, Glove (100) - 8C688  
Garden Rake, Wheelbarrow (20) - 8C68E  
Wall-nut First Aid (200) - 8C694

## Autocollect thingy

0043158F - Change the value in int8 to -21 and sun and money will automatically be collected.

## Currency Bank Limitation Settings

Currency Type	Sun		Money	
<b>Edit the Limitation</b>	When the amount of sun is bigger than <b>30A1F</b> , the number will automatically change into <b>30A2B</b> . Both of the default values are 9990.		When the amount of coins is bigger than <b>30A74</b> , the number will automatically change into <b>30A7D</b> . Both of the default values are 99999 (with an added 0 automatically).	
<b>Disable the Limitation</b>	<b>30A25 - C7 80 60 55 00 00 06 27 00 00 &gt; 90 90 90 90 90 90 90 90 90</b>		<b>30A7A - C7 40 28 9F 86 01 00 &gt; 90 90 90 90 90 90</b>	

# Sun/Coin Production Animation Sequence Tutorial

Tutorial by Luck4ssDV or LuckNukeHunter99

Credits to RoyalPak original devs of pvz2PAK

go to 2C0 and paste write: 60 8B 47 24 83 F8 01 0F 84 20 00 00 00 83 F8 09 0F 84 21 00 00 00 83 F8 26 0F  
84 4A 00 00 00 83 F8 29 0F 84 4B 00 00 00 E9 5D 01 00 00 B8 00 0F 40 00 E9 46 00 00 00 8B 47 3C 83 F8 18 0F  
84 47 01 00 00 83 F8 19 0F 84 13 00 00 00 83 F8 41 0F 84 0A 00 00 00 B8 28 0F 40 00 E9 1E 00 00 00 B8 3C 0F  
40 00 E9 14 00 00 00 B8 50 0F 40 00 E9 0A 00 00 00 B8 14 0F 40 00 E9 00 00 00 00 FF 30 FF 70 04 FF 70 08 FF  
70 0C FF 70 10 8B EC 8B 45 10 39 47 58 0F 85 3B 00 00 00 60 8B 45 00 50 6A 03 FF 75 04 B9 00 00 00 00 8B  
C7 E8 21 FA 05 00 61 8B 47 3C 83 F8 19 0F 84 0C 00 00 00 C7 47 3C 40 00 00 00 E9 BF 00 00 00 C7 47 3C 41  
00 00 00 E9 B3 00 00 00 83 7F 3C 40 0F 84 0F 00 00 00 83 7F 3C 41 0F 84 05 00 00 00 E9 9A 00 00 00 66 8B 87  
94 00 00 00 66 B9 A0 00 66 F7 E1 25 FF FF 00 00 81 E2 FF FF 00 00 C1 E2 04 09 C2 BE C0 9E 6A 00 8B 36 8B  
B6 20 08 00 00 8B 76 08 8B 36 D9 44 32 04 83 EC 04 D9 1C 24 8B 04 24 83 C4 04 3D 00 00 80 3F 0F 85 4F 00  
00 00 8B 45 08 50 6A 00 FF 75 0C B9 00 00 00 00 8B C7 E8 83 F9 05 00 83 7F 24 09 0F 85 24 00 00 00 8B 47  
3C 83 F8 41 0F 84 0C 00 00 00 C7 47 3C 17 00 00 00 E9 18 00 00 00 C7 47 3C 19 00 00 00 E9 0C 00 00 00 C7  
47 3C 00 00 00 00 E9 00 00 00 00 83 C4 14 61 83 47 58 FF 8B 77 58 E9 F8 F5 05 00 CC CC CC CC CC CC CC  
CC CC 83 FF 00 0F 84 0B 00 00 00 DC 25 9C 0F 40 00 E9 05 4E 06 00 DC 25 C8 94 67 00 E9 FA 4D 06 00 CC  
8B 8E B8 00 00 00 60 8B F0 BA C0 9E 6A 00 8B 12 8B 92 68 07 00 00 85 D2 0F 84 51 00 00 00 8B 9A 4C 55 00  
00 83 FB 05 0F 87 42 00 00 00 83 7E 24 0B 0F 85 38 00 00 00 83 7E 3C 09 0F 85 2E 00 00 00 8B 7E 1C 8B 5E  
28 6A 01 E8 72 89 00 00 85 C0 0F 84 19 00 00 00 8B 5E 54 53 DB 04 24 6A 0A DA 34 24 83 C4 04 DB 1C 24 5B  
83 C3 25 89 58 18 61 E9 48 B6 01 00 CC CC CC

go to F00 and paste write: 5B 00 00 00 64 0F 40 00 00 00 40 41 6E 0F 40 00 00 00 40 41 34 00 00 00 64 0F  
40 00 00 00 40 41 6E 0F 40 00 00 00 40 41 32 00 00 00 64 0F 40 00 00 00 40 41 6E 0F 40 00 00 00 40 41 32 00  
00 00 7D 0F 40 00 00 00 40 41 8A 0F 40 00 00 00 40 41 36 00 00 00 64 0F 40 00 00 00 90 41 6E 0F 40 00 00 00  
40 41 61 6E 69 6D 5F 69 64 6C 65 00 61 6E 69 6D 5F 70 72 6F 64 75 63 69 6E 67 00 61 6E 69 6D 5F 62 69 67  
69 64 6C 65 00 61 6E 69 6D 5F 62 69 67 70 72 6F 64 75 63 69 6E 67 00 00 00 00 00 00 00 20 C0 61 6E 69 6D 5F  
62 75 73 74 69 6E 67 00 00 00 00 00 00 80 51 40 00 00 00 00 00 E0 70 C0 00 00 A0 42 00 00 00 00 00 00 40  
go to 7EE7 and paste write: 00 00 00 00 8B 4C 24 14 89 01 FB 06 90 90 90 90 90 90 BA 02

go to 1BB37 and paste write: E9 44 49 FE FF 90

go to 4D527: 90 to 70

go to 5FA48 and paste write: E9 73 08 FA FF 90 90 83 FE 64 EB

go to 4D567 and paste write: C1 0F 40

go to 5FAB2: 17 to 40

go to 5FCE3: 90 to 45

go to 62C37 - 62C38 : F4 01 change to 00 00

go to 63A78 and paste write: 31 C0 EB 04 90 90 90 90

go to 11F965 and paste write: C5 0F 40

## Grave Buster animation:

Original:

5FCB7: D4 80 65

Adapted to PVZ2PAK version:

go to 5FCB7 and paste write: A4 0F 40

Animation of tombstone disappearing while being eaten by Grave Buster:

Original:

4D535: 30 97 67

4D56F: 18 93 67

Adapted to PVZ2PAK version:

go to 4D535 and paste write: B9 0F 40

go to 4D56F and paste write: B1 0F 40

Position of Grave Buster:

Original (above the grave):

65273: DC 25 C8 94 67 00

Like PVZ2PAK (exactly on the grave):

go to 65273 and paste write: E9 E8 B1 F9 FF 90

# Puzzle Specific

## Vasebreaker

40B7E1 - Plants given from the seed bank

lea edi,[edx+03] (edit the 03 to any [plants ID+1](#) that you want, 00 is no plant given entirely)

41BF07 - Slot count in the seed bank

### Plant & Zombie Addresses (Credits to Jornker)

2 bytes behind most values have some weird value relating to how vases spawn, be wary when modifying (can crash sometimes)

Related Levels	Plants	Zombies
28AA8 - Vasebreaker	Squash - 28B66 Peashooter - 28B39 Snow Pea - 28B52	Jack-in-the-Box - 28BA3 Zombie - 28B7C Buckethead - 28B90
28BAC - To the Left	Reverse Repeater- 28C3A Wall-nut - 28C67 Snow Pea - 28C53 Potato Mine - 28C7B	Jack-in-the-Box - 28CB6 Zombie - 28C90 Buckethead - 28CA3
28CC8 - Third Vase	Reverse Repeater- 28D39 Wall-nut - 28C67 Snow Pea - 28D50 Squash - 28D64 Hypno-shroom - 28D77	Jack-in-the-Box - 28DD9 Zombie - 28DA1 Buckethead - 28DB4 Dancing - 28DC6
28DEB - Chain Reaction	Puff-shroom - 28E38 Hypno-shroom - 28E4E Reverse Repeater - 28E61	Jack-in-the-Box - 28E76 Zombie - 28E8A Football - 28E9E
28EA6 - M is for Metal	Reverse Repeater - 28EEC Pumpkin - 28F02 Squash - 28F15 Hypno-shroom - 28F28 Snow Pea - 28F3B Magnet-shroom - 28F4E	Zombie - 28F63 Buckethead - 28F77 Jack-in-the-Box - 28F8B Football - 28F9E
28FA7 - Scary Potter	Reverse Repeater - 28FF8 Squash - 2900E Tall nut - 29021 Threpeater - 29034 Torchwood - 29047	Zombie - 2905C Pole Vaulter - 29070 Football - 29084 Jack-in-the-Box - 29098
290A0 - Hokey Pokey	Spikeweed - 29109 Wall-nut - 29120 Squash - 29134	Zombie - 2914A Buckethead - 2915D
2916F - Another Chain Reaction	Puff-shroom - 291B8 Tall-nut - 291CE Squash - 291E1 Reverse Repeater - 291F4	Jack-in-the-Box - 29209 Zombie - 2921D Pogo - 29231
2923A - Ace of Vase	Reverse Repeater - 29288 Snow Pea - 2929E Peashooter - 292B1 Threpeater - 292C4 Squash - 292D7 Potato Mine - 292EA Wall-nut - 292FC Plantern - 2930E	Zombie - 29322 Buckethead - 29336 Jack-in-the-Box - 2934A Gargantuar - 294D4

29361 - Vasebreaker Endless	Reverse Repeater - 293D8 Snow Pea - 293EF Peashooter - 29403 Threpeater - 29417 Squash - 2942B Potato Mine - 2943F Wall-nut - 29453 Plantern - 29467	Zombie - 29491 Buckethead - 294A9 Jack-in-the-Box - 294BD Gargantuar - 294D4 (same with Ace of Vase)
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## I, Zombie Plant Addresses

### **042A987 == I, Zombie** (found by kenny)

0042AA31 - Peashooter Amount  
0042AA33 - Peashooter Type  
0042AA18 - Sunflower Amount  
0042A993 - Sunflower Type  
0042AA3E - Snow Pea Amount  
0042AA40 - Snow Pea Type  
0042AA24 - Squash Amount  
0042AA26 - Squash Type

