

What you will need:

- A nes emulator for windows (FCE Ultra) <http://sourceforge.net/projects/fceultra/>
- A nes game to play/hack (Super Mario 1 (US Version) for this example)
- A nes game genie code (8 digit is best) for your game
- A hex editor (Used to hack the actual nes rom) <http://bpsoft.com/>
- A word processor (Notepad, wordpad ext.)
- Windows Calculator (To convert decimal to hex and vice-versa)

Tips:

- Make a backup of your rom. Lots of times you have to test a code you made. If your code didnt work, you messed up information in the game somewhere and that rom is no longer any good.
- Go to the folder C:\Program Files\ and make a new folder called Emulators. Inside that folder make a folder named NES or similar. Inside that folder put the nes emulator (fceu.exe). Right click on your nes emulator and choose send to desktop (shortcut) I would also suggest making a ROMS folder to keep your backup rom in.
- Now double click on your game (mario 1.nes) Windows will ask, search the internet on what program to open with, or search through your programs. Choose the 2nd option and go to your folder C:\Program Files \Emulators\Nes\ and double click fceu.exe with the check box to always use this program (fceu.exe) to open .nes extensions. Now when you double click your nes games, it opens with the proper program.
- After entering in a new game genie code into the emulator, reset or use the power option on the nes emulator to make sure the code will be in effect.
- When testing out if your hack worked, make sure you didnt leave a game genie code on, if you do you may think your hack worked when indeed it's was the game genie code that worked.

Things to know:

Basic Hex Table:

256 different values Hex 00 - FF. (000 - 255 in decimal)

Decimal		Hexadecimal
00	=	00
01	=	01
02	=	02
03	=	03
04	=	04
05	=	05
06	=	06
07	=	07
08	=	08
09	=	09
10	=	0A
11	=	0B
12	=	0C
13	=	0D
14	=	0E
15	=	0F
16	=	10
17	=	11

Hex Graph:

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0																
1																
2																
3																
4																
5																
6																
7																
8																
9																
A																
B																
C													*			
D																
E																
F																

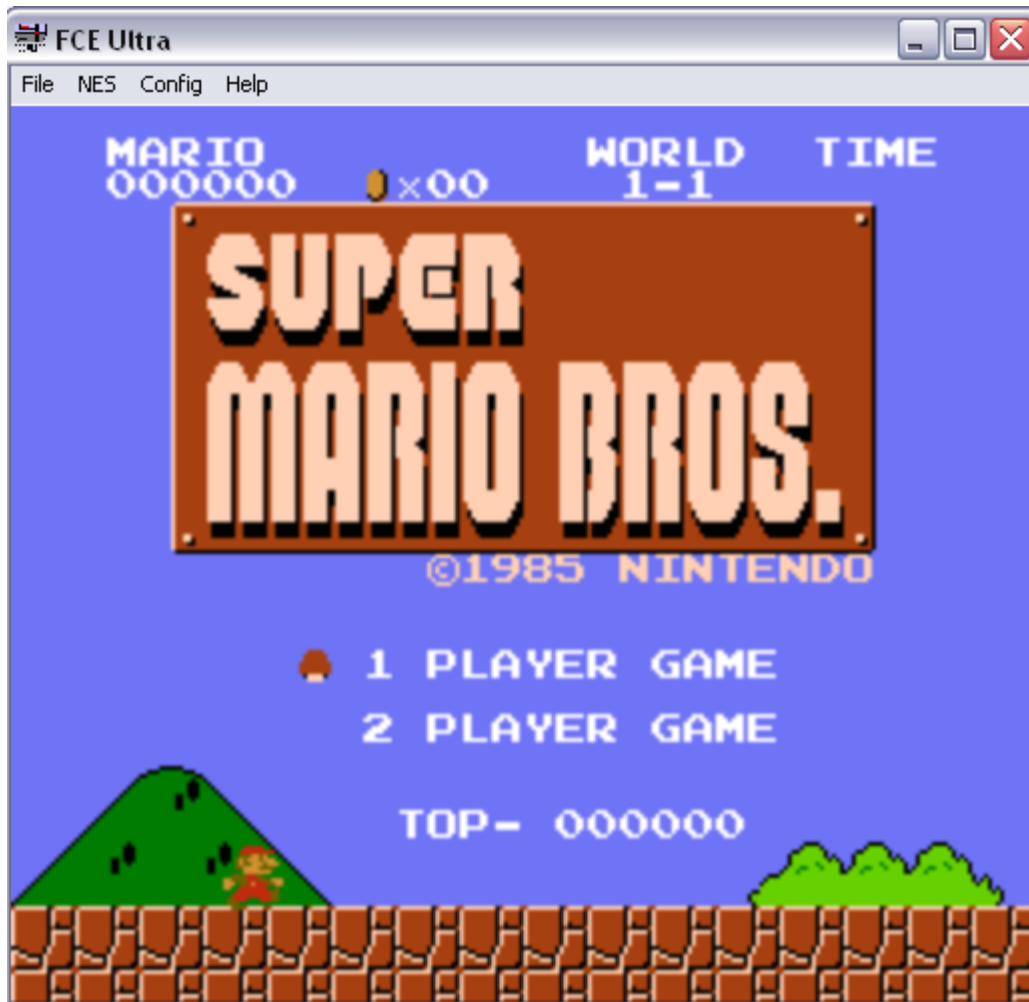
C4 absolutely NOT 4C

Example 1:

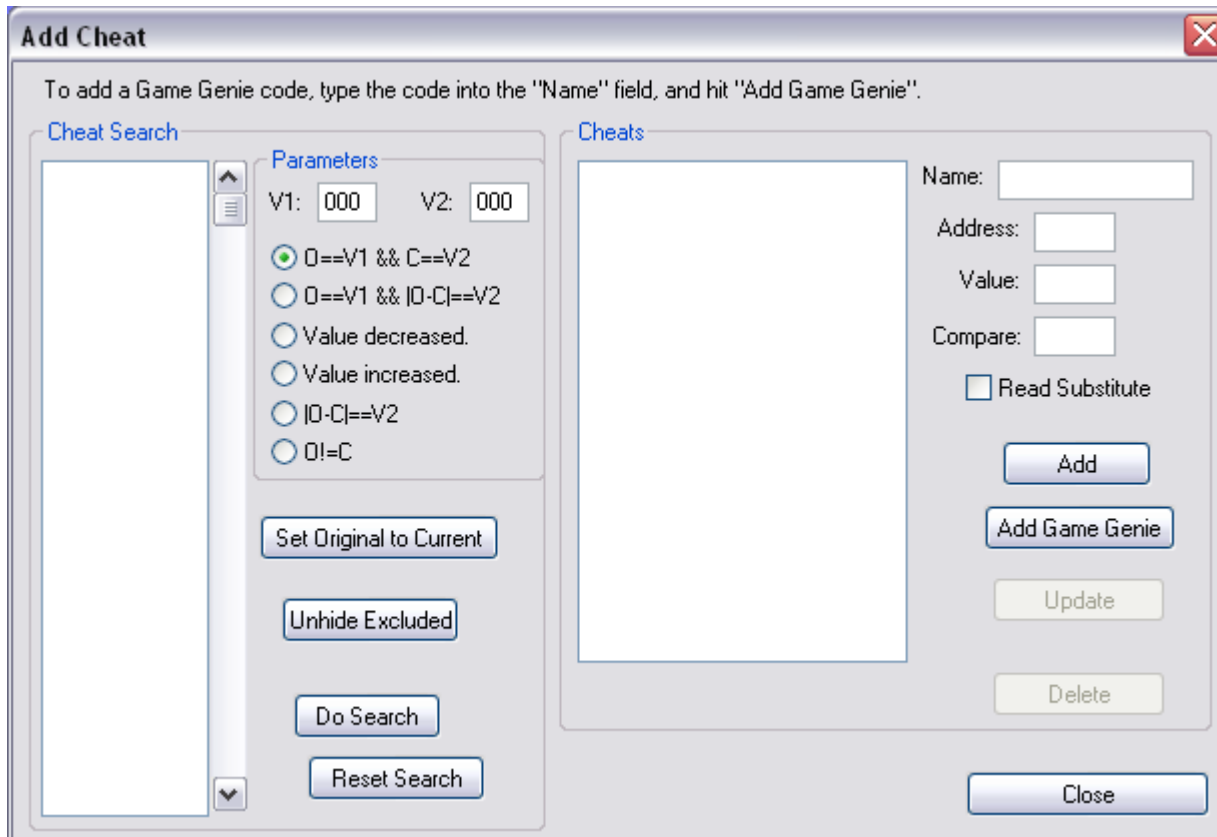
Super Mario Brothers 1 Game Genie code: SSESSAEY (Enemies die if they touch you)

Instructions:

