

mud lecture

[Rock lecture] 18. Try porting SCMLoader.



why do you ask
2014. 9. 30. 19:55

add neighbor

[Warning] This course is quite difficult. For those who don't need anything else and just want to use the trigger, refer to the bottom.

As foreshadowed in the previous tutorial, let's port the SCMLoader.

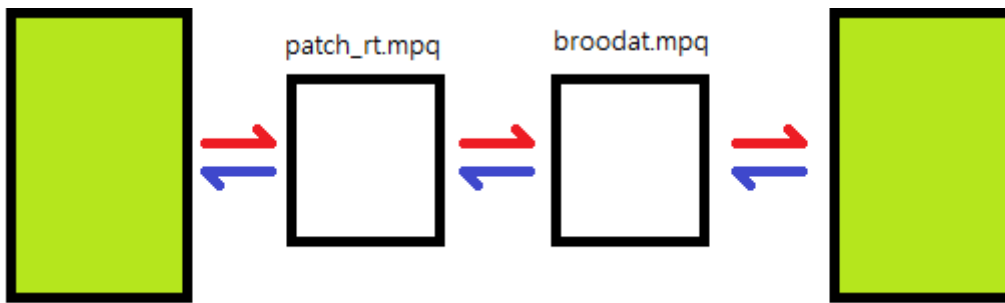
[Reference] What is SCMLoader?

- Even if you put units.dat or weapons.dat in the map file, the original units.dat or weapons.dat in the star has priority, so custom graphics or weapon changes do not happen.
- SCMLoader raises the priority of the files in the map file higher than the priority of the original file in the star.
- To put it simply, a tool that applies the .dat file or .grp file taken with DatEdit to the map with WinMPQ.

How do units.dat or weapons.dat in the star have priority over units.dat in my map?
Knowing this reason, I can manipulate the priorities of units.dat in my map and units.dat in star patch_rt.mpq.

Starcraft manages the mpq files opened by the star as a doubly linked list.

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(Only two mpq files are shown for simplicity)

In this way, the doubly linked list is constructed in the order in which the star opened the mpq file.

(patch_rt.mpq is on the left in the picture because you opened patch_rt.mpq first)

Red is the pointer to next, and blue is the pointer to prev.

[Four generations] It's actually the opposite, but just ignore it. There is no problem in understanding the course.

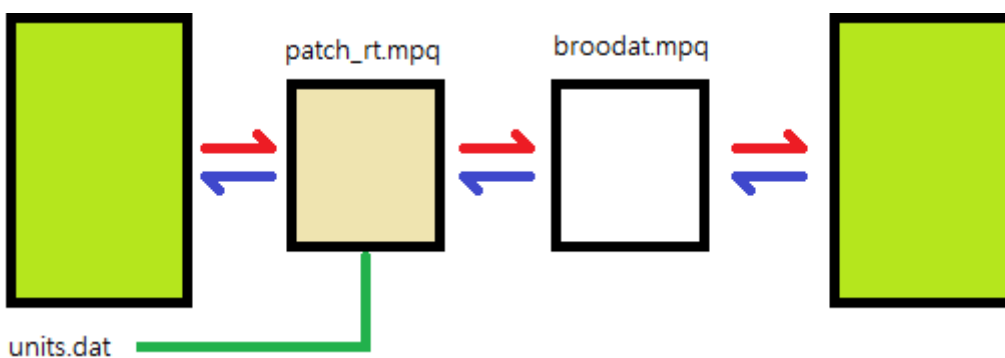
It's okay if you don't understand this family.

Star searches files from left to right as it searches for each file.

ex)

1. When looking for arr\units.dat:

- Check if arr\units.dat exists in patch_rt.mpq : Yes.

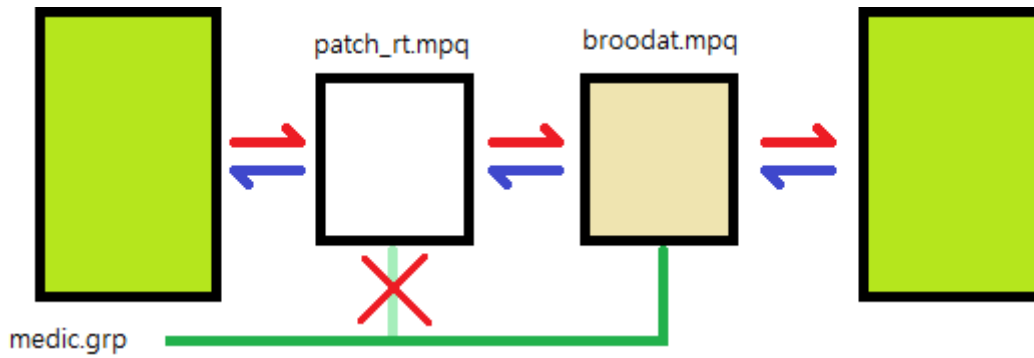


So we use units.dat in patch_rt.mpq.

2. When looking for unit\terran\medic.grp:

- Check if there is unit\terran\medic.grp in patch_rt.mpq : None. I don't even have a unit\terran\

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So use medic.grp from broodat.mpq.

The star map is added at the end of the list (far right in the picture).

So, only those things like staredit\scenario.chk or staredit\wav\bgm4.wav that are not in the star are found in our map file.

to sum it up

- Star mpq has priority over our map.