### **0042AA47 == I, Zombie Too** (found by kenny)

0042AA7A - L1 C4 Spikeweed Type  
0042AB1E - L1 C2 Spikeweed Type  
0042AB29 - L1 C1 Peashooter Type  
0042AB5B - Remaining Spikeweed Amount  
0042AB5B - Remaining Spikeweeds  
0042AB33 - L4 Snow Pea Amount  
0042AB35 - L4 Snow Pea Type  
0042AB68 - Snow Pea Amount  
0042AB6A - Snow Pea Type  
0042AB75 - Peashooter Amount  
0042AB77 - Peashooter Type

### **0042AB7E == Can You Dig It?** (found by kenny)

0042AB83 - L1 Potato Mine Position  
0042AB85 - L1 Potato Mine Type  
0042AB91 - L1 Sunflower Position  
0042AB93 - L1 Sunflower Type  
0042AB9A - L3 Potato Mine Position  
0042AB9C - L3 Potato Mine Type  
0042AB9E - L3 Potato Mine Lane Position  
0042ABA9 - L5 Sunflower Type  
0042ABAB - L5 Sunflower Lane Position  
0042ABB5 - L4 Torchwood Position  
0042ABB7 - L4 Torchwood Type  
0042ABB9 - L4 Torchwood Lane Position  
0042ABC3 - Remaining Torchwood Amount  
0042ABC5 - Remaining Torchwood Type  
0042ABD0 - Sunflower Amount  
0042ABB2 - Sunflower Type  
0042ABBB - Peashooter Amount  
0042ABBF - Peashooter Type  
0042ABEA - Split Pea Amount  
0042ABEF - Split Pea Type

**0042ABF3 == Totally Nuts (found by kenny)**

0042ABFC - L1 Wall-nut Position  
0042ABFE - L1 Wall-nut Type  
0042AC0A - L1 Sunflower Position  
0042AC0C - L1 Sunflower Type  
0042AC5A - L1 Peashooter Amount 0  
0042AC5C - L1 Peashooter Type  
0042AC13 - L2 Wall-nut Position  
0042AC15 - L2 Wall-nut Type  
0042AC17 - L2 Wall-nut Lane Position  
0042AC66 - L2 Snow Pea Amount  
0042AC68 - L2 Snow Pea Type  
0042AC21 - L3 Wall-nut Position  
0042AC23 - L3 Wall-nut Type  
0042AC25 - L3 Wall-nut Lane Position  
0042AC30 - L3 Sunflower Type  
0042ACA7 - L3 Fume-shrooms Position  
0042AC75 - L3 Fume-shrooms Type  
0042AC8b - L4 Peashooter Amount  
0042AC8F - L4 Peashooter Type  
0042AC37 - L4 Wall-nut Position  
0042AC39 - L4 Wall-nut Type  
0042AC3B - L4 Wall-nut Lane Position  
0042AC47 - L5 Wall-nut Position  
0042AC8B - L5 Peashooter Amount  
0042AC8F - L5 Peashooter Type  
0042AC99 - Remaining Snow Peas Amount  
0042AC9B - Remaining Snow Peas Type  
0042ACA7 - Remaining Sunflowers Type

**0042ACAE = Dead Zeppelin**

0042ACB3 - L3 Sunflower Position  
0042ACB5 - L3 Sunflower Type  
0042ACC2 - L4 Sunflower Position  
0042ACC4 - L4 Sunflower Type  
0042ACC6 - L4 Sunflower Lane  
0042ACD0 - L2 Cactus Amount  
0042ACD2 - L2 Cactus Type  
0042ACDD - L5 Cactus Amount  
0042ACDF - L5 Cactus Type  
0042ACEA - Remaining Magnet-shrooms Amount  
0042ACEC - Remaining Magnet-shrooms Type  
0042ACF7 - Remaining Sunflowers Amount  
0042ACF9 - Remaining Sunflowers Type  
0042AD04 - Remaining Peashooters Amount  
0042AD06 - Remaining Peashooters Type

**0042AD1A = Me Smash!**

0042AD23 - L2 Garlic Position  
0042AD25 - L2 Garlic Type  
0042AD32 - L4 Garlic Position  
0042AD34 - L4 Garlic Type  
0042AD36 - L4 Garlic Lane  
0042AD41 - L3 Sunflowers Type  
0042AD44 - L3 Sunflowers Lane

0042AD4D - L5 Sunflowers Type  
0042AD57 - Remaining Torchwoods Amount  
0042AD59 - Remaining Torchwoods Type  
0042AD64 - Remaining Sunflowers Amount  
0042AD66 - Remaining Sunflowers Type  
0042AD72 - Remaining Spikeweeds Type  
0042AD7D - Remaining Snow Peas Amount  
0042AD7F - Remaining Snow Peas Type  
0042AD8A - Remaining Peashooters Amount  
0042AD8C - Remaining Peashooters Type  
0042AD97 - Remaining Squashes Amount  
0042AD99 - Remaining Squashes Type

#### **0042ADAD = ZomBoogie**

0042ADB2 - L3 Sunflower Position  
0042ADB4 - L3 Sunflower Type  
0042ADB6 - L3 Sunflower Lane  
0042ADC1 - L5 Sunflower Position  
0042ADC3 - L5 Sunflower Type  
0042ADC5 - L5 Sunflower Lane  
0042ADCF - Remaining Sunflowers Amount  
0042ADD1 - Remaining Sunflowers Type  
0042ADDC - Remaining Potato Mines Amount  
0042ADDE - Remaining Potato Mines Type  
0042ADE9 - Remaining Chompers Amount  
0042ADEB - Remaining Chompers Type

#### **0042ADF2 = Three Hit Wonder**

0042ADF7 - Wall-nut Amount  
0042ADF9 - Wall-nut Type  
0042AE04 - Magnet-shroom Amount  
0042AE06 - Magnet-shroom Type  
0042AE11 - Peashooter Amount  
0042AE13 - Peashooter Type  
0042AE1E - Squash Amount  
0042AE20 - Squash Type  
0042AE2B - Potato Mine Amount  
0042AE2D - Potato Mine Type  
0042AE38 - Sunflower Amount  
0042AE3A - Sunflower Type

#### **0042AE41 = All your brainz r belong to us**

0042AE4A - Tall-nut Position  
0042AE4C - Tall-nut Type  
0042AE59 - Torchwood Position  
0042AE5B - Torchwood Type  
0042AE5D - Torchwood Lane  
0042AE67 - L1 Potato Mine Amount  
0042AE69 - L1 Potato Mine Type  
0042AE73 - L1 Sunflower Amount  
0042AE75 - L1 Sunflower Type  
0042AE7F - L2 Sunflower Amount  
0042AE81 - L2 Sunflower Type  
0042AE8C - L2 Threpeater Amount  
0042AE8E - L2 Threpeater Type

0042AE99 - L2 Snow Pea Amount  
0042AE9B - L2 Snow Pea Type  
0042AEA6 - L2 Split Pea Amount  
0042AEA8 - L2 Split Pea Type  
0042AEB4 - L3 Chomper Type  
0042AEBF - L3 Sunflower Amount  
0042AEC1 - L3 Sunflower Type  
0042AECC - L3 Squash Amount  
0042AECE - L3 Squash Type  
0042AEDA - L4 Peashooter Type  
0042AEE4 - L4 Sunflower Amount  
0042AEE6 - L4 Sunflower Type  
0042AEF0 - L5 Sunflower Amount  
0042AEF2 - L5 Sunflower Type  
0042AEFD - L5 Fume-shroom Amount  
0042AEFF - L5 Fume-shroom Type  
0042AF0A - L5 Scaredy-shroom Amount  
0042AF0C - L5 Scaredy-shroom Type  
0042AF17 - L5 Starfruit Amount  
0042AF19 - L5 Starfruit Type  
0042AF24 - L5 Split Pea Amount  
0042AF26 - L5 Split Pea Type  
0042AF31 - L5 Magnet-shroom Amount  
0042AF33 - L5 Magnet-shroom Type

# Level Specific

## Lanes

Ground - 40A69E (ebp/AE means land, ecx/8E means water, edx/96 means bare)

Lane 1 (AE) - 00A69F

Lane 2 (AE) - 00A6A5

Lane 3 (AE) - 00A6AB

Lane 4 (AE) - 00A6B1

Lane 5 (AE) - 00A6B7

Lane 6 (96) - 00A6BD

Pool - 40A679

Lane 1 (AE) - 00A668

Lane 2 (AE) - 00A66E

Lane 3 (8E) - 00A674

Lane 4 (8E) - 00A67A

Lane 5 (AE) - 00A680

Lane 6 (AE) - 00A686

Unsodded (I believe this is for the first 3 levels only) -49A711

Lane 1 (96) - 40A711

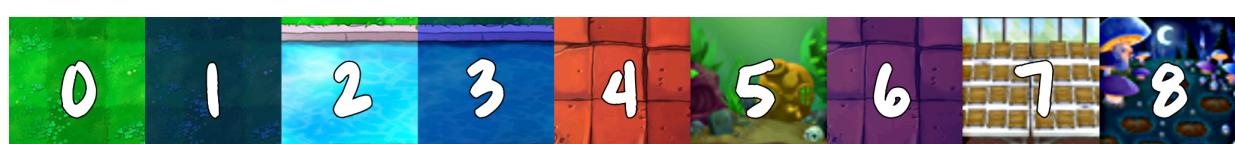
Lane 2 (96) - 40A717

Lane 3 (96) - 40A72E

Lane 4 (96) - 40A734

40A71F/40A724/40A729-Determine which minigame/level has three lanes

## Scene IDs



(will rework this someday)

## Level IDs

(thanks to Kim Reno)

Adventure Mode - 0



Values higher than 48 crash the game

## Minigames with conveyors

Portal Combat (1A) - 41BEBF

A couple other minigames are around here too, just look at the ID.

## Minigame Menu Placement

(Thanks to lazyPeaster (kinda))

[Minigame Menu Locations/Thumbnails](#)

## Minigame Flags

009499 (10) - Amount of waves in 1-Flagged Minigames/Survivals

0092FD (20) - Amount of waves in 2-Flagged Minigames/Hard Survivals

009472 (30) - Amount of waves in 3-Flagged Minigames

009466 (40) - Amount of waves in 4-Flagged Minigames

# PvZ2PAK Minigame Thumbnails Tutorial

(Thanks to lazyPeaster)



Download: [https://file.garden/ZCenABQZY2RSmYew/Challenge\\_Thumbnails.png](https://file.garden/ZCenABQZY2RSmYew/Challenge_Thumbnails.png)

Open resources.xml in the properties folder and search for the line

`<Image id="CHALLENGE_THUMBNAILS" path="Challenge_Thumbnails" cols="22" />`

Change the cols to 37.



Download: [https://file.garden/ZCenABQZY2RSmYew/Survival\\_Thumbnails.png](https://file.garden/ZCenABQZY2RSmYew/Survival_Thumbnails.png)

`<Image id="SURVIVAL_THUMBNAILS" path="Survival_Thumbnails" cols="11" />`

Change the cols to 15.