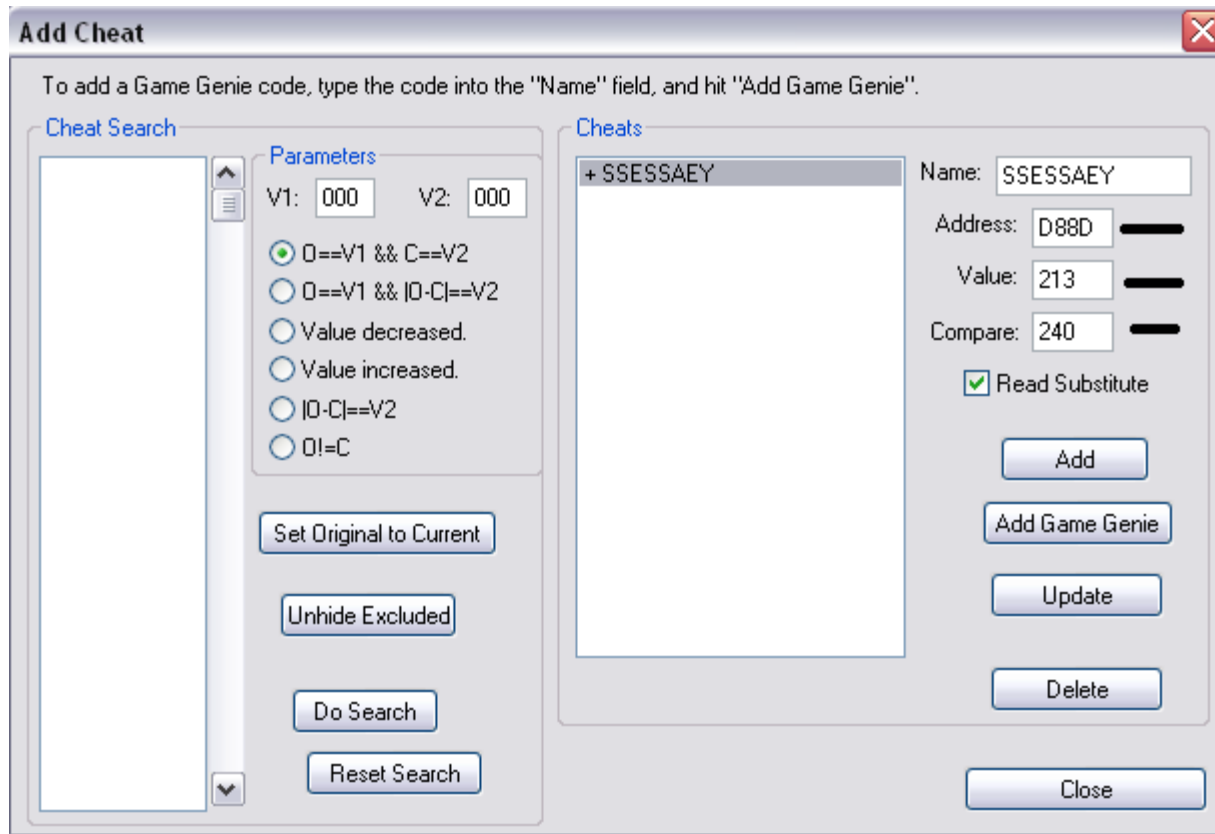
Open your nes game with your windows emulator.



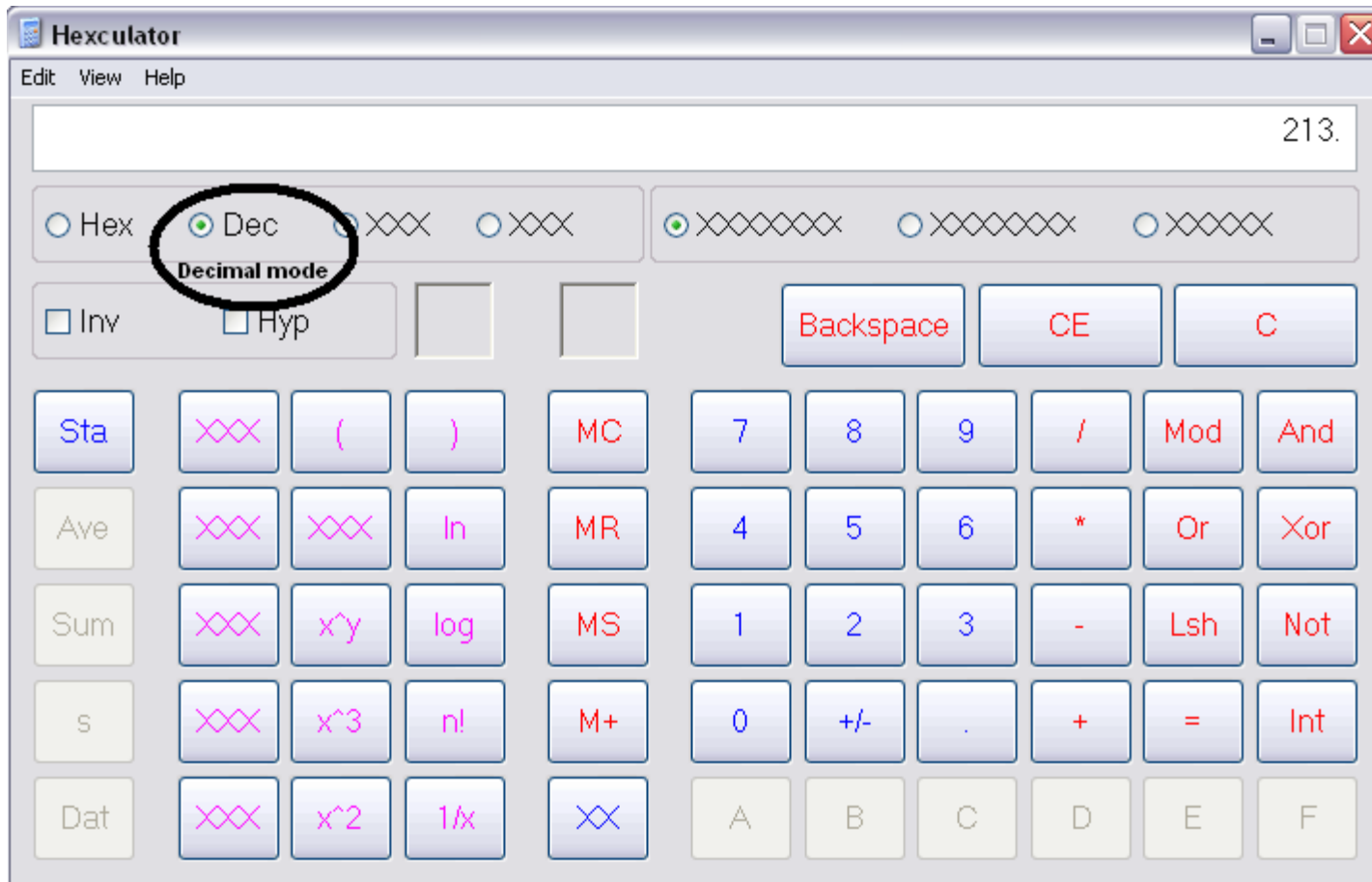
Choose the option NES and Cheats... and you will see this screen:



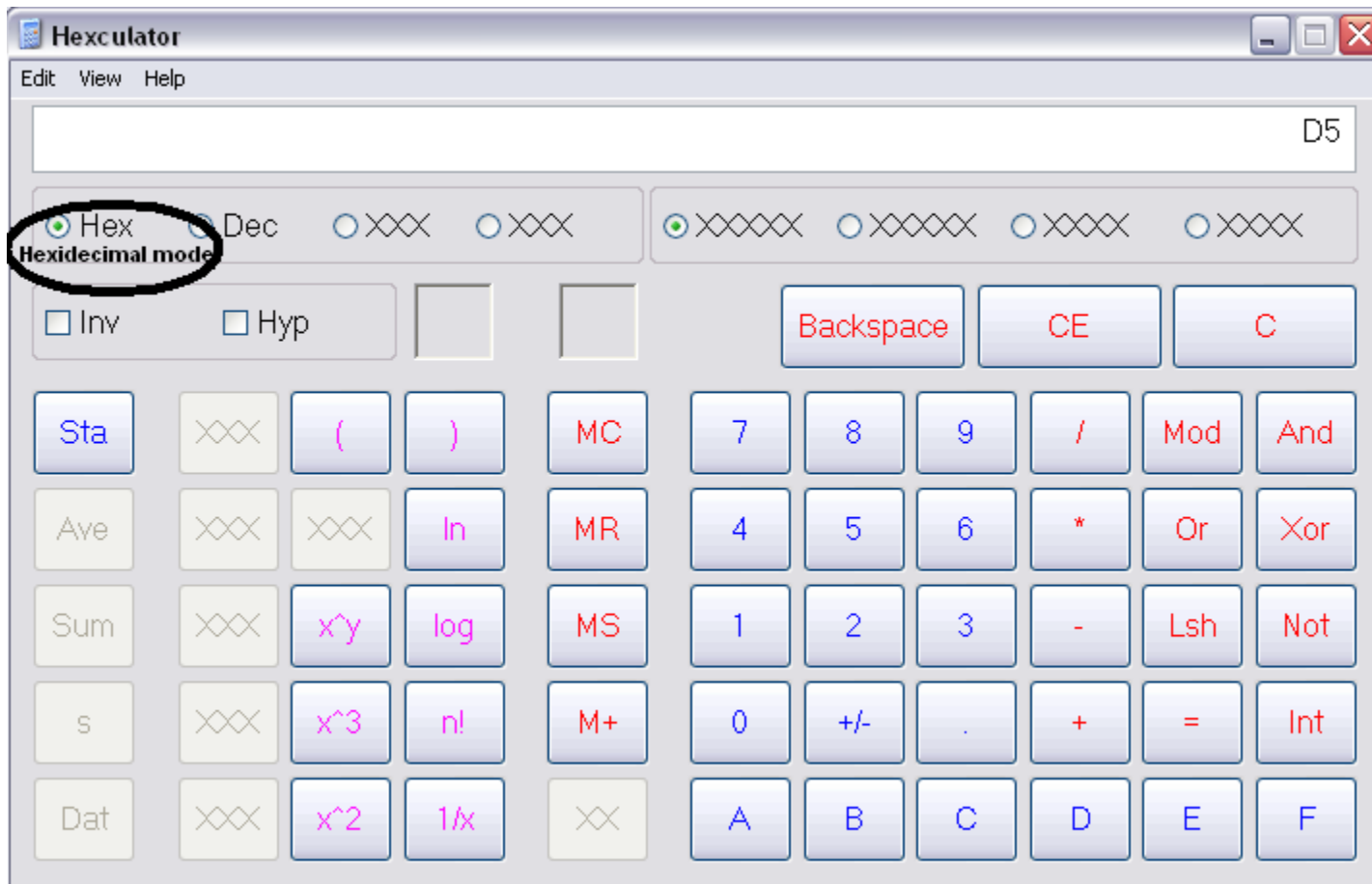
As the above picture says, type (or paste) the game genie code into the Name box, and click the button "Add Game Genie". Now the code will be listed in the Cheats box. Click on the code that is now shown in the Cheats box and the 3 boxes Address, Value, and Compare is now filled out with numbers



These 3 sets of numbers is what you need, but unfortunately, the Value and Compare boxes are in decimal format. Using windows calculator in scientific mode, enter in your value (or paste) 213 while in decimal mode.



Now click on the the circle for hexadecimal mode and the number 213 will now be converted to it's hex equivalent. D5



Do the same with your Compare, convert 240 in decimal to F0 in hex.

So now you have all three boxes (Address, Value, and Compare) in hex.