[Reference] Priority between mpq files

patch_rt.mpq, broodat.mpq, stardat.mpq, broodwar.mpq, starcraft.mpq, map files

Since it's a doubly linked list, I think it can be fixed.

- Our map file has the lowest priority, so it will be on the far right of the list.
- We'll move our map file to the far left of the list with some pointer manipulation.

Before:



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The theory explanation is over. Now let's design the trigger.

The actual memory is as follows.

[illegible]

1505AE00 -> 2201CC

2201CC: patch_rt.mpq

prev: **1505ADCF**

next : 22046C

22046C: broodat.mpq

prev : 2201CC

next : 22007C

22007C: stardat.mpq

prev: 22046C

next : 22031C

22031C: broodwar.mpq

prev: 22007C

next : **EAF5203** (adding with **1505ADFC** gives FFFFFFFF, bitwise not)

1505ADFC -> 22031C

Except for two odd numbers, everything else is a normal linked list.

'Cause if you're in the map, the last MPQ will be the map file

- 1505ADFC offset value reads. (mapmpq).

1. Detach mapmpq from the linked list.

- (mapmpq) reads the value of the offset. (new_lastmpq).
: After EUD trigger ends, new_lastmpq becomes the last MPQ.
- Substitute EAF5203 into (new_lastmpq+4)
- Substitute (new_lastmpq) to 1505ADFC

2. Put mapmpq back at the beginning of the linked list.

- Read the value of 1505AE00 offset. (old_firstmpq)
: First MPQ before EUD trigger fires.
- Substitute 1505ADCF for (mapmpq)
- Substitute (old_firstmpq) to (mapmpq+4)

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Current Player Return

If it is summarized in C language code, it is as follows.

```

One struct MPQArchive {
2     MPQArchive *prev, *next;
3     // there must be something
4 };
5
6 void ApplySCMLoader () {
7     MPQArchive **firstmpqptr = (MPQArchive**) 0x1505AE00 ;
8     MPQArchive **lastmpqptr = (MPQArchive**) 0x1505ADFC ;
9
10    MPQArchive * mapmpq = *lastmpqptr;
11
12    // Remove mapmpq from linked list.
13    MPQArchive *new_lastmpq = mapmpq->prev;
14    new_lastmpq->next = 0xEAF5203;
15    *lastmpqptr = new_lastmpq;
16
17    // mapmpq를 연결 리스트 앞쪽에 붙여놓음.
18    MPQArchive *old_firstmpq = *firstmpqptr;
19    mapmpq->next = old_firstmpq;
20    mapmpq->prev = 0x1505ADCF;
21    *firstmpqptr = mapmpq;
22    old_firstmpq->prev = mapmpq;
23 }
```

[참고] 이 트리거는 그리 안전하지 않습니다. 멀티태스킹과 관련해서 좀 복잡한 문제가 있어요.

- 쉽게 말해서 저렇게 MPQ 파일이 있는 연결 리스트를 다루는 도중에 다른 프로그램이 저 연결 리스트를 쓰면 좀 문제가 됩니다.
- Using eudtrg should be able to solve this problem perfectly, but here we will just create a trigger that can be applied to normal maps as well.
- Therefore, a star can bounce about once every 300 times.
- By the way, normal EUD maps that don't use such strange things are tinkering once every 10 times.

Let's create a trigger with trngen.

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- [Add/Substitute] a certain value to Current Player
- [add] some value to any offset

The trggen source code is as follows.

```

One # !/usr/bin/python
2   # -*- coding: utf-8 -*-
3
4   from trggen import *
5
6
7   def P8T ( conditions = [], actions = [] ):
8       conditions = FlattenList ( conditions )
9       actions = FlattenList(actions)
10
11       Trigger(
12           players=[P8],
13           conditions=[Memory(0x0057F23C, Exactly, 2)]+conditions,
14           actions=actions
15       )
16
17   def CopyDeaths(oplayer, iplayer, copy_as_epd=False):
18       if copy_as_epd:
19           initvalue = -0x58A364 // 4;
20       else:
21           initvalue = 0;
22
23
24       P8T(actions=SetDeaths(oplayer, SetTo, initvalue, 0))
25
26       for i in range(31, 1, -1):
27           addval = 1 << i if not copy_as_epd else 1 << (i - 2);
28
29           P8T(
30               conditions=Deaths(iplayer, AtLeast, 1<<i, 0),
31               actions=[
32                   SetDeaths(iplayer, Subtract, 1<<i, 0),
33                   SetDeaths(oplayer, Add, addval, 0),
34                   SetDeaths(P8, Add, 1<<i, 227)
35               ]
36           )
37
38       for i in range(31, 1, -1):
39           P8T(
40               conditions=Deaths(P8, AtLeast, 1<<i, 227)

```

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```
42         SetDeaths(iplayer, Add, 1<<i, 0),
43         SetDeaths(P8, Subtract, 1<<i, 227)
44     ]
45 )
46
47 # Main code start
48 LoadMap('basemap.scx')
49
50 mapmpq = EPD(0x0058D740)
51 new_lastmpq = EPD(0x0058D740 + 4)
52 old_firstmpq = EPD(0x0058D740 + 8)
53 tmp = EPD(0x0058D740 + 12)
54 curpl = EPD(0x6509B0)
55
56 # - 1505ADFC 오프셋을 값을 읽습니다. (mapmpq).
57 CopyDeaths(mapmpq, EPD(0x1505ADFC