Download: [https://file.garden/ZCenABQZY2RSmYew/Challenge\\_Bank.png](https://file.garden/ZCenABQZY2RSmYew/Challenge_Bank.png)

[https://file.garden/ZCenABQZY2RSmYew/Challenge\\_Window.png](https://file.garden/ZCenABQZY2RSmYew/Challenge_Window.png)

[https://file.garden/ZCenABQZY2RSmYew/Challenge\\_Window\\_Highlight.png](https://file.garden/ZCenABQZY2RSmYew/Challenge_Window_Highlight.png)

Move these images into the `images` folder after downloaded and delete the current ones.

- Limbo Page - 2DF5D to 2DF5F: change 88 59 54 to 90 90 90

Since the design of the minigame windows has been changed (**bigger**), the team behind PvZ2PAK moved the layout to make it center and make the minigame name stay on the bottom-left corner.

These moved to the left 26 pixels.

- (Survival) 2E00C: change 26 to 0C
- (Minigame, Puzzle and Limbo) 2E035: change 26 to 0C

These moved to the right 26 pixels.

- (Longest Streaks, X Flags) 2EF3F: change 30 to 4C

(???)

- 2F03B to 2F051:

0F 89 54 24 20 6A 02 BA FF 00 00 00 89 44 24 28 68 FF 00 00 00 8B CA

-Change it to

10 83 C2 1C 89 54 24 20 6A 02 BA FF 00 00 00 8B CA 89 44 24 28 51 90

Now come to the minigame thumbnail, and the placement of it on a specific page. For every single minigame window, there will be the minigame ID and 4 following components, thumbnail, page, row, and col. For thumbnails, the ID will be used to determine which thumbnail should be used. For page, 00 is Survival, 01 is Minigames, 02 is Limbo, and 03 is Puzzle. If the mode is on the Survival page, the thumbnail will be taken from Survival\_Thumbnails.png and vice versa.

These are some of the addresses which values had changed in PvZ2PAK.

- Endless Day
  - (Thumbnail) 2A2C94: 0A to 0B
  - (Page) 2A2C98: 02 to 00
  - (Row) 2A2C9C: 03 to 02
- Endless Night
  - (Thumbnail) 2A2CAC: 0A to 0C
  - (Page) 2A2CB0: 02 to 00
  - (Row) 2A2CB4: 03 to 02
- Endless Fog
  - (Thumbnail) 2A2CDC: 0A to 0D
  - (Page) 2A2CE0: 02 to 00
  - (Row) 2A2CE4: 03 to 02
  - (Col) 2A2CE8: 02 to 03
- Endless Roof
  - (Thumbnail) 2A2CF4: 0A to 0E
  - (Page) 2A2CF8: 02 to 00
  - (Row) 2A2CFC: 03 to 02
  - (Col) 2A2D00: 03 to 04
- Zombotany 2 (Thumbnail) 2A2E8C: 00 to 23
- Wall-nut Bowling 2 (Thumbnail) 2A2EA4: 06 to 24
- Wall of Nuts (Thumbnail) 2A2EEC: 00 to 16
- Sunny Day (Thumbnail) 2A2F04: 01 to 17
- Unsodded (Thumbnail) 2A2F1C: 02 to 18
- Big Time (Thumbnail) 2A2F34: 03 to 19
- S.U.N Flower (Thumbnail) 2A2F4C: 04 to 1A
- Air Raid (Thumbnail) 2A2F64: 05 to 1B
- Ice Level (Thumbnail) 2A2F7C: 06 to 1C
- High Gravity
  - (Thumbnail) 2A2FAC: 08 to 1D
  - (Col) 2A2FB8: 03 to 02 (Note: It's now on top of Zen Garden, hence the darker shadow)
- Grave Danger
  - (Thumbnail) 2A2FC4: 0B to 1E
  - (Col) 2A2FD0: 04 to 03
- Can You Dig It?
  - (Thumbnail) 2A2FDC: 0A to 1F
  - (Row) 2A2FE4: 02 to 01
  - (Col) 2A2FE8: 00 to 04
- Dark Stormy Night (Col) 2A3000: 01 to 00
- Bungee Blitz (Col) 2A3018: 02 to 01
- Squirrel
  - (Thumbnail) 2A3024: 0A to 20
  - (Col) 2A3030: 03 to 02 (Note: It was previously under Intro.)
- Upsell
  - (Thumbnail) 2A3234: 0A to 22
  - (Row) 2A323C: 03 to 02 (Note: It's now on top of Tree of Wisdom)
- Intro (Thumbnail) 2A324C: 0A to 21

# Custom Minigame Backgrounds

(Thanks to LuckNukeHunter99)

PVZ2PAK background tutorial by Luck4ssDV/LuckNukeHunter99

Includes a tutorial for a custom texture for Explode o' Nut

Credits to RoyalPAK original creators of PVZ2PAK

Go to resource.xml and go to line:

```
<Image id="ICETRAP_PARTICLES" path="icetrap_particles" cols="4" /> (or line 214)  
under paste:  
<Image id="BG1" path="bg1" />  
<Image id="BG2" path="bg2" />  
<Image id="BG3" path="bg3" />  
<Image id="BG3_I" path="bg3_i" />  
<Image id="BG3_M" path="bg3_m" />  
<Image id="BG4" path="bg4" />  
<Image id="BG4_I" path="bg4_i" />  
<Image id="BG4_M" path="bg4_m" />  
<Image id="BG5" path="bg5" />  
<Image id="BG6" path="bg6" />  
<Image id="BG7" path="bg7" />  
<Image id="BG8" path="bg8" />  
<Image id="BG9" path="bg9" />  
<Image id="BG10" path="bg10" />  
<Image id="BG11" path="bg11" />  
<Image id="BG12" path="bg12" />  
<Image id="BG12_I" path="bg12_i" />  
<Image id="BG12_M" path="bg12_m" />  
<Image id="BG13" path="bg13" />  
<Image id="Wallnut_explode" path="Wallnut_explode" />
```

and remember to add the textures from PVZ2PAK.

Open the HxD and apply these changes (Note: Takes up script space!):

go from 4F8 to A07 and replace write:

```
BB C0 9E 6A 00 8B 1B 8B 9B F8 07 00 00 53 E8 15 00 00 00 5B 85 DB 0F 84 05 00 00 00 E9 0A 5E  
01 00 FF 24 85 64 66 41 00 60 8B EC 83 C5 24 B8 C0 9E 6A 00 8B 00 E8 9E 32 05 00 84 C0 0F 85 10  
01 00 00 B9 C0 9E 6A 00 8B 09 E8 AA 33 05 00 84 C0 0F 85 F2 00 00 00 8B 45 00 83 F8 10 0F 84 78  
00 00 00 83 F8 11 0F 84 79 00 00 00 83 F8 12 0F 84 7A 00 00 00 83 F8 14 0F 84 C1 00 00 00 83 F8  
16 0F 84 7C 00 00 00 83 F8 18 0F 84 AF 00 00 00 83 F8 1A 0F 84 74 00 00 00 83 F8 1C 0F 84 75 00  
00 00 83 F8 1E 0F 84 4E 00 00 00 83 F8 20 0F 84 6D 00 00 00 83 F8 21 0F 84 28 00 00 00 83 F8 22  
0F 84 65 00 00 00 83 F8 23 0F 84 66 00 00 00 C7 45 00 00 00 00 00 E9 8C 00 00 00 B9 01 00 00 00  
E9 78 00 00 00 B9 02 00 00 00 E9 6E 00 00 00 B9 03 00 00 00 E9 64 00 00 00 B9 04 00 00 00 E9 5A  
00 00 00 B9 05 00 00 00 E9 50 00 00 00 B9 06 00 00 00 E9 46 00 00 00 B9 07 00 00 00 E9 3C 00 00  
00 B9 08 00 00 00 E9 32 00 00 00 B9 09 00 00 00 E9 28 00 00 00 B9 0A 00 00 00 E9 1E 00 00 00 B9  
0B 00 00 00 E9 14 00 00 00 B9 0C 00 00 00 E9 0A 00 00 00 B9 0D 00 00 00 E9 00 00 00 00 8B 1C 8D  
FC FF 6F 00 89 5D 00 61 C3 CC  
CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC 74 09 83 F8 40 0F 85  
2B 51 06 00 DD D8 D9 05 C0 93 67 00 E9 15 51 06 00 60 B9 C0 9E 6A 00 8B 09 8B 91 F8 07 00 00  
83 FA 12 74 28 0F 1F 40 00 83 FA 1E 74 35 0F 1F 40 00 50 E8 2A 32 05 00 84 C0 58 75 3C 0F 1F 40  
00 61 8B 89 4C 55 00 00 E9 AB 75 01 00 53 8B 1D 34 00 70 00 68 E0 00 00 00 6A 81 E8 62 6A 18 00  
5B 61 C3 53 8B 1D 3C 00 70 00 68 C1 00 00 00 6A 82 E8 4C 6A 18 00 5B 61 C3 53 8B 1D 44 00 70  
00 68 E0 00 00 00 6A 81 E8 36 6A 18 00 5B 61 C3 CC  
E8 DF 69 18 00 5B 61 C3 53 8B 1D 40 00 70 00 68 CF 00 00 00 6A 80 E8 C9 69 18 00 5B 61 C3 53  
8B 1D 48 00 70 00 68 D0 00 00 00 6A 81 E8 B3 69 18 00 5B 61 C3 83 FA 31 75 10 0F 1F 40 00 C7 45
```