- Address= D88D

- Value= D5
- Compare= F0

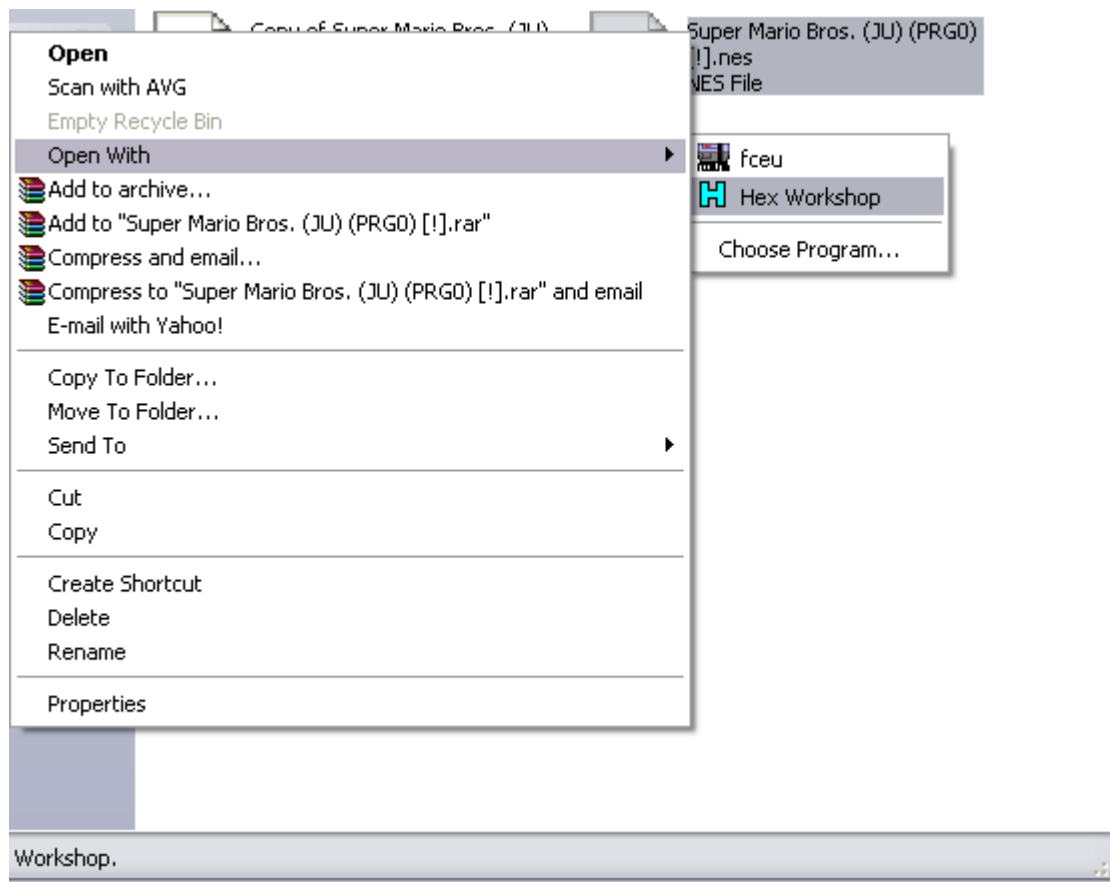
To keep this guide as simple as possible, im not going to get into "why" you must do this. Using windows caluclator once again, add 10 (in hex mode) to your address. This means $D88D + 10 = D89D$. After adding 10, dispose of the first number leaving you with the last three (89D).

So now you should have this

- Address= **89D**
- Value= D5
- Compare= F0

Congratulations, now you have the proper numbers for your code and they are in the proper format (hex).

Now, using your **hex editor** open your nes rom.



You should see a screen similar to this:

Hex Workshop - [Super Mario Bros. (JU) (PRG0) [!.nes]

File Edit Disk Options Tools Window Help

B S L O F D
← → ↶ ↷

⇐ ~ << >> ↶ ↷ ↵ ^ | & % / * - +
|< |> A↑ a↓ aA
🔍 🏠 📏 📐 📊

00000000	4E45	531A	0201	0100	0000	0000	0000	0000	78D8	A910	8D00	20A2	FF9A	AD02	NES.....
0000001C	2010	FBAD	0220	10FB	A0FE	A205	BDD7	07C9	0AB0	OCCA	10F6	ADFF	07C9	A5D0	.....
00000038	02A0	D620	CC90	8D11	408D	7007	A9A5	8DFF	078D	A707	A90F	8D15	40A9	068D	... ..@.p...
00000054	0120	2020	8220	198E	EE74	07AD	7807	0980	20ED	8E4C	5780	01A4	C8EC	1000	. . . . .t..x..
00000070	4141	4C34	3C44	5468	7CA8	BFDE	EF03	8C8C	8C8D	0303	038D	8D8D	8D8D	8D8D	AAL4<DTh|.....
0000008C	8D8D	8D8D	0040	AD78	0729	7F8D	7807	297E	8D00	20AD	7907	29E6	AC74	07D0	.....@.x.)..x.)
000000A8	05AD	7907	091E	8D79	0729	E78D	0120	AE02	20A9	0020	E68E	8D03	20A9	028D	..y...y.)... .
000000C4	1440	AE73	07BD	5A80	8500	BD6D	8085	0120	DD8E	A000	AE73	07E0	06D0	01C8	..@.s..Z....m...
000000E0	BE80	80A9	009D	0003	9D01	038D	7307	AD79	078D	0120	20D0	F220	5C8E	2082	.....s...s...
000000FC	8120	978F	AD76	074A	B025	AD47	07F0	05CE	4707	D019	A214	CE7F	0710	07A9	. . . . .v.J.%G...
00000118	148D	7F07	A223	BD80	07F0	03DE	8007	CA10	F5E6	09A2	00A0	07AD	A707	2902#.....
00000134	8500	ADA8	0729	0245	0018	F001	387E	A707	E888	D0F9	AD22	07F0	1FAD	0220	.....)E....8~.
00000150	2940	D0F9	AD76	074A	B006	2023	8220	C681	AD02	2029	40F0	F9A0	1488	D0FD	)@...v.J.. #. .
0000016C	AD3F	078D	0520	AD40	078D	0520	AD78	0748	8D00	20AD	7607	4AB0	0320	1282	.?... .@... .x.I
00000188	AD02	2068	0980	8D00	2040	AD70	07C9	02F0	0BC9	01D0	38AD	7207	C903	D031	.. h... .@.p...
000001A4	AD77	07F0	04CE	7707	60AD	FC06	2910	F019	AD76	0729	80D0	1AA9	2B8D	7707	.w....w.`....)
000001C0	AD76	07A8	C884	FA49	0109	80D0	05AD	7607	297F	8D76	0760	AC4E	07A9	2885	.v.....I.....v
000001DC	00A2	0EBD	E406	C500	900F	ACE0	0618	79E1	0690	0318	6500	9DE4	06CA	10E7	.....y
000001F8	AEE0	06E8	E003	D002	A200	8EE0	06A2	08A0	02B9	E906	9DF1	0618	6908	9DF2	.....
00000214	0618	6908	9DF3	06CA	CACA	8810	E860	AD70	0720	048E	3182	DCAE	8B83	1892	..i.....`.)
00000230	A000	2CA0	04A9	F899	0002	C8C8	C8C8	D0F7	60AD	7207	2004	8ECF	8F67	8561	.....
0000024C	9045	8204	2073	0100	00A0	00AD	FC06	0DFD	06C9	10F0	04C9	90D0	034C	D882	.E.. s.....

Super Mario ...

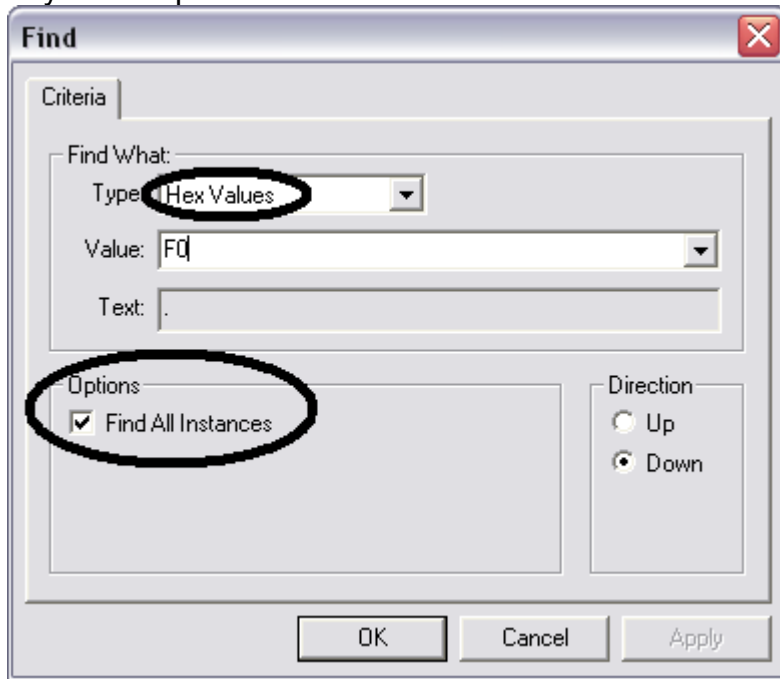
Offset:

8BIT Signed Byte	78
8BIT Unsigned Byte	78
16BIT Signed Short	17742
16BIT Unsigned Short	17742
32BIT Signed Long	441664846
32BIT Unsigned Long	441664846
64BIT Signed Quad	282583519937870
64BIT Unsigned Quad	282583519937870
32BIT Float	4.3689761e-023
64BIT Double	1.3961481e-309