28 AC 0D 00 00 E9 5F A7 03 00 83 FA 3D 0F 85 D1 A6 03 00 E9 C0 A6 03 00 CC 68 36 09 40 00 68  
00 00 70 00 E8 1B 01 00 00 68 40 09 40 00 68 04 00 70 00 E8 0C 01 00 00 68 4A 09 40 00 68 08 00  
70 00 E8 FD 00 00 00 68 54 09 40 00 68 0C 00 70 00 E8 EE 00 00 00 68 5E 09 40 00 68 10 00 70 00  
E8 DF 00 00 00 68 68 09 40 00 68 14 00 70 00 E8 D0 00 00 00 68 72 09 40 00 68 18 00 70 00 E8 C1  
00 00 00 68 7C 09 40 00 68 1C 00 70 00 E8 B2 00 00 00 68 86 09 40 00 68 20 00 70 00 E8 A3 00 00  
00 68 90 09 40 00 68 24 00 70 00 E8 94 00 00 00 68 9B 09 40 00 68 28 00 70 00 E8 85 00 00 00 68  
A6 09 40 00 68 2C 00 70 00 E8 76 00 00 00 68 B1 09 40 00 68 30 00 70 00 E8 67 00 00 00 68 C8 09  
40 00 68 34 00 70 00 E8 58 00 00 00 68 BC 09 40 00 68 38 00 70 00 E8 49 00 00 00 68 E0 09 40 00  
68 3C 00 70 00 E8 3A 00 00 00 68 D4 09 40 00 68 40 00 70 00 E8 2B 00 00 00 68 F9 09 40 00 68 44  
00 70 00 E8 1C 00 00 00 68 EC 09 40 00 68 48 00 70 00 E8 0D 00 00 00 8D 4D A0 89 5D FC E9 36  
D0 07 00 CC CC 8D 4D A0 89 5D FC E8 27 3B 00 00 8B 4C 24 08 51 8D 4D 84 E8 4A 3B 00 00 8D 45  
84 C7 45 FC 50 01 00 00 8B 17 8B 52 40 50 8D 4D D8 51 8B CF FF D2 8B C8 E8 5B A0 19 00 8B 74  
24 04 89 06 8D 75 D8 E8 8D 9F 19 00 C2 08 00 49 4D 41 47 45 5F 42 47 31 00 49 4D 41 47 45 5F 42  
47 32 00 49 4D 41 47 45 5F 42 47 33 00 49 4D 41 47 45 5F 42 47 34 00 49 4D 41 47 45 5F 42 47 35  
00 49 4D 41 47 45 5F 42 47 36 00 49 4D 41 47 45 5F 42 47 37 00 49 4D 41 47 45 5F 42 47 38 00 49  
4D 41 47 45 5F 42 47 39 00 49 4D 41 47 45 5F 42 47 31 30 00 49 4D 41 47 45 5F 42 47 31 31 00 49  
4D 41 47 45 5F 42 47 31 32 00 49 4D 41 47 45 5F 42 47 31 33 00 49 4D 41 47 45 5F 42 47 33 5F 4D  
00 49 4D 41 47 45 5F 42 47 33 5F 49 00 49 4D 41 47 45 5F 42 47 34 5F 4D 00 49 4D 41 47 45 5F 42  
47 34 5F 49 00 49 4D 41 47 45 5F 42 47 31 32 5F 4D 00 49 4D 41 47 45 5F 42 47 31 32 5F 49 00 00  
CC

fun fact: one of these is crazy dave dialogue for squirrel lol

go to 162D4 and replace FF 24 85 64 66 41 00 and write: E9 1F A2 FE FF 90 90

go to 17C80 and replace 8B 89 4C 55 00 00 and write: E9 1B 8A FE FF 90

go to 17CF0 and replace 8B 89 4C 55 00 00 write: E9 2B 8A FE FF 90

verify 2DF5D is: 90 90 90

verify 2EF3F is 4C

verify 2F03B to 2F051 is: 10 83 C2 1C 89 54 24 20 6A 02 BA FF 00 00 00 8B CA 89  
44 24 28 51 90

go to 657AB and replace 75 11 DD D8 D9 05 C0 93 67 00 and write: E9 D8 AE F9 FF  
00 00 00 00 00

go to 7D91C and replace 8D 4D A0 89 5D EC write: E9 A3 2E E8 FF 90

go to 7D91C and replace 8D 4D A0 89 3D FC white. E9 A5 2E F8 FF 90  
go to 25108C to 2510A8 and replace 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

## Changing the background images

(Thanks to Xpiron)

(Thanks to Xpliron)  
B61: 400551 (Zembotany 10)

Bg2: 400551 (Zentibolatty = 10) Bg2: 400551 (Wall nut Bowling = 11) 400551 (Wall nut Bowling 2 = 21)

Bg2: 40055A (Wall-Hut Bowling –  
Bg3: 400563 (Slot Machine – 12)

Bg3. 400563 (Slot Machine - 12)

Bg4: 400599 (Whack A Zombie —  
B-5, 100575 (Sonic St. — 10)

Bg5: 400575 (Seeing Stars - 16)

## Bg6: 400587 (Portal Combat – 1A)

Bg7: 400590 (Bobsled Bonanza – 1)

Bg8: 4005A2 (Zombotany 2 – 20)

Bg9: 4005B4 (Pogo Party – 22)

Bg10: 4005BD (Dr. Zomboss Revenge – 23)

Bg11: 40056C (Beghouled – 14) 40057E (Beghouled Twist – 18)

## Explode-o-Nut with Custom Texture

go to D198 and paste write: E9 92 41 24 00  
go to 10A95 and paste write: E9 4B 08 24 00  
go to 636E4: 75 to EB  
go to 64461 and paste write: E9 9D CE 1E 00 90  
go to 6620E and paste write: E9 60 B0 1E 00  
go to 7D963 and paste write: E9 98 38 1D 00  
go to 251200 and paste write: E8 1B 32 DB FF 68 4E 12 65 00 8D 4D 84 E8 3E 32 DB FF 8D 45  
84 C7 45 FC 50 01 00 00 8B 17 8B 52 40 50 8D 4D D8 51 8B CF FF D2 8B C8 E8 4F 97 F4 FF 8D 75  
D8 A3 00 00 72 00 E8 82 96 F4 FF 8D 4D 84 E8 DA 31 DB FF E9 1D C7 E2 FF CC CC CC 49 4D 41  
47 45 5F 57 61 6C 6C 6E 75 74 5F 65 78 70 6C 6F 64 65 00 00 00 00 00 CC CC CC 00 00 00 00 00 00  
CC CC CC 83 F9 31 0F 85 55 00 00 00 D9 44 24 2C A1 00 00 72 00 DD 05 F8 96 67 00 83 EC 10 DC  
C9 8D 4C 24 2C D9 C9 D9 5C 24 3C D8 4C 24 40 D9 5C 24 40 D9 44 24 40 D9 5C 24 0C D9 44 24  
3C D9 5C 24 08 D9 84 24 B4 00 00 00 D9 5C 24 24 D9 44 24 24 D9 5C 24 04 D9 84 24 B0 00 00 00  
E9 9E 4F E1 FF 83 F9 32 0F 85 AD 4F E1 FF E9 34 4F E1 FF 00 00 00 00 00 00 83 F8 62 0F 85 05 00  
00 00 B8 03 00 00 00 50 8B 44 24 20 E9 9D F7 DB FF 00 00 00 00 00 00 83 7E 24 03 0F 85 12 00 00  
00 83 BE D8 00 00 00 06 0F 85 05 00 00 00 E9 52 31 E1 FF 85 C0 89 86 B0 00 00 00 E9 3B 31 E1 FF  
CC CC CC 5F 5E 5D 5B 59 60 8B 1D C0 9E 6A 00 8B 9B 68 07 00 00 8B 9B 38 01 00 00 83 7B 28 31  
0F 85 84 00 00 00 60 8B 15 C0 9E 6A 00 8B D8 8B F8 B9 1C 00 00 00 BE 20 FA 18 00 53 56 8B F0  
8B 06 8B 88 20 08 00 00 8B 86 94 00 00 00 8B 51 08 25 FF FF 00 00 8D 1C 80 57 C1 E3 05 03 1A 68  
00 90 66 00 E8 9D 1B E2 FF 8B 4B 58 8D 04 40 C1 E0 05 8B 7C 08 44 8B 4E 44 8B 76 40 B8 56 55  
55 55 F7 E9 8B C2 C1 E8 1F 01 D0 8B 35 00 00 72 00 68 00 90 66 00 E8 6C 1B E2 FF 8B 53 58 8D  
0C 40 C1 E1 05 5F 89 74 11 44 5E 5B 61 61 E9 C2 BD DB FF

Limbo page name to page 2

go to 2578FC and change the codes to 50 41 47 45 20 32 00 00 00

## Crazy Dave talk in Squirrel

check if 7A0 to 7C3 has 83 FA 31 75 10 0F 1F 40 00 C7 45 28 AC 0D 00 00 E9 5F A7 03 00  
83 FA 3D 0F 85 D1 A6 03 00 E9 C0 A6 03 00 CC

go to 3AE7E and replace 83 FA 3D 75 0C and write: E9 1D 59 FC FF

## Plant on Roof

Flower Pot (21) - 43B72F

43B74F-The scenes in which the normal flower pots amount are used (3 lanes) note changing the scenes will not remove the pots from 5-3 to 5-10 as they used code nearby to make it so those pots appear no matter what.

41C0B6-determine which scenes need pots to for stuff to be planted on land tiles

## Plant Type in Squirrel & Can You Dig It?

Wall-Nut (03) - 01F867

## Zombie Type in Squirrel

Zombie Type (0) - 2BE91

**Danger Levels:** 0 - literally makes you win the game, 1 - just chews on the wall-nuts, 2 - does something to bypass at least one wall-nut, 3 - literally goes past the wall-nuts

Basic - 0 (Danger Level: 1)

Flag - 1 (Danger Level: 1)

Conehead - 2 (Danger Level: 1)

Pole Vaulter - 3 (Danger Level: 2, jumps over one wall-nut)

Buckethead - 4 (Danger Level: 1)

Newspaper - 5 (Danger Level: 1)

Screendoor - 6 (Danger Level: 1)

Football - 7 (Danger Level: 1)

Dancing - 8 (Danger Level: 1, spawns a dancer in front of him)

Backup - 9 (Danger Level: 1)

Ducky - A (Danger Level: 1)

Snorkel - B (Danger Level: 3, jogs past the wall-nuts)

Zomboni - C (Danger Level: 2, destroys wall-nuts slowly)

Bobsled - D (Danger Level: 2, walks past one wall-nut)

Dolphin - E (Danger Level: 3, jogs slightly faster than the snorkel)

Jack-In-The-Box - F (Danger Level: 0, inevitably explodes which causes a win)

Balloon - 10 (Danger Level: 3, flies past the wall-nuts)

Digger - 11 (Danger Level: 0, digs behind the wall-nuts and goes back)

Pogo - 12 (Danger Level: 3, jumps past the wall-nuts)

Yeti - 13 (Danger Level: 0, goes backwards eventually)

Bungee - 14 (Danger Level: 0, aims for the bottom column and lets you win the game)

Ladder - 15 (Danger Level: 2, climbs past one wall-nut)

Catapult - 16 (Danger Level: 2, lobs basketballs and crushes)

Garg - 17 (Danger Level: 2, crushes the wall-nuts but is slow in speed)

Imp - 18 (Danger Level: 1)

Zomboss - 19 (Danger Level: 2, spawns zombies at the second most right column)

Peashooter - 1A (Danger Level: 1, shoots peas)

Wall-Nut - 1B (Danger Level: 1)

Jalapeno - 1C (Danger Level: 0, also explodes)

Gatling - 1D (Danger Level: 2, shoots at the wall-nuts much more than the peashooter)

Squash - 1E (Danger Level: 0, destroys the first wall-nut it encounters)

Tall-Nut - 1F (Danger Level: 1)

Gigagarg - 20 (Danger Level: 2, identical to the normal gargantuar in gameplay)

## Wall-nut Bowling Stuff

463007 (1) - The drop when wall-nut hits 2 zombies

463023 (1) - The drops when wall-nut hits 3 zombies

46304E (1)

46306D (1)

463091 (1) - The drops when wall-nut hits 4 zombies

4630A6 (1)

4630C4 (2) - The drop when wall-nut hits 5 zombies

Each of the above of these addresses (push 03) are the animations of dropping the items. Please refer to [Marigold Related Stuff](#) for the ID of them.

## Slot Machine Stuff

423EE0 (4) - What slot machine gives when the Sun Jackpot happens  
423EDC - What animation the jackpot uses  
41771D - The value of requirement text at the progress bar [2000/X Sun]  
4176EC - The value it shown at the progress bar when it reached 4176E6 (visual)  
4176E6 - The limit for the current sun value at the progress bar [X/2000 Sun]  
42397E - The {SCORE} value for the lawnstring text of the slot machine  
423839 - The real sun value that's required to win the level  
423840 - The progress bar status when it reaches the value of 423839  
423847 - When the "Almost there" text appears  
4238C8 - Same as 423839  
42392B - Progress bar status in visual

## Beghouled Stuff

417AA4 - The visual stuff in the score counter regarding the required matches  
4211F4 - The text relating to beghouled on how many matches are needed  
421284 - When the "5 matches to go!" text will appear  
42131C - The amount of matches needed to beat the level  
421620 - Beghouled plants for the levels  
422A23 - The visual stuff for the progress bar status (1ea ecx, [ebx+4B])  
424532 - Timer of *No Possible Moves!*  
427AE7 - This and some push addresses below it relate to beghouled's upgrade plants

## Zombiquarium Stuff

Changing 4117CA will make the value of the progress bar (number) become 4177D0 when the sun value at the first one is bigger than what you've set at the second one  
417801 - The value of requirement text at the progress bar  
42813F - The value of {SCORE} in "Get {SCORE} sun to pass the level" lawnstring text  
4281E5 - The value that trigger the win system of the game, such as the progress bar, the complete level text and the arrow that pointing the trophy (the actual value I supposed)  
4281EA - The status of progress bar when it reached the actual value of requirement  
4281FE - The value of progress bar in visually  
42820D - The value that trigger "Almost there!" text appear  
428295 - The amount of sun when there's a reminder that tells you to buy a snorkel  
428395 - Same as 4281E5, but the progress bar won't change this time (nope, guess this is the real one)  
42806C - The maximum amount of Brains that allowed to appear at the same time  
428074 - The cost that will be deducted while tapping a brain out

## Portal Combat Stuff

426FCB [CE] / 26FCE [HxD] (9000) - The first portal relocation countdown  
4277D5 [CE] / 277D8 [HxD] (6000) - Every portal relocation countdown after 426FCB  
4276E1 [CE] / 276E2 [HxD] (500) - The duration of the "Relocating..." advice

## Art Challenge Minigame Things

### Seeing Stars

2A3410	2A3414	2A3418	2A341C	2A3420	2A3424	2A3428	2A342C	2A3430
2A3434	2A3438	2A343C	2A3440	2A3444	2A3448	2A344C	2A3450	2A3454
2A3458	2A345C	2A3460	2A3464	2A3468	2A346C	2A3470	2A3474	2A3478
2A347C	2A3480	2A3484	2A3488	2A348C	2A3490	2A3494	2A3498	2A349C
2A34A0	2A34A4	2A34A8	2A34AC	2A34B0	2A34B4	2A34B8	2A34BC	2A34C0

### Art Challenge Wall-Nut

2A3260	2A3264	2A3268	2A326C	2A3270	2A3274	2A3278	2A327C	2A3280
2A3284	2A3288	2A328C	2A3290	2A3294	2A3298	2A329C	2A32A0	2A32A4
2A32A8	2A32AC	2A32B0	2A32B4	2A32B8	2A32BC	2A32C0	2A32C4	2A32C8
2A32CC	2A32D0	2A32D4	2A32D8	2A32DC	2A32E0	2A32E4	2A32E8	2A32EC
2A32F0	2A32F4	2A32F8	2A32FC	2A3300	2A3304	2A3308	2A330C	2A3310

### Art Challenge Sunflower

2A3338	2A333C	2A3340	2A3344	2A3348	2A334C	2A3350	2A3354	2A3358
2A335C	2A3360	2A3364	2A3368	2A336C	2A3370	2A3374	2A3378	2A337C
2A3380	2A3384	2A3388	2A338C	2A3390	2A3394	2A3398	2A339C	2A33A0
2A33A4	2A33A8	2A33AC	2A33B0	2A33B4	2A33B8	2A33BC	2A33C0	2A33C4
2A33C8	2A33CC	2A33D0	2A33D4	2A33D8	2A33DC	2A33E0	2A33E4	2A33E8

## Survival: Endless Stuff

1DA92 - Plants that have + symbol

1DAE9 - Plants that have increasing sun cost per placement

1DB30 - How much sun will be added after planted upgrade plants

## Lawn Backgrounds

0040A58F -1-X Scene (0)

0040A56B -2-X Scene (1)

0040A5B3 -3-X Scene (2)

0040A5D5 -4-X Scene (3)

0040A5E6 -5-X Scene (4)

0040A5FC -6-X (and 5-10) Scene (5)

## Other Stuff

004538B1 - Whack-a-Zombie effect in Adventure Mode. Changing this causes only three seeds to be able to be selected at the start of the level. Hammer also doesn't work when changed.

00424735 - Level with Dark Stormy Night Ground Raindrops

004246D5 - Level with Dark Stormy Night Water Raindrops

00426B41 - Level with Unidentified Dark Stormy Night Effect

00426B77 - Level with Unidentified Dark Stormy Night Effect One of them causes thunder sound effect don't know which one though

41C780 - Has all plants on the same physical level, does not stop the roof angle from stopping projectiles

00A5FE - Determine what scene is 5-10

0041C0A2 - Determines what World Graves spawn in (also makes grave buster card grayed out)

00523E5D - Determine what minigame level gets the zombiquarium effect.

00410ADF/00439035 - Seems to determine what extra level has Column Like You See 'Em effect.

0052BE5/0046DC21/0046D53F - Seems to determine what level has the high gravity effect.

004268F1 - Seems to determine what level the grave danger effect appears on, although it might be for the minigames and what not only.

00426925 - Determines what wave grave danger starts appearing in.

1C084 - What level graves do not appear in

004248AA - Zombie Nimble Zombie Quick for every level.

00413BD1 - Determine what minigame has the sunny day effect.

00523EE5 - This determines what level the big trouble little zombie effect appears on.

0040F531-40F6F1 - Seems to be for the name of the I, Zombies seedpackets, plus scrolling down some more has the names for the seedpackets in Beghouled and some other stuff.

004539F1 - Changes what level the 5-10 crazy dave text appears at although no music will play.

00453999 - What level the 1-10 conveyor belt appears on, Be careful when changing this.

004539AC - Same thing for 2-10

004538E1 - Same thing for 3-5

004539B8 - Same thing for 3-10

0045390D - Same thing for 4-5 (gives you the hammer, but 4-5 itself will still have the vase objects and have you select a plant)

00453941 - Same thing for 4-10

00453971 - Same thing for 5-5

0045377D - Changing it to a different level makes it so the level lasts forever with no true end, this was probably directly used for the zomboss fight.

00453866 - Determine what level has wall-nut bowling, similar to the whack a zombie one, a bit unstable.

0040B03E - Modify what level has the 4-5 sun amount.

00412F26 - Modifying this can change what level the bungee blitz from 5-5 appears on.

004268F1 - Determines what minigame has the grave danger effect

00426FAD - Calls zomboss on 5-10 and zomboss's revenge

00424D05 - Seems related to the Art Challenge stuff, changing the value to a different level seems to make it so only one of the required fill in spots are needed to get a trophy.

00424E5D - Makes the Art Challenge levels visually gone when changed.

00425087 - Changing this seems to make the whole circle effect from twist be switched to a different level sort of.

00424A21 - Seems to determine which minigame has the Art Challenge thing

00413BDF- For the sunny day affect, determines what replaces normal sun, 6 is default and is big sun. 7 crashes along with 0 (not sure if anything above 7 would crash as well), 4 is normal sun, 5 is small, 1 is silver coin, 2 is gold coin and 3 is diamond.

00413BD8 - Change this and the non sunny day levels won't have the normal sun, the whole 1-6 things from 413BDF applied here.

00413A25 - Determine how many onslights there are in Last Stand.

00413B17 - This and many others near it, seems to disable sun falling from the sky in worlds/bgs classified as having sun fall from the sky, not fully sure what with 413AD8 since that would be for it's raining seeds, also not sure what's with 413A76-413A9C maybe relating to what bg/worlds auto to no sun falling for minigames.....or all levels? Not sure.

0041F795-Determines the lanes type the ice trail spawn in bobsled minigame, 02 is just land, 01 is just water, any other number value just makes it all lanes type has an ice trail next to it is also what level the trail appears in.

For the roof the address is 0040A69E

It's also the front yard night lanes as well

40A6CA-front yard day lanes

40A711 -Determine the lane type for the tutorial

40A72E -Same deal as 40A711

40A71F -Seems to be if a level would have the tutorial lane type

40A61F-Zen garden bg (does hall of mirrors effect due to only being 800 x 600)

00413B17-This and many others near it, seems to disable sun falling from the sky in worlds/bgs classified as having sun fall from the sky, not fully sure what with 413AD8 since that would be for it's raining seeds, also not sure what's with 413A76-413A9C maybe relating to what bg/worlds auto to no sun falling for minigames.....or all levels? Not sure.