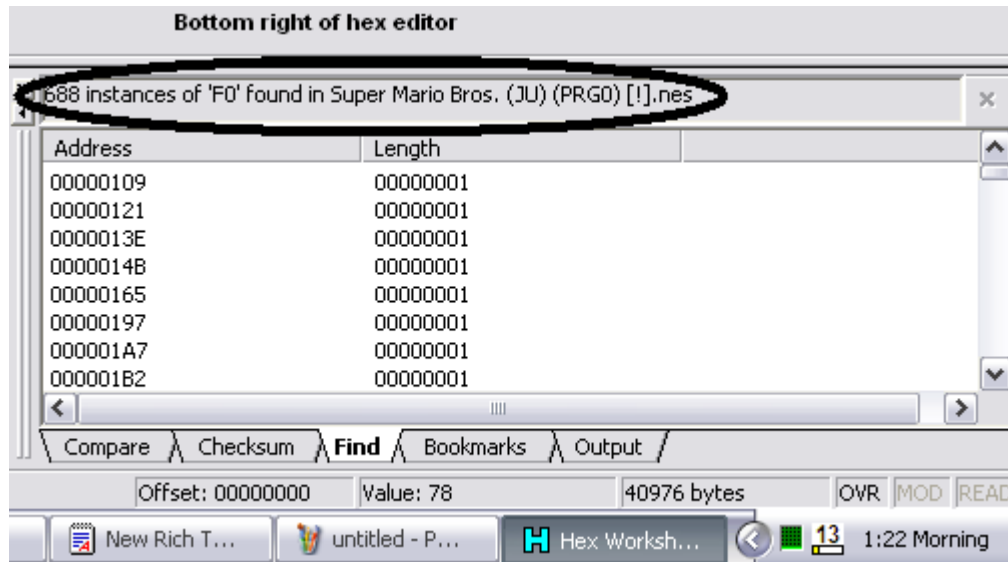
Find Results

Address	Length

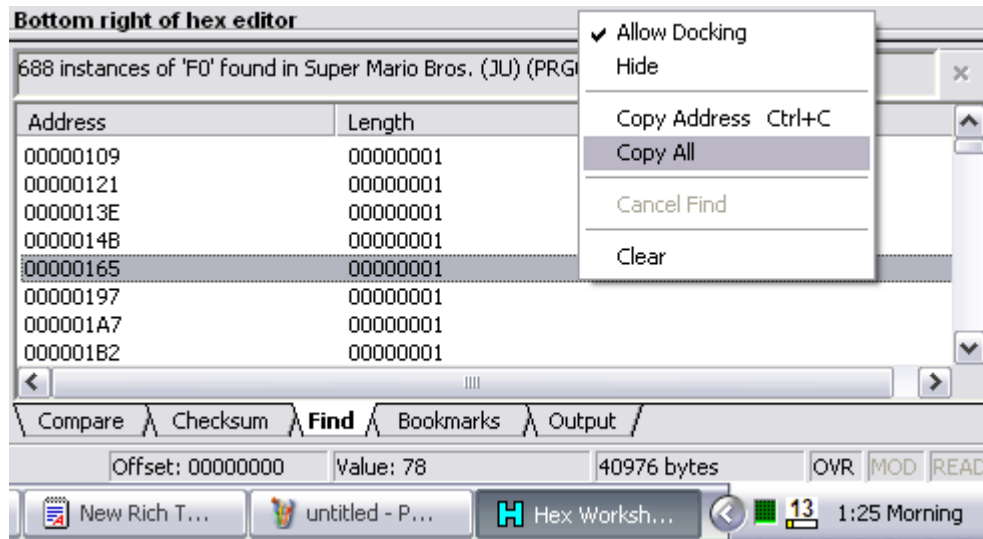
Make sure your hex editor is in hex 8 bit byte mode. Use the hex editor's Find (ctrl + f) function to search for All Instances of your compare value.



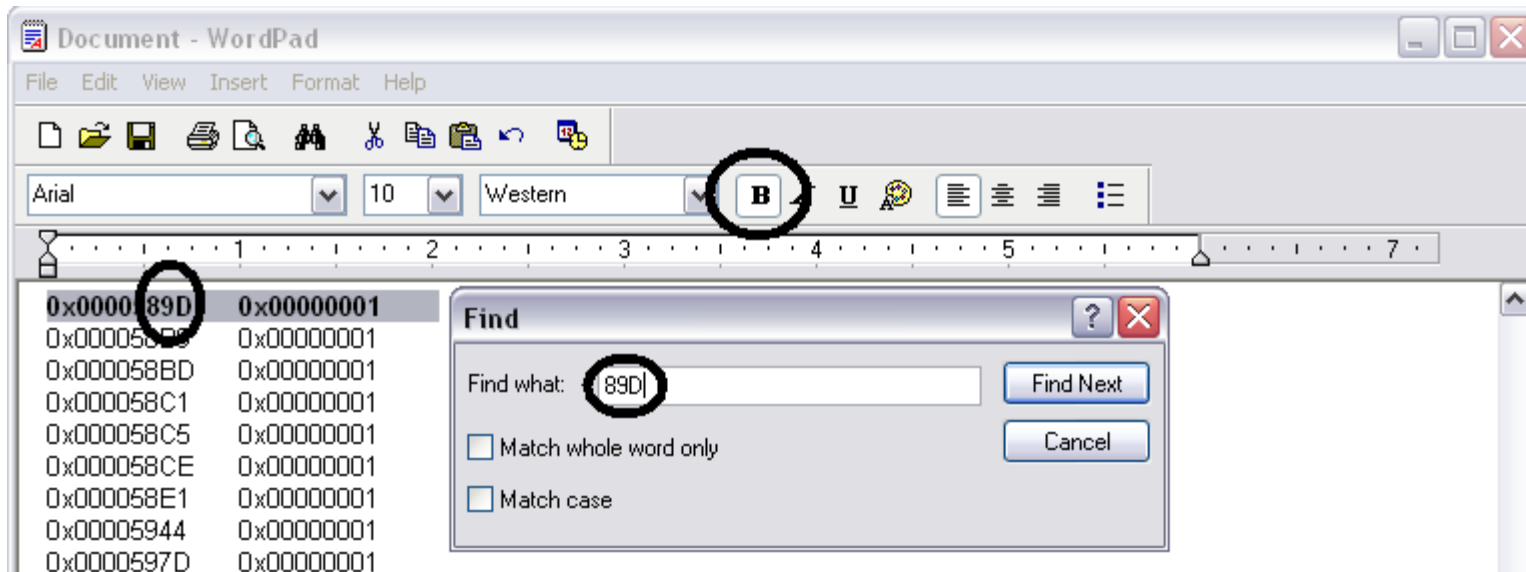
Now the hex editor reports (at the bottom corner of program) how many times the hex compare value of F0 was found. It also highlights every F0 found.



Right click in that area where the 688 instances of F0 was found, and choose the option copy all.



Now paste all 688 codes into your favorite text editor. (WordPad > Notepad). And use the **text editor's** Find (ctrl + f) function to search for your address 89D. Every time your search finds a code that end with the **last 3** hex numbers being 89D, **bold** that line of numbers so you can tell it apart from the rest.



After bolding all number that end with 89D delete all codes that are not bolded, or just cut all of the bolded codes and paste them into a new text document. This will leave you with only a few codes, one of these codes will be the correct one. So for this example 4 codes with the compare value of F0 and the numbers 89D were found:

- **0x0000589D** 0x00000001
- **0x0000889D** 0x00000001
- **0x000089D7** 0x00000001
- **0x000089DF** 0x00000001

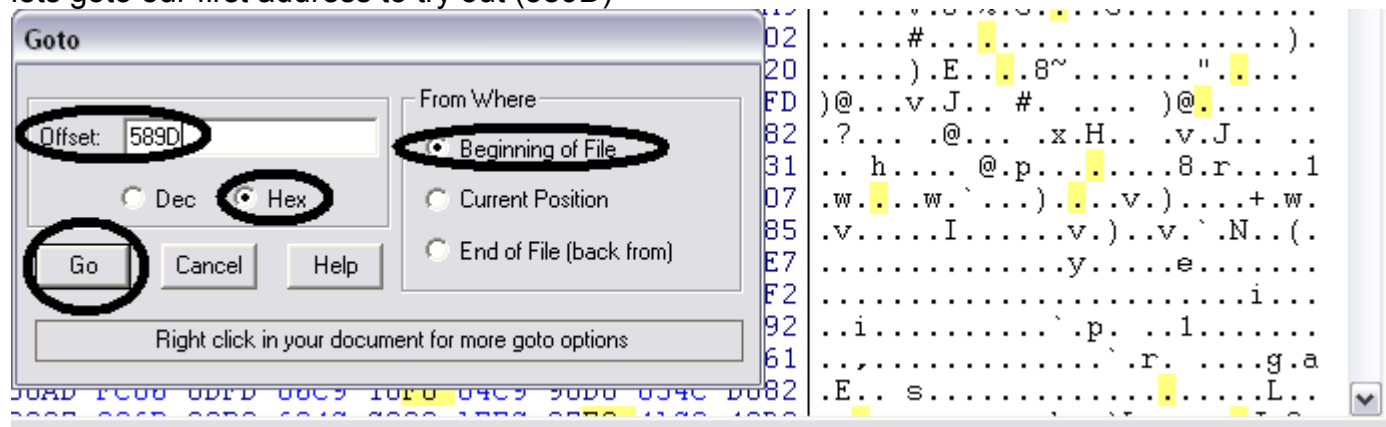
The number 89D must be the **last 3** digits so that leaves us with only 2 possible codes, one of which is correct:

- **0x0000589D** 0x00000001
- **0x0000889D** 0x00000001

Now to make the code simple to understand for yourself, break it down by deleting the right column, and delete the 0x0000 from the left column:

- 589D
- 889D

The 2 numbers above are address for use in your hex editor. Using your hex editor, use the function GoTo (not find) and lets goto our first address to try out (589D)

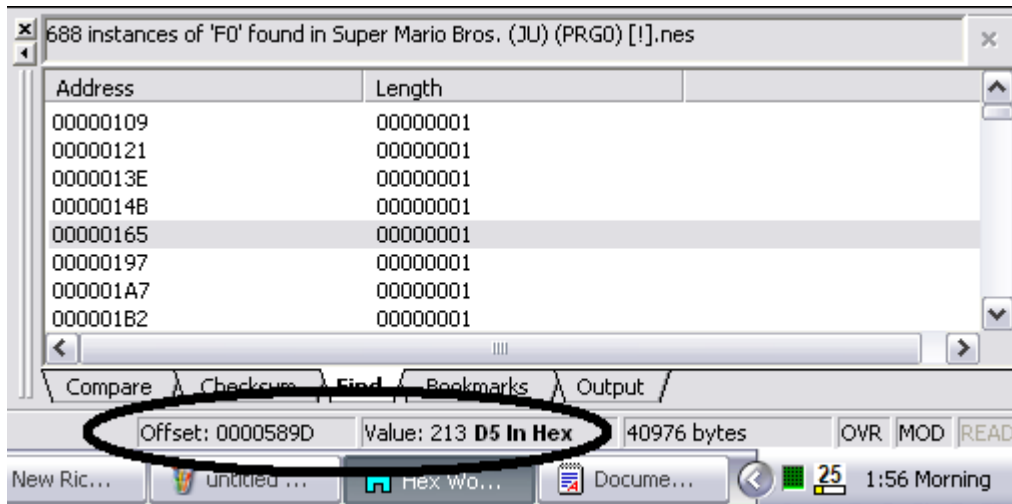


Recap:

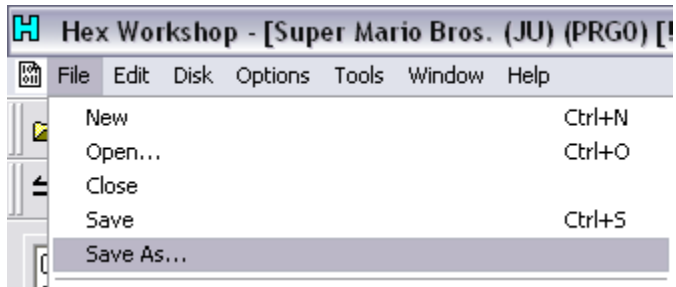
Our converted into hex game genie code:

- Address= 89D **We used wordpad to find all Addresses ending with 89D
- **Value**= D5 (213 in decimal)
- Compare= F0 (240 in decimal) **We used a hex editor to find all instances of Compare F0

Now that you are at address 589D and the compare value is F0, just enter your **value**. (D5)



Now use save as to save your game **test.nes** or similar.





After saving, open the rom with your nes emulator and confirm that the code is working.

As the above picture shows, the code worked. But what if it didnt? Remember we did have two codes (589D and 889D)

and we only tried the first one. If your first code didnt work, try the others untill you have the correct one. If your code was wrong and the cheat didnt work, you will want to delete the rom that you hacked, and try another code with a fresh (un-hexed) copy of mario 1.

Example 2:

Super Mario Brothers 1 Game Genie code: ANTOSA Pipes you can't go down are upside-down, the pipes you can go down are normal.

Notice this is a **6** letter code.

90% of the time, an 8 letter code is better than a 6 letter code. If you have a 6 letter code that has some problems (glitches ect...), changing it to an 8 letter code may get rid of the problems. But there is also the chance that changing it to an 8 letter code will have unwanted effects. A 6 letter code **may cause more than one effect**, but if you convert it to an 8 letter code, It will only modify **one address**, so you may lose some of the effects of the 6 letter code. But **most** of the time, converting a 6 letter code to an 8 letter will make the code better.

To convert a 6 letter game genie code to an 8 letter one you will need this small application, download it from:

<http://www.angelfire.com/games2/codehut/ggconvc.zip>

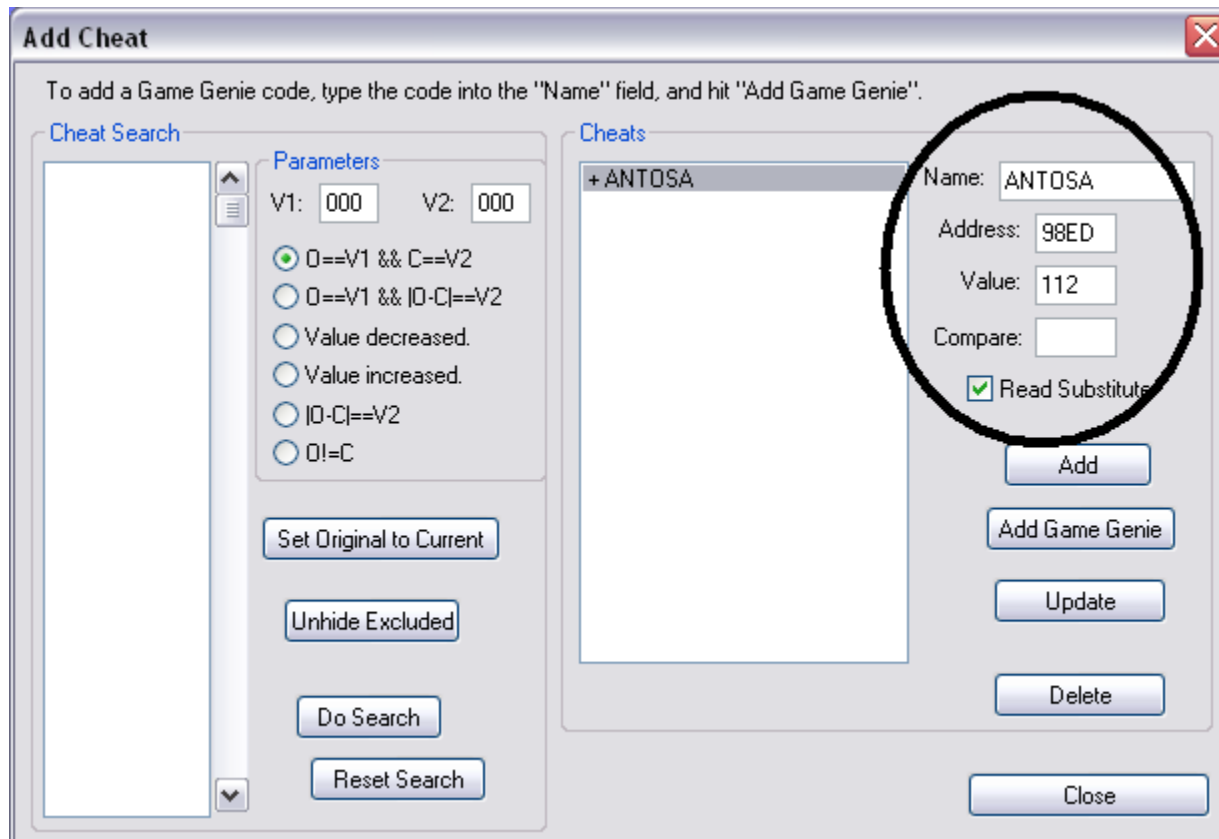
or

<http://www.sendspace.com/file/xibojg>

In example 1 of this document, we learned that an 8 letter code fills out the 3 boxes Address, Value, and Compare in our emulator.

A 6 letter code, when entered into the emulator, only gives us the Address and Value. The Compare box is left empty. That's why it is much easier to hack a rom with an 8 letter code, we just follow all the steps in example 1.

Ok, paste the code and click the button add game genie now you should see Address 98ED Value 112



Use the calculator to convert 112 in decimal to it's hex equivalent and now you have

- Address= 98ED
- Value= 70

Add 10 (in hex mode) to your address, and dispose of the first letter. Now you have

- Address= 8FD
- Value= 70

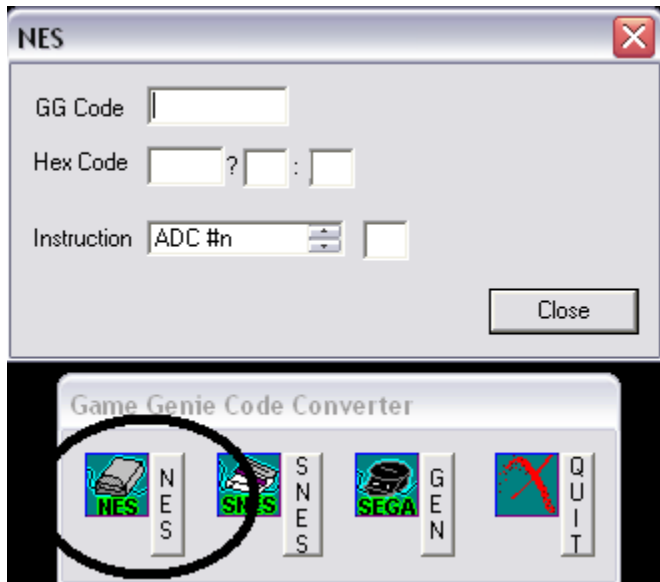
Now, this is the part that is different from example 1. We cannot use the find function in our hex editor to find all instances of our Compare value, because we do not know what the compare value is (because of it being a 6 letter GG code). So instead, we are going to use the GoTo function to go directly to our address 8FD and write down what the value is (in hex). At offset 8FD our hex editor shows a value of 02, write this number down and now add 1000 (hex) to your address. $8FD + 1000 = 18FD$. GoTo your new address and write down the value. Keep adding 1000 to your address and writing down the value until you reach the end of the rom.

1. 08FD= 02
2. 18FD= C8
3. 28FD= CE
4. 38FD= D0
5. 48FD= E8
6. 58FD= 07
7. 68FD= 30
8. 78FD= A9
9. 88FD= 64
- 10 98FD= FF

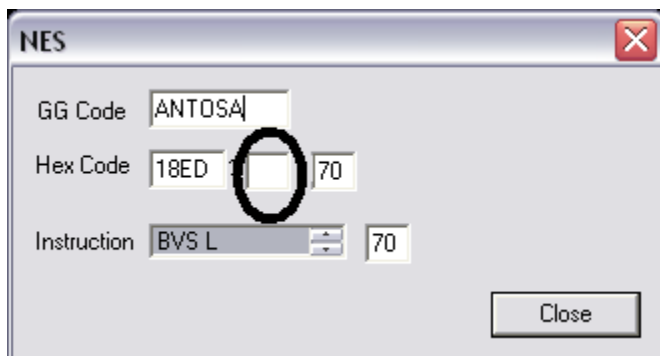
A8FD= N/A End Of Rom

One of these 10 is the one we are looking for. These numbers are Compare values, but you still have to place it into the

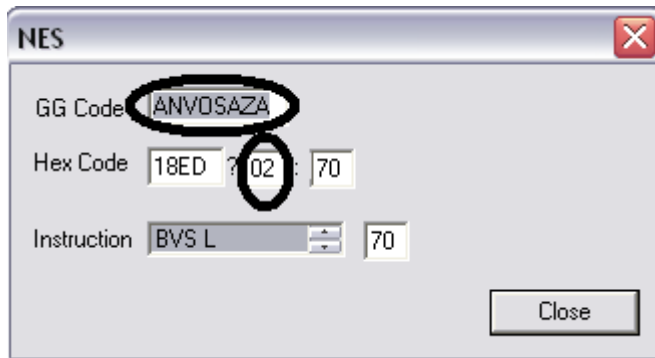
code using the game genie converter (link above). Open the converter and choose Nes.