426FAD-Calls zomboss on 5-10 and zomboss's revenge, changing the type (push 19) may be unstable

013B17 - Stops sun from falling in the last stand level

4265D9, 41C120 - which levels don't spawn zombies (may need to change both)

(credits to *discord user* for the following addresses)

43B0CE - which level doesn't display level name (48/intro)

40BCA3 - which levels don't have mowers

40BD3D - which levels skip choose your seeds screen

45C686 - which levels cannot be restarted

408DAC - which levels cannot save

408C85 - which levels can read save

4265D9, 41C120 - which levels don't spawn zombies

40B283 - ice level preset seeds

40BEDA - ice level music silence

43A748 - which levels start over the lawn and silence music at start

413AE1 - which levels have no sun

41BF60 - which levels don't have 10 slots

466147, 487D1D - big time effect on packets

45E378, 45FB24, 46398F - big time effect on plants

424917 - game over sound in ice level

425651 - which level has unuseable tiles wall nut art challenge

417411 - show progress bar at the very beginning of level (used in squirrel and i zombie)

43BAE5, 40BD70, 43D5DD - which level has no slots (squirrel)

41C075 - which levels don't start with graves

40A94B - number of graves in each level(to 40AA53 - 7 graves. 40AA37 - 8 graves. 40A9E7 - 9 graves. default - 13 graves)

41C1C0 - how much of the screen is covered in fog in each level: the smaller the number, the more of the screen the fog covers

41C1D2 - fog cover up to column 6

41C1DC - fog cover up to column 5, default value for minigames

41C201 - fog cover up to column 4, default value for adventure

41C1CE - minigame id that has fog stop at column 6 (29/air raid)

adv mode levels:

41C1E9 - which level has fog stop at column 6 (1F/4-1)

41C1EE - levels below this but do not meet the above do not have any fog at all (20/4-2)

41C1F3 - levels below or equal to this have fog stop at column 5 (24/4-6)

41C1F8 - levels below this but do not meet any of the above do not have any fog at all (25/4-7)

41C1FD - levels greater than this do not have any fog at all (28/4-10)

41F852 - which levels start with screen filled with wall nuts (can you dig it, squirrel)

43A794; which levels don't pan camera to right and show zombies at start

43A7EE - which levels start with camera over the lawn instead of the house

4268F1 - which level has grave danger (2d / grave danger)

# Miscellaneous

the plant that appears on the almanac index (default is sunflower):401C3E

## Widescreen (permanently removed)

*yuck*

Widescreen has permanently been removed from the modding doc, nor will it be supported any longer by any of the editors going forward. This was due to it solely being used to grossly clickbait several mods and oftentimes being put into mods that DIDN'T support it.

An Anti-Widescreen Patch has also been developed by me (ayban!) in order to effectively stop the use and spread of clickbait. At the moment, it will be injected PRIVATELY, as if the code were to be released now, it is likely people in servers whom **we will not name** would reverse engineer it.

We're sorry that this had to happen. The original intention of Widescreen was meant to be SOLELY for upping the QOL of PVZ 1, but after even [Tod Semple \(programmer of pvz1\)](#) himself said he didn't like widescreen, and recent events with a **certain mod**, it was time to finally act on making this patch.

This is directly from Tod Semple himself, the **ORIGINAL PROGRAMMER OF Plants Vs. Zombies 1**. So no, Widescreen will NEVER be supported ever again.

 Tod 05/31/2022

1. why did you make it so that frozen zombies aren't moved at all, and not just base movement speed? drunken cat solved it  

That was the design George wanted. They don't look like they can walk with ice on their feet.
2. what do you think of the stuff i posted here earlier?  

I'm really impressed with all the stuff you can do! What you are doing seems so much hard than what I was doing in C++!
3. how did you set the list of items in the shop, and made them activate flags?  

This list of items in the store was just an enum. There's a C++ function that turns the store item-slot into store-item-index. I bet for modding it would be easier if that code was just a data table! But in C++ editing code is actually a bit easier than a table.
4. what is your opinion on people modding the game to make it widescreen?  

I was never a fan of widescreen. The wide of the screen is important for when the zombie appear. I remember that the ports that added widescreen kind did annoying things. If we has balance the game for widescreen that would be fine, but just changing the visibility changes the gameplay. And you need to figure out what to draw in all those places.

And don't get me started on widescreen monitors! I hate them, but they are the only monitors they sell anymore. And do you know why? Because monitors are sold in diagonal inches - and wide screen has fewer pixels per diagonal each so they are cheaper to make with the same stats. Lolz.

IT WIDESCREEN:

**I was never a fan of widescreen.** The wide of the screen is important for when the zombie appear. I remember that the ports that added widescreen kind did annoying things. If we has balance the game for widescreen that would be fine, but just changing the visibility changes the gameplay. And you need to figure out what to draw in all those places.

Finally, justice for that time that keif added widescreen even though not everyone agreed

If you have widescreen in your mod and no longer want it, you will have to start over; the reverse directions can be used to re-enable widescreen, which is a big no no.

# However.

Times have changed and most of the issues stated are no longer present, therefore widescreen will be reinstated for the time being.

To add widescreen, you can:

You can use the base exe that EvilDogBot100 has made to have a very well made and fully functional widescreen for your mod. However, you must credit him in some way, shape or form as to respect his wishes.

<https://github.com/HenryJk/PvZWidescreen/releases/tag/v1.1.2>

OR you can use this manual version. Keep in mind it is not fully functional and may be buggy.

-(The width of the window) 4EC12 - 4EC13: change 20 03 (600) to 2A 04 (1066) or 2C 04 (1068)

-(The height of the window) 4EC1C - 4EC1D: 58 02 (800)

From lazyPeaster:

- The thing that usually covers the whole screen

(Fade Effect when collecting notes) 7672 - 7673: change 20 03 to 2A 04 (1066) or 2C 04 (1068).

- (Ice/Doom-shroom & Particles Effect) 11813E - 11813F: change 20 03 to 2A 04 (1066) or 2C 04 (1068).

From @luck4ssDV#9999:

- 14EBA8, change 74 E2 to EB 00

- 152549, change 0F 85 to 90 E9

- 153F1B, change 75 to EB

16A1C8, change 73 to EB

- 16A3FE, change 75 to EB.

- (1068 resolution fix almanac):
  - 11F8/11F9 - 20 03 to 2C 04
- (1066 resolution fix almanac):
  - 11F8/11F9 - 20 03 to 2A 04
- Center challenge levels:
  - Survival Page 00:
  - 2E006 - 9B to A4
  - 2E00C - 0C to 7F
- MGames, Limbo and puzzle Page 01,02,03:
  - 2E02F - 9B to A4 ◦ 2E035 - 0C to 7F
- intro fadescreen widescrreen
  - Fix 415DA - 415DA to 2C 04 ◦ 41908 - 41909 to 2C 04 ◦ 4193E - 4193F to 2C 04
- NOTE 2A to 1066

## Anti-Widescreen Patch

A patch to prevent your mod being made into wide screen has been made. This will be distributed alongside pak encryption [in MA](#) for any major mod released in order to prevent the code from being reverse-engineered.

## Custom Almanac Entries

### CUSTOM ZOMBOTANY ALMANAC TUTORIAL (+Reverse Repeater)

Open your PVZ mod files (should be Vanilla, not Zombatar. I'm stealing lazyPeaster's template lol) using HxD.

C8 E9 66 is Basic Zombie almanac.

C4 8B 66 is Repeater almanac.

Peashooter Zombie : 29DD70, change C8 to C9 -> [OMBIE]

Wall-nut Zombie : 29DD8C, change C8 to 09 -> [EL\_ZOMBIE]

Jalapeno Zombie : 29DDA8, change C8 to C6 -> [E]

Gatling Pea Zombie : 29DDC4, change C8 to C5 -> [IE]

Squash Zombie : 29DDE0, change C8 to C4 -> [BIE]

Tall-nut Zombie : 29DDFC, change C8 to C3 -> [MBIE]

Reverse Repeater : 29FA20, change C4 to C5 -> [EPEATER]

Now, go to LawnStrings.txt, and add those keywords (the ones in the square brackets). Make your own new flavor.

## PAK Encryption

Main.pak encryption (to prevent texture theft) has been found and will be distributed around [in MA](#)

## Functions

(these require values to be pushed onto the stack before the function is called)  
(it is also recommended to use pushad before defining the values and popad after  
calling the function since a register may be already used in the injection point)

(base) refers to 6A9EC0+768, so if we wanted for eax to have the base offset, you would have to do:

```
mov eax,[6a9ec0]  
mov eax,[eax+768]
```

(movement) refers to 6A9EC0+557C so if we wanted for ebx to have the movement offset, you would have to do:

```
mov ebx,[6a9ec0]  
mov ebx,[ebx+557C]
```

(indirectbase) refers to 6A9EC0+768+160 so if we wanted for edx to have the indirectbase offset, you would have to do:

```
mov edx,[6a9ec0]  
mov edx,[edx+768]  
mov edx,[edx+160]
```

**call 0040DDC0 - “\_\_()PutZombie”**

(push) row  
(push) zombie type  
mov eax,(base)  
mov ebx,(movement)

**Return: Eax= ZombieObject**

**call 0040D620 - “\_\_()PutProjectile”**

(push) projectile type  
(push) row  
(push)Y  
(push)X  
Mov eax,(base)

**Return: Eax= ProjectileObject**

**call 0040CB10 - “\_\_()PutItem”**

(push) animation of new coin  
(push) new coin type  
(push) y position

(push) x position  
mov ecx,(base)  
Return: Eax= ItemObject

call 00426620 - “\_\_()PutGrave”  
push (indirectbase)  
mov edi,(column)  
mov ebx,(row)

Return: ?

call 0040D120 - “\_\_()PutPlant”  
Mov edx,(base)  
(push) -1 (Sidenote: This is “imitative id”, if you would like for the plant to be an imitated plant, insert 1 instead of 0.”  
(push) type  
mov eax, row  
(push) column  
(push), (base)

Return: Eax= PlantObject

call 00412C30 - “\_\_()SpawnZombiesFromSky”  
mov ebx,(base)

Return: Eax = 0, Ecx = ?, Edx = ?

call 00408F80 - “\_\_()PutCrater”  
mov edi, row  
(push) column  
mov eax,(base)

Return: Eax = griditem, Ecx = layer, Edx = x

call 00408F40 - “\_\_()PutLadder”  
mov edi, row  
(push) column  
mov eax,(base)

Return: Eax = griditem, Ecx = layer, Edx = x

call 0041BAB0 - “\_\_()CanTakeSun” (If it can take [amount] sun, it will, and will modify [al] accordingly  
(push)amount  
mov edx,(base)

Return: al = 0 (not enough sun to take), 1 (can (and has) took the sun)

## Limitation Breaking

14EBA8 - 74 2E > EB 00 | Let the game run in the background.

# HUNDREDS of Cheat Engine Addresses!

Here you'll find a bunch of stuff that you can modify to your heart's desire!

25108C/651200/400400 - completely empty addresses for scripts

00405F9D - This calls the text for the roll credits button.

0066F24A - Calls the animation for the dance cheat.

0040554D - Change this to jmp, and two of the flowers that you can click on the main menu won't work properly.

00484086 - Makes Dave to only pick one plant, either Cabbage or Peashooter, kind of unstable and might require some modification from 0048407B to get it to somewhat work.

0048407B - Seems to let Dave pick shop based plants, night plants in the day, flower pots on non roof stages, aqua based plants on non pool stages. Imitator kind of unstable when he's picked by Dave.

2674E0 - The title of the game, changing this causes pvztools to be unable to find the game (not really)

0048CA78 - changing this causes shop items to be unpurchaseable

004634D4-004634CF - makes a plant able to be upgraded (requires the 2 addresses to be changed)

0040B35B, 0040B36E, 0040B387 - Seeds for 1. izombie.