Put in your 6 digit code in the GG Code box (ANTOSA).



Now, take your Compare values that you wrote down (02, C8, CE, D0, E8, 07, 30, A9, 64, FF) and enter them into the blank box, one at a time and the GG Code box will change to an 8 digit code. Write down each new 8 digit game genie code (should be 10, because there are 10 compare values).



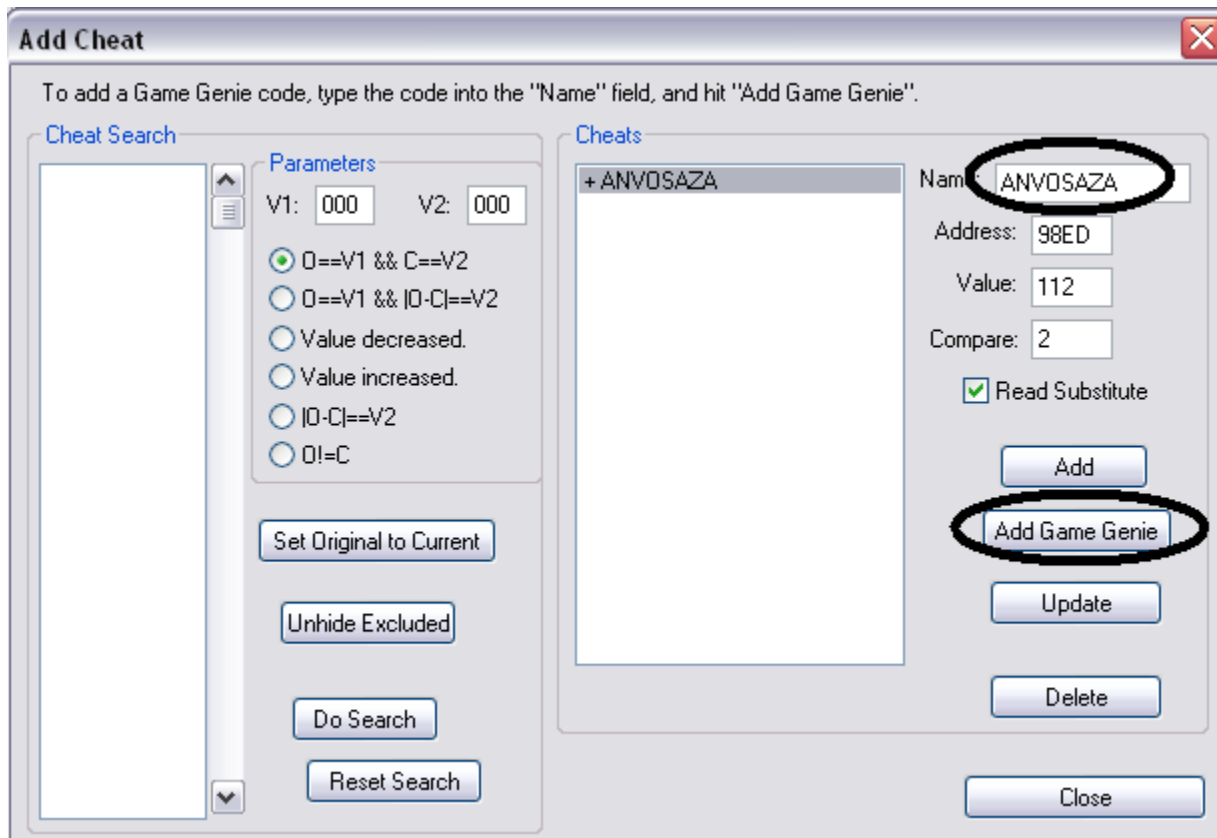
Do this with each compare value and you should end up with these ten 8 digit game genie codes to test out:

1. ANVOSAZA
2. ANVOSEEG
3. ANVOSEVG
4. ANVOSAEI
5. ANVOSEET
6. ANVOSAYA
7. ANVOSAAL
8. ANVOSEOZ

9. ANVOSAGT

10 ANVOSENY

Now, you must find out which of the 10 works. One at a time enter in a code with the emulator and play it a second to see which one works.



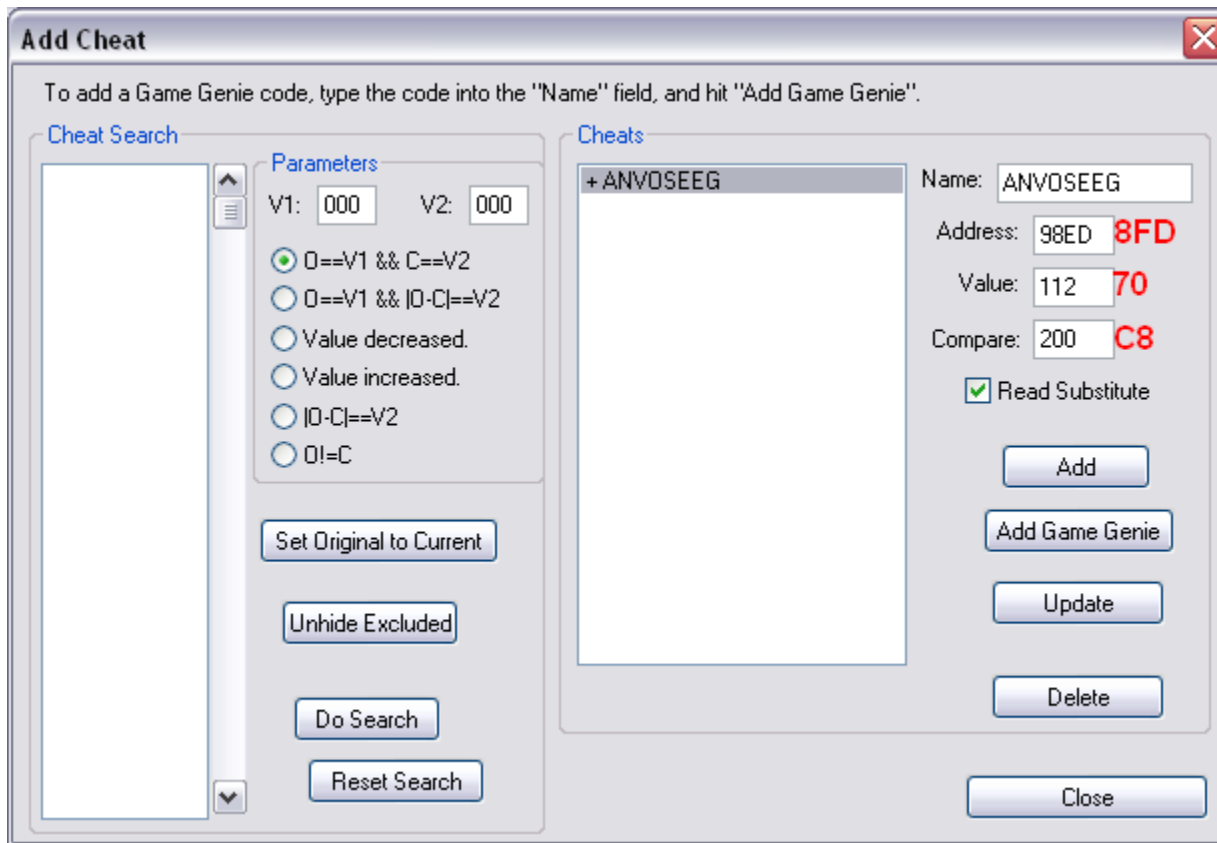
Hmm. Dont see any pipes upside down, the first code dont work. ANVOSAZA



The second code: ANVOSEEG



So now that game genie code 2 that we made was a success, we now know the correct Compare value. Now we can easily hack the rom since we now have an 8 digit game genie code.



Recap:

The 6 digit game genie code ANTOSA converted to ten possible 8 digit codes. After trial and error testing, we found that the second code ANVOSEEG was the correct 8 digit counterpart. After entering the 8 digit code into the emulator and clicking on the code under the Cheats field (see picture above), the three boxes Address, Value, and Compare is now filled out.

- Addrss: 98ED
- Value: 112
- Compare: 200

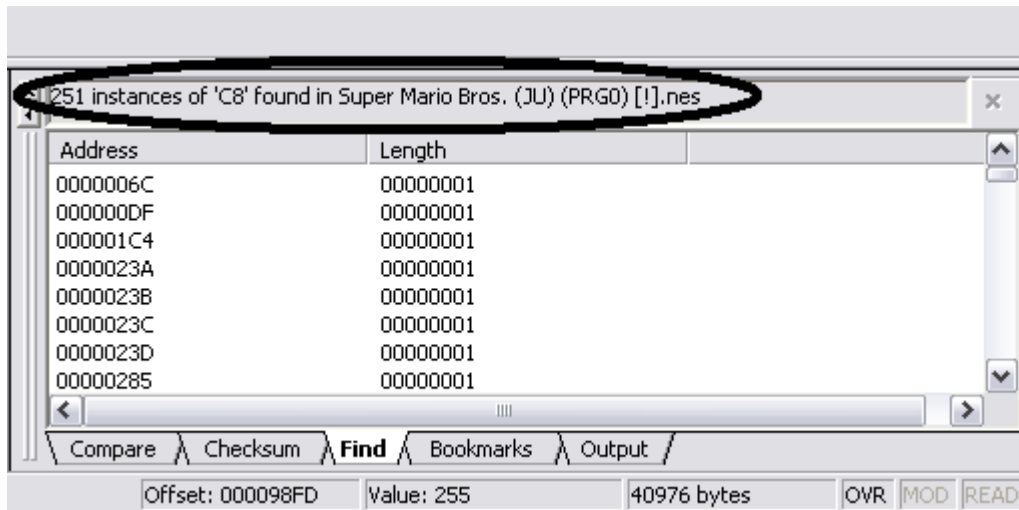
Convert the Value and Compare to hex using windows calculator and you now have:

- Address: 98ED
- Value: 70
- Compare: C8

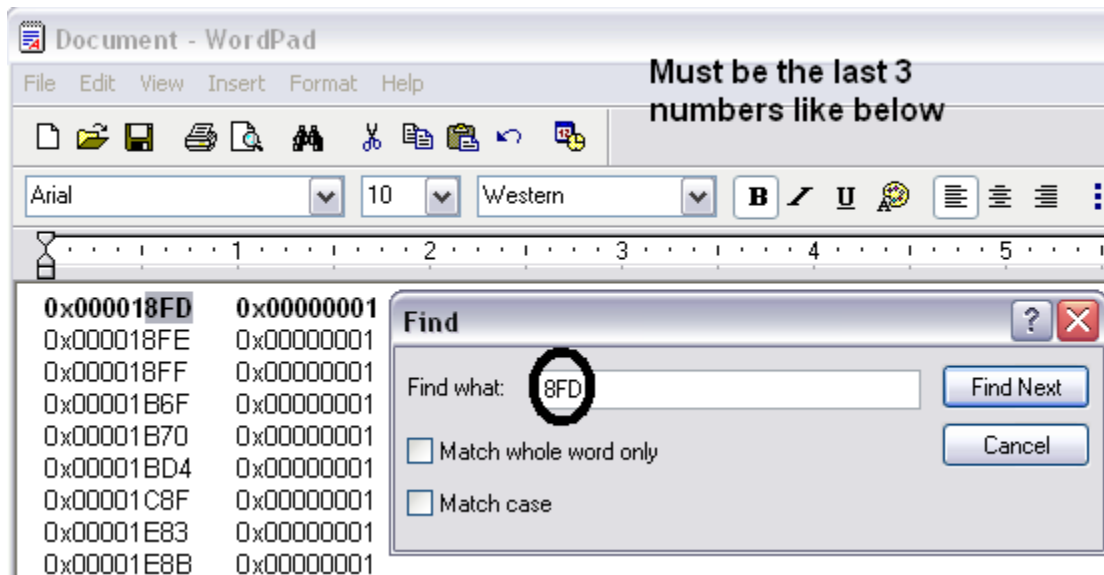
Now add 10 (hex) to your address and dispose of the first letter and your left with:

- Address: 8FD
- Value: 70
- Compare: C8

Now your ready to follow the same steps as with example one. Open your hex editor and the mario 1 rom. Use the Find function to search for all instances of the hex Compare value of C8



Right click in the area in the picture above and choose copy all. Paste these 251 codes into your text editor. Use the text editor's Find function to find all codes that end with your address (8FD)



This time we were lucky and the Find function only found 1 line with 8FD in it. Break down the code, delete the right column, and delete the 0x0000 out of the left column:

Unchanged: 0x000018FD 0x00000001

Is now just : 18FD

- Address: 8FD is now 18FD
- Value: 70
- Compare: C8

Now you simply use the GoTo function (with your hex editor) to go to offset 18FD and change the value of C8 to 70, after

that, save as and test the rom with your emulator. Make sure that you have deleted the game genie codes you entered in so you know for a fact that the rom is hacked with that code, not just a game genie code on making it happen.



Example 3:

Super Mario Brothers 1 Game Genie code: SXIOPO Infinite lives for both players.

Used hex editor to goto 01E9 + 1000 + 1000 + 1000 ect... and got these possible Compare values:

18
CE
7E
1D
B1
AC
A6
F1
7F
00

Which using the game genie converter gives us theses possible 8 digit codes:

SXSOPAO
SXSOPVK
SXSOPOTN
SXSOPPIO
SXSOPPOU
SXSOPKX
SXSOPPVX
SXSOPPON
SXSOPPOYN
SXSOPPAE

Through trial and error testing, we find out that the correct is once again the 2nd one. (SXSOPOVK)
The 8 Digit code gives us these numbers in the emulator:

- Address: 91D9
- Value: 173
- Compare: 206

Convert the Value and Compare into hex, add 10 hex to the address and dispose of the first letter and your now left with:

- Address: 1E9
- Value: AD
- Compare: CE

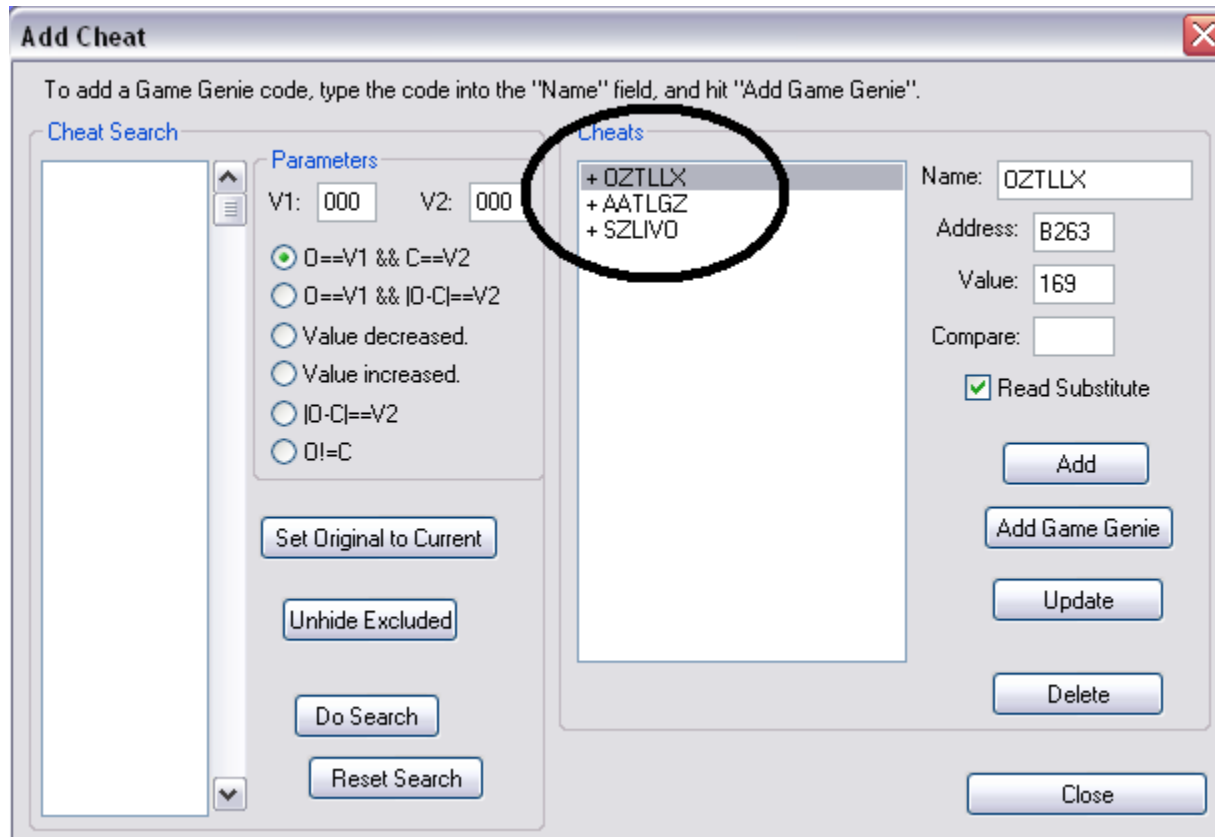
Using your hex editor find all instances of the compare value (CE). Paste these codes into a text editor and use the find function to find the address (1E9). Only one address (0x0000**11E9** 0x00000001) will be found. Break down the address and you now know the correct place to hack in the rom.

- Address: 11E9
- Value: AD
- Compare: CE

So you now just go to offset 11E9 and change the value of CE to AD, save the rom and test it out (without the game genie code on).

Example 4:

Super Mario Brothers 1 Game Genie code: OZTLLX + AATLGZ + SZLIVO Always stay big.



Name: OZTLLX

Value: A9 (169 in decimal)

Possible compare values (after deleting duplicates):

60 converted to an 8 digit code = OZVLLZAV

63 converted to an 8 digit code = OZVLLZLV

49 converted to an 8 digit code = OZVLLXPK

07 converted to an 8 digit code =

F0 converted to an 8 digit code =

A6 converted to an 8 digit code =

FF converted to an 8 digit code =

00 converted to an 8 digit code =

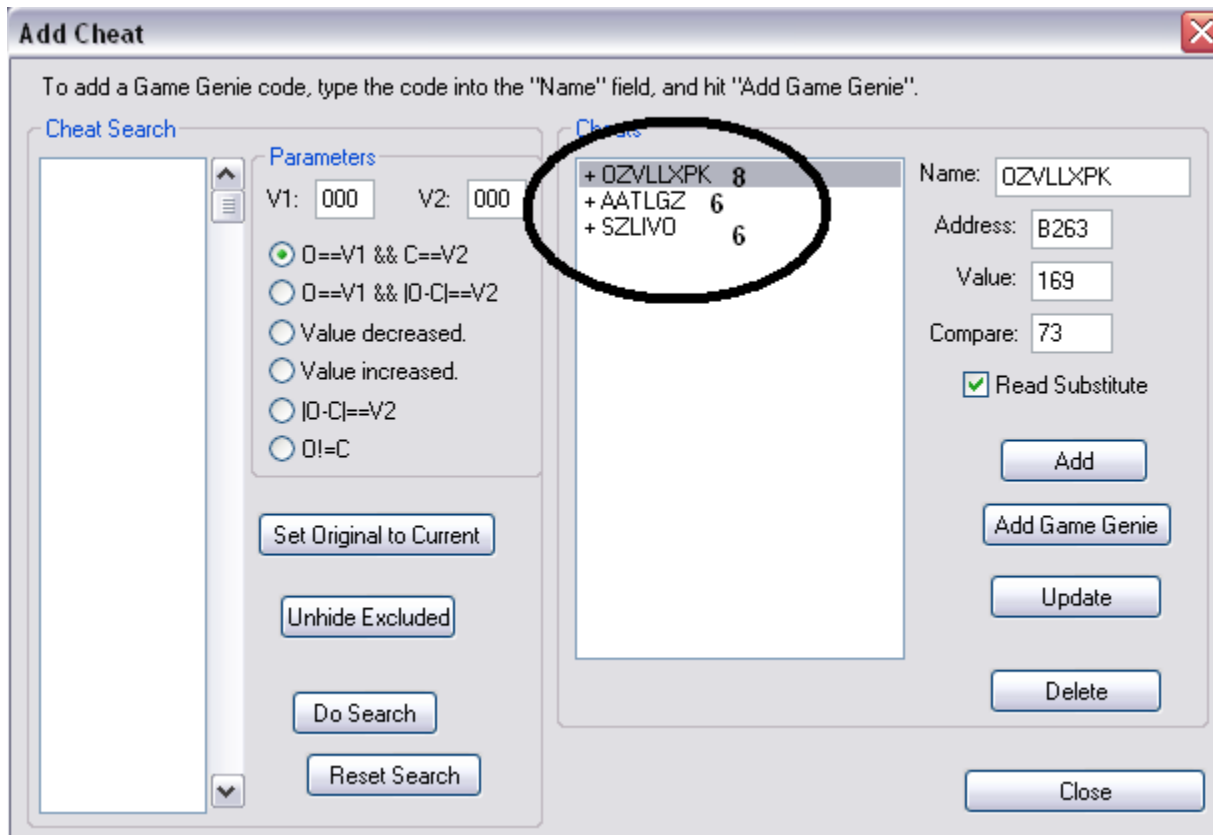
Use your first code (OZTLLX + AATLGZ + SZLIVO) and make the first line the 8 digit code to test out your compare values:

OZVLLXPK + AATLGZ + SZLIVO

8

6

6



After getting a mushroom, you will always stay big mario, so we know that OZVLLXPK is the correct 8 digit code for OZTLLX. But there are 2 parts left of the code to convert to 8 digit. OZVLLXPK + **AATLGZ** + **SZLIVO**.