00526C92- pushes jackbox's Explode Particle.

006A7274- jackbox sound Explode Id.

0040F7FC- seems to push the free plant cheat text, although not functional, 0040F7F3 to 1 will make it show the text.

00413BD1-Determine what minigame has the sunny day effect.

0045FD12-Changing this value will make it so grave buster do nothing to the graves.

00523E5D-Determine what minigame level gets the zombiquarium effect.

00424735/004246D5/00426B41/00426B77-Seems to change what level the dark stormy night effect appears in adventure mode.

00410ADF/00439035-Seems to determine what extra level has columns like you see 'em effect.

0052BE5/0046DC21/0046D53F-Seems to determine what level has the high gravity effect.

004268F1-Seems to determine what level the grave danger effect appears on, although it might be for the minigames and what not only.

0041C6DE-Changing this makes plants ignore the roof slope.

000426925-Determines what wave grave danger starts appearing in.

004248AA-zombie nimble zombie quick for every level.

00523EE5-this determines what level the big trouble little zombie effect appears on.

00453E10-Seems related to the player's name part of the lawnstring.

004539F1-Changes what level the 5-10 crazy dave text appears at although no music will play.

00453999-what level the 1-10 conveyor belt appears on although changing it might crash the game when changed..

00453866-Determine what level has wall-nut bowling, similar to the whack a zombie one, a bit unstable.

412F26-Modifying this can change what level the bungee blitz from 5-5 appears on.

0066918E-Messes a bunch with the basic zombies animation. Super speed and/or can be stuck in the eating animation when a plant is eaten etc.

00405F9D-This calls the text for the roll credits button.

0066F24A-Calls the animation for the dance cheat.

0066EE06/0066EE12-Calls the animations relating to imps being thrown from gargs and gargs throwing the imps.

0066ED86-This along with a few other addresses near it, calls a few dolphin rider and snorkel animations.

0066EB32-Calls the animation for when pole vaulters jump.

0066E9D2-When modifying, seems to make the basic zombies all shown to have a cone on or do other things to the basics animation wise.

00669182/0066918E-Seems to be what calls the animations for the Pogo Zombies animation.

0040554D-Change this to jmp, and two of the flowers that you can click on the main menu won't work properly.

00484086-Makes Dave to only pick one plant, either Cabbage or Peashooter, kind of unstable and might require some modification from 48407B to get it to somewhat work.

0045EDEE-Area Of Damage (Fume-shroom/melon splash/spikeweeds/spikerock etc.)

00523F04-The Size Little Zombies have in big trouble little zombie.

0052A9DC-Changing the value to 0 pretty much will make the ladder be stuck doing the placing down ladder animation.

0052A9B2-the state of the ladder zombie when he starts to put down the ladder.

0052B476-Polevaulter's jump state.

00525D1E-Newspaper's state after the paper is destroyed.

00528254-Modifying this can make the digger zombie get stuck when he loses his pickaxe, start speeding through the defense, or come out of the ground and walk to the right side of the lawn.

00528245-Modifying this will make digger zombie keep digging without his pickaxe, making magnet-shroom useless.

0052831B-Modifying this will make digger zombie not come up without the use of magnet shrooms.

0052878F-Changing this can make dancing zombie not spawn zombies.

00522D5C-Putting this into the armor code, make the zombie stand still with the rare death animation with being having around 500 hp (as in taking 17 peas before dropping)

0052346B-Messes with the propeller of the Balloon Zombie's hat.

005287C9-Seems to change what the disco spawns, however it doesn't work properly and can make the levels unbeatable since the zombie spawns don't work properly since the zombie just stands still sometimes and be invisible, however disco spawning disco works just fine.

00522A2B-Putting this in the armor code make the zombie stand still but is completely invisible with no shadow.

005229C2-Seems to make the zombie stand still and stay stuck but if it get hits, the zombie then acts normal and goes through the plants, although some zombies skip the first part and sometimes they do eat the plants.

00523182-Putting this into the zombie armor code seems to make the zombie stuck and stay in place and be invisible

00523E82-Putting this into the armor code, makes the zombie act like the snorkel zombie from the zombiquarium, yes even produces sun, however it's quite unstable in that the game will crash when accessing the almanac and during the choose your plants section.

00467B00-Function that returns the cost of given packet ID.

005229E2-Input this into a zombie for armor, and all it does is just stays in place doing a death animation. Only works for normal zombies (conehead, buckethead, flag, basic, ducktube) and even if you do add it in, the zombie doesn't actually show up in the level naturally and as such softlocks the player since they don't appear close enough for a plant to shoot.

00536481-Seems to make the dolphin rider jump do nothing and messes with its position.

005264A7-Once the dolphin zombie is finished jumping, he seems to speed through and sometimes ignore plants depending on the modified value.

0052652B-Seems to mess with the particles when he fails to jump over something, a bit weird to modify. Might do something else...? Not sure.

0045DF32-Seems to mess with the blower's animations when he's blowing.

005262CE-Messes with the splash of when the dolphin goes into the pool.

005263C2-Changing the 1 to 0 will make the dolphin rider not jump.

0052642F-Seem to do the same as 005263C2.

005240C0-This seems to modify conehead visually I think? I do know that each anim near this address has their own push that when modified, messes with it visually.

00524C96-Can make the bungee not pick up the plant if you set the value to 6 or below 6.

0052546D-Can makes Pogo zombie stuck in place (or not sometimes) after losing his pogo, and can eat every plants

00525468-Might be smart to modify this as it can not make the pogo stuck if you do modify 0052546D and if it gets stuck.

00525489-Modifying this let's the pogo zombie float through your defense when he's on the pogo.

00525BCD-Messes with balloon zombie position after getting popped when modified.

00679690-Cactus's visual shoot speed.

00679748-Some gloom related float address...?

0045F113-Cattail's visual shoot speed.

00527DA8-Does stuff to squash head in term of where it is visually when it squashes down...?

00523A23-Messes with the jalapeno zombie visually such as making his head disappear.

00523A3A/00523A61-Also messes with jalapeno zombie visually such as size...?

00527988-Changes what the galting pea zombie shoots, kind of useless though since any projectiles that aren't the zombie peas do nothing to plants.

005277D9/005277DE/005277E3/005277E8-Modify the distance between each of gatling pea zombie's peas from each other. Putting one of the four values to 0 will make him spam peas with no breaks.

0052735C-Does weird stuff during the part when the imp goes up into the air when messing with it.

00527358-Modifying this will make the imp landing code break, making him go through the lawn and cost you a mower.

00527370-Does weird stuff to the imp when it lands. Modifying the values can make it stand still, fade out of existent upon landing, or speed though the defense going through your plants.

0052722D-Seems to modify garg's throw animation speed in some form.

005271AF-Breaks gargs in strange ways, for example, upon releasing the imp, he can speed through the lawn, stay stuck and only get free upon being able to crush a plant, speed through but died on it own when halfway through the lawn, after releasing the imp turns black, still stay, and become invincible, Etc.though as the imp can stay stuck in the air or flat out die on its own before reaching the ground.

00527078/00527093-Modifying both values seem to change how far gargantuars throw the imp, make sure both values are the same.

00526F3C-Changing this Gives infinite imps to the garg.

00525615-Messes with the height of the pogo zombie when he's on the pogo normally

00525542-Messes with the animation of the pogo zombie when he's on the pogo normally

0052563C-Messing with this can make the pogo zombie jump over the tall-nut sometimes but only on the roof...? (This one is a bit confusing)

00525F94-Same deal as 0052563C but for pole vaulters.

42FFB6- Card plant type (when given from a zombie/marigold/sunflower etc. only)

45FAFC-Determines What Marigold will give.

004268F1-Determines what minigame has the grave danger effect

00426FAD-Calls zomboss on 5-10 and zomboss's revenge

00441A9B- related to strings in game

00424D05-Seems related with the art challenge stuff changing the value to a different levels seems to make it so only one of the required fill in spots are needed to get a trophy.

00425E5D-Makes the art challenge levels visually gone when changed.

00425087-Changing this seems to make the whole circle effect from twist be switch to a different level sort of.

00424A21-Seems to determine which minigame has the art challenge thing

004092FC-Survival hard and endless flag amount

00413BDF-For the sunny day affect, determine what replace normal sun, 6 is default and is big sun, 7 crashes along with 0 (not sure if anything above 7 would crash as well), 4 is norm sun, 5 is small, 1 is sliver coin 2 is gold and 3 is diamond.

00413BD8-Change this and the non sunny day levels won't have the normal sun, the whole 1-6 things from 413BDF applied here.

00413A25-Determine how many onslaughts are in last stand

00413B17-This and many others near it, seems to disable sun falling from the sky in worlds/bgs classified as having sun fall from the sky, not fully sure what with 413AD8 since that would be for it's raining seeds, also not sure what's with 413A76-413A9C maybe relating to what bg/worlds auto to no sun falling for minigames.....or all levels? Not sure.

00527567-Same deal as 00527988 but for gatling pea zombotany

0052647B- seems to determine how slow dolphin rider's jump animation is (affects how long his jump is)

004680F1-Fume Shroom's Range

004681BE-Spikeweed's Range

0046805D-Chomper's Range

0046035E and 004603B3 - Spikeweed attack speed

00525ECA-Polevaulter's Jumping range(Thanks to Drunken Cat)

00525A25-Catapult's first basketball shot timer.

00525B25-Catapult's shot speed (excluding the first shot)

0041F795-Determines the lanes type the ice trail spawn in bobsled minigame, 02 is just land, 01 is just water, any other number value just makes it all lanes type has an ice trail next to it is also what level the trail appears in.

0045FCE0-Grave Buster's Timer.

0045F7FC-What Starfruit shoots.

0053184F- replace this with nop and fumes will damage the screen door instead.

531861- Change the je to a jmp and every projectile will ignore the zombie's armor.

004623CD/004623D2/004623D7-determines which item gold magnet can pick

00462544/00462552/00462560-gold magnet item pick up visual

00528345-change this to 23 and digger will walk foward after landing

0052866A-what animation the dirt that digger leave after jump up use.

00529B03/00529B0C/00529B15/00529B1E/00529B27/00529B30-determines which zombie don't have their head particle(zombotany)

00523A90-jalapeno zombie explode countdown

004634CF/004634D4-determines which plant is spike weed upgrade and vice versa

004234EB raining seed seed packet countdown (eax means random)

004234CF (raining seed) changing this to speed up the countdown

The number must be divided exactly by seed packet countdown

else the game won't give any seed packet

45EC63- Garg smash dmg

005309DE-Sets which effect snow-pea inflicts on zombies

0053273B-Sets the butter time

005309C6-timer for snow pea projectile affect

AE makes it butter the zombies sometimes

Also set the affect of the butter projectile

For the roof the address is 0040A69E

It's also the front yard night lanes as well

40A58A-The lawn bg for world 1 and along with how long world 1 bg goes for before the next bg happens (this one you shouldn't modify)

40A59E-Same deal as 40A58A but for world 2

40A5AE-Same deal as 40A58A but for world 3

40A5D0-Same deal as 40A58A but for world 4

40A5E1-Same deal as 40A58A but for world 5

426FAD-Calls zomboss on 5-10 and zomboss's revenge, changing the type (push 19) may be unstable

526ECF-garg state after smashing

ORGANIZE/REMOVE DUPED ADDRESSES

(Upper section)

Other Stuff

0066918E - Messes a bunch with the basic zombies animation. Super speed and/or can be stuck in the eating animation when a plant is eaten etc.

0066ED86 - This along with a few other addresses near it, calls a few Dolphin Riders and snorkels animation.

0066EB32 - Calls the animation for when pole vaulters jump.

0066E9D2 - When modifying, seems to make the basic zombies all shown to have a cone on or do other things to the basics animation wise.

00669182/0066918E - Seems to be what calls the animations for the Pogo Zombies animation.

00523F04 - The size Little Zombies have in Big Trouble Little Zombie.

0052F142 - eating speed of pole vaulter, balloon, imp, digger, jack in the box, snorkel, yeti

0052A9DC - Changing the value to 0 pretty much will make the ladder be stuck doing the placing down ladder animation.

0052A9B2 - The state of the Ladder Zombie when he starts to put down the ladder.

0052B476 - Pole Vaulter's jump state.

00525D1E - Newspaper's state after the paper is destroyed.

00528254 - Modifying this can make the digger zombie get stuck when he loses his pickaxe, start speeding through the defense, or come out of the ground and walk to the right side of the lawn.

527005 - Which zombie type Gargantuar will throw.

00528245 - Modifying this can make the digger zombie not come up when the magnets steal his pickaxe, so it pretty much makes the magnet shrooms useless on him.

0052831B - Modifying this can make the digger not come up without the use of magnet shrooms.

0052878F - Changing this can make dancing zombies not spawn zombies.

00522D5C - Putting this into the armor code, make the zombie stand still with the rare death animation with being having around 500 hp (as in taking 17 peas before dropping)

0052346B - Messes with the propeller of the Balloon Zombie's hat.

005287C9 - Seems to change what the Disco spawns, however it doesn't work properly and can make the levels unbeatable since the zombie spawns don't work properly since the zombie just stands still sometimes and becomes invisible, however Disco spawning Disco works just fine.

00522A2B - Putting this in the armor code makes the zombie stand still but is completely invisible with no shadow.

005229C2 - Seems to make the zombie stand still and stay stuck but if it gets hit, the zombie then acts normal and goes through the plants, although some zombies skip the first part and sometimes they do eat the plants.

005228E2 - Inputting this in the armor, pretty much gives the zombie an invisible bucket...?

00523182 - Putting this into the zombie armor code seems to make the zombie stuck and stay in place and be invisible

00523E82 - Putting this into the armor code, makes the zombie act like the snorkel zombie from the zombiquarium, yes even produces sun, however it's quite unstable in that the game will crash when accessing the almanac and during the choose your plants section.

005229E2 - Input this into a zombie for armor, and all it does is just stays in place doing a death animation. Only works for normal zombies (conehead, buckethead, flag, basic, ducktube) and even if you do add it in, the zombie doesn't actually show up in the level naturally and as such softlocks the player since they don't appear close enough for a plant to shoot.

0052645B - Changes the sound for when the Dolphin Rider jumps.

00526467 - Seems to also mess with the Dolphin Rider sounds for when it jumps just not as well...?

00536481 - Seems to make the dolphin rider jump do nothing and messes with its position.

005264A7 - Once the dolphin zombie is finished jumping, he seems to speed through and sometimes ignore plants depending on the modified value.

0052652B - Seems to mess with the particles when he fails to jump over something, a bit weird to modify. Might do something else...? Not sure.

005262CE - Messes with the splash of when the dolphin goes into the pool.

005263C2 - Changing the 1 to 0 will make the dolphin rider not jump.

0052642F - Seems to do the same as 005263C2.

005240C0 - This seems to modify conehead visually I think? I do know that each anim near this address has their own push that when modified, messes with it visually.

00524C96 - Can make the bungee not pick up the plant if you set the value to 6 or below 6.

0052546D - Can makes Pogo Zombie stuck in place (or not sometimes) after losing his pogo, and can eat every plants

00525468 - Might be smart to modify this as it can not make the pogo stuck if you do modify 0052546D and if it gets stuck.

00525489 - Modifying this lets the Pogo Zombie float through your defense when he's on the pogo.

00525BCD - Messes with balloon zombie position after getting popped when modified.

00525B97 - balloon animation when popped

527627 - Sound of the explosion from Jalapeno Zombie

00523A23 - Messes with the jalapeno zombie visually, such as making his head disappear.

00523A3A/00523A61 - Also messes with Jalapeno Zombies visually such as size...?

00527988 - Changes what the Gatling Pea Zombie shoots, kind of useless though since any projectiles that aren't the zombie peas do nothing to plants.

005277D9 005277DE 005277E3 005277E8 - Modify the distance between each of Gatling Pea Zombie's peas from each other. Putting one of the four values to 0 will make him spam peas with no breaks.

0052735C - Does weird stuff during the part when the imp goes up into the air when messing with it.

00527370 - Does weird stuff to the imp when it lands. Modifying the values can make it stand still, fade out of existence upon landing, or speed though the defense going through your plants.

0052722D - Seems to modify garg's throw animation speed in some form.

005271AF - Breaks gargs in strange ways, for example, upon releasing the imp, he can speed through the lawn, stay stuck and only get free upon being able to crush a plant, speed through but died on it own when halfway through the lawn, after releasing the imp turns black, still stay, and become invincible, Etc.though as the imp can stay stuck in the air or flat out die on its own before reaching the ground.

00527078/00527093 - Modifying both values seems to change how far gargantuars throw the imp, make sure both values are the same.

00526F3C - Changing this gives infinite imps to the garg.

00525615 - Messes with the height of the pogo zombie when he's on the pogo normally

00525542 - Messes with the animation of the pogo zombie when he's on the pogo normally

0052563C - Messing with this can make the pogo zombie jump over the tall-nut sometimes but only on the roof...? (This one is a bit confusing)

00525F94 - Same deal as 0052563C but for pole vaulters.

00527567 - Same deal as 00527988 but for gatling pea zombotany

0052647B - Seems to determine how slow dolphin rider's jump animation is (affects how long his jump is)

00525ECA - Pole Vaulter's Jumping range (Thanks to Drunken Cat)

522FBD- The error value of jack-in-the-box explosion countdown (y'know what's an error right? it's like the additional value to make rng-ish data)

522FDA - Jack-in-the-box explosion countdown

522FE0 - Percentage of jack-in-the-box zombie to explode very early  
522EA5 - Amount of basketballs Catapult Zombie throws  
0052866A-what animation the dirt that digger leaves after the rise will use.  
0052B2CF -backup dancer address 1  
005287C9 -backup dancer address 2  
00528820 -backup dancer address 3  
0052B22B -backup dancer address 4  
00526B43 - jackbox animation when exploding  
00522D03 - pole vaulter animation when spawned  
00522CF9 - changing this to a jmp causes pole vaulter to spawn without a pole  
0052BF4C-determines which zombie can move backward  
00531994-zombie that can't be chilled/frozen  
532B96 in CE, if zombie health is below this, explosions will instantly turn to ash  
00525ECA-jump distance  
0052AA1A-nop this and ladder will have infinite ladders  
528324 - The address on this decides how far into the lawn the digger rises (65 is default, the higher the number is the farther back into the lawn he rises)  
528338 - digger's position when rising up  
0052593F-jnl to jle for reverse targetting for catapult zombie  
(HxD, moved from [Custom Seed Packets Tutorial](#)) 062C37 - How long will the plants stay when being crashed

## EVEN MORE Cheat Engine Addresses!

(You may question, why is this existed? Well idk honestly)

# Custom Public Resources

## Zombies

[Octo Zombie that replaces Ladder Zombie \(unfinished\)](#)

[GOTY Dancer Zombie and Backup Dancer for OG PvZ \(by Luck\)](#)

## Main Menu

[Tombstone Selector Screen Buttons that has Violet Glow when selected \(by Luck\)](#)



# Scripts

Scripts are going to be the last section of this document.

They are often needed when changing something advanced about the game.

A Script is an injected set of lines of code typically used for a far more advanced thing, like a Gargantuar smashing plants in a 3 by 3 area or an entirely custom zombotany. While many scripts are public use, some of the more advanced ones are private.

### How to use:

[Scripts are .ct files that need to be opened in Cheat Engine, after opening it in cheat engine, hook your pvz .exe to cheat engine and proceed to press on the box, if an x appears on the box, the script should work, if not then you have done something wrong.](#)

**Those Scripts can be found in this doc here: [CLICK ME!](#)**

### **Ghidra**

If you wanna take it to the next level and make your own scripts, the Ghidra decompiler can help finding and identifying interesting code (interoperability purposes only) .

Install Ghidra [here](#).

-Corax

And that is it. for now.

# Credits

The [Old Document](#) (also defunct) (used as the base for the new one), was made by Corax, Drunken Cat, KennyT06, JacobAwesomeness, Ayban, and a few others. However, after the group made a new server under new management, it was decided to make this new doc that will be upheld and kept clean and fresh by (*names in no particular order*):

## The Info Techies Group

Former Owners:	<b>Keifer</b>	Stefan25897	
Even more former owners for the old IT:	<b>Ayban</b>	MadManMatthew	Nomish
New Owners:	<b>AcaMoravac</b>	<b>Keifer</b>	Drunken Cat
Info Doc Editors:	<b>Ayban</b> TheMaster __Boxed	Keifer Bayant Peashooterman3	KennyT06 JacobAwesomeness BlazenWingsPro

## PvZ 1 Modders Association

Former Owner:	<b>Keifer, Raducu</b>	New Owner:	<b>Geov, Ayban</b>
Script Creators:	Keifer Ayban DarrylTay Bayant	AcaMoravac KennyT06 __Boxed TheMaster	Monika666 Drunken Cat LuckNukeHunter99 Discord User
Code Providers:	(too many, ask us if you want your name in)		

Special thanks to these cool guys as well!

### Corax

- Early script creators
- Person that made the first ever script injection tutorial in public
- One of the old IT group members

### BlazenWingsPro

- Script guiders, mostly improving the existed scripts to make other modders easy to understand

**That's truly it for the time being. Take care.**