Name: AATLGZ

Value: 00

Possible compare values (after deleting duplicates):

20 converted to an 8 digit code = AAVLGZAZ

A4 converted to an 8 digit code = AAVLGZKZ

01 converted to an 8 digit code = AAVLGZPA

A9 converted to an 8 digit code =

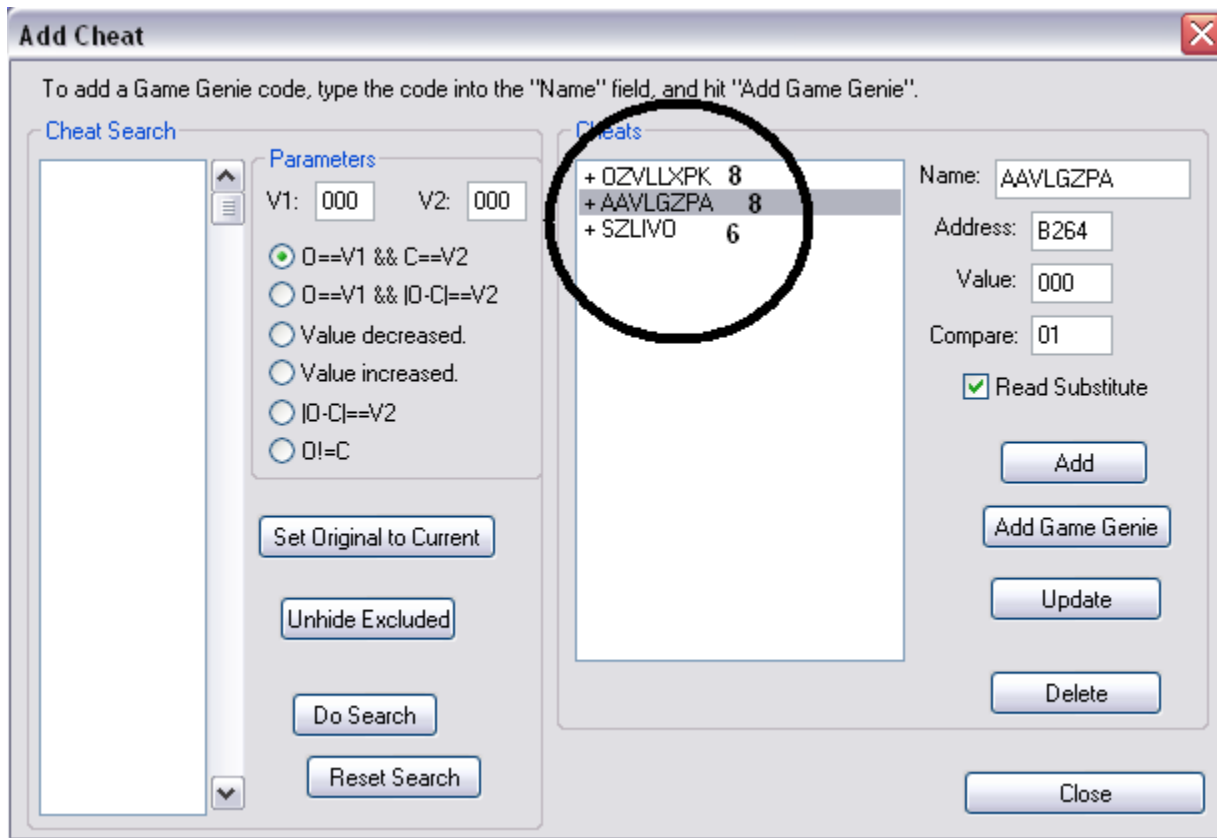
08 converted to an 8 digit code =

02 converted to an 8 digit code =

04 converted to an 8 digit code =

FF converted to an 8 digit code =

After testing, AAVLGZPA is the correct 8 digit code for AATLGZ. But there is still one part of the code to convert to 8 digit. OZVLLXPK + AAVLGZPA + **SZLIVO**.



Name: SZLIVO

Value: AD

Possible compare values (after deleting duplicates):

F9 converted to an 8 digit code = SZUIVOON

4C converted to an 8 digit code = SZUIVOGK

1B converted to an 8 digit code = SZUIVOLO

98 converted to an 8 digit code = SZUIVOEO

EB converted to an 8 digit code = SZUIVOUV

8D converted to an 8 digit code = SZUIVOSE

01 converted to an 8 digit code =

81 converted to an 8 digit code =

F0 converted to an 8 digit code =

FF converted to an 8 digit code =

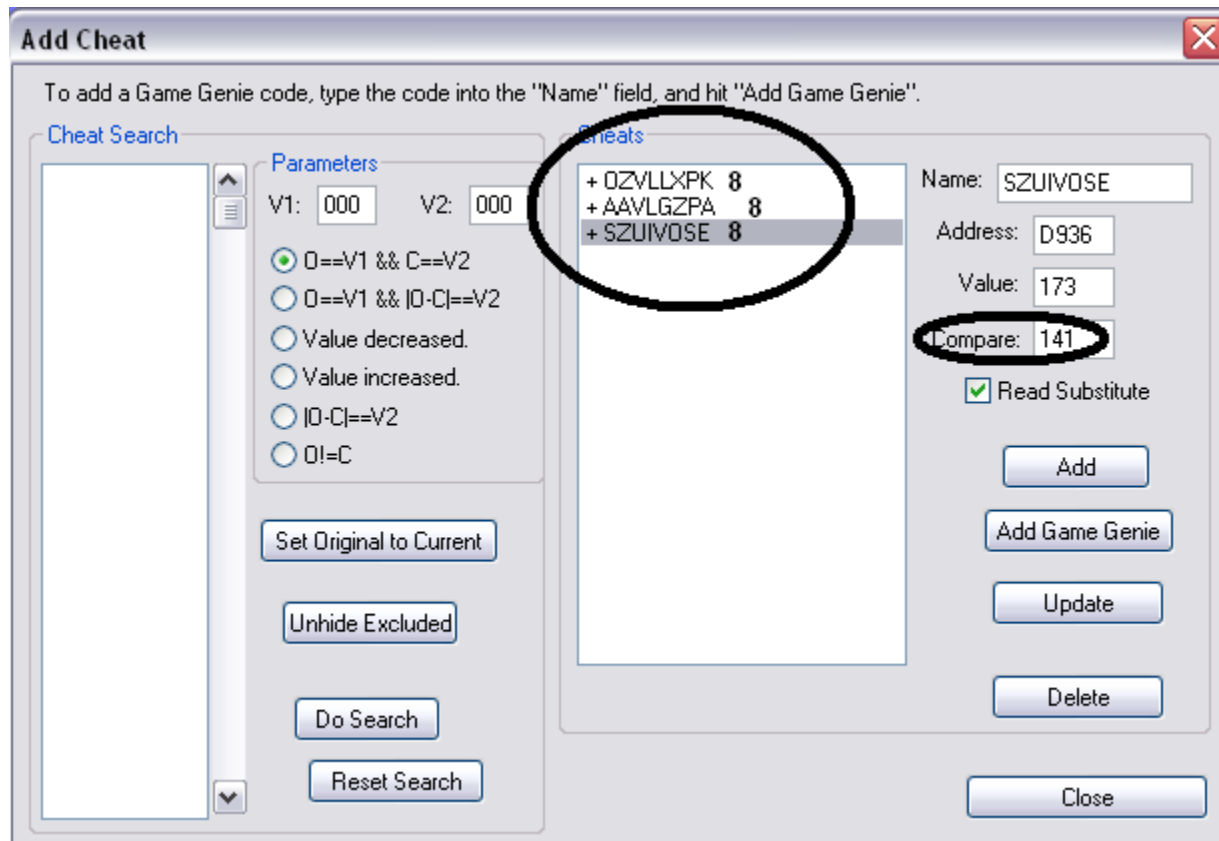
After testing, SZUIVOSE is the correct 8 digit code for SZLIVO.

Now we know the full code:

OZTLLX + AATLGZ + SZLIVO

Converts to 8 digit codes to be:

OZVLLXPK + AAVLGZPA + SZUIVOSE



Part 1: OZVLLXPK

Address: B263 = 273

Value: 169 = A9

Compare: 73 = 49

After using the hex editor's find function to search for all instances of the Compare (49) and finding only the lines that end with the Address (273) we are left with: 0x0000**3273** 0x00000001 (**3273**)

So now we know:

OZVLLXPK

Address: **3273**

Value: A9

Compare: 49

Which means:

GoTo offset 3273 and change the value 49 to A9

Part 2: AAVLGZPA 0x0000**3274** 0x00000001

Address **3274**

Value 00

Compare 01

GoTo offset 3274 and change the value 01 to 00

Part 3: SZUIVOSE 0x0000**5946** 0x00000001

Address **5946**

Value AD

Compare 8D

GoTo offset 5946 and change the value 8D to AD

Recap:

This 6 digit code: OZTLLX + AATLGZ + SZLIVO

Converted to this 8 digit code: OZVLLXPK + AAVLGZPA + SZUIVOSE

OZVLLXPK = GoTo offset 3273 and change the value 49 to A9

AAVLGZPA = GoTo offset 3274 and change the value 01 to 00

SZUIVOSE = GoTo offset 5946 and change the value 8D to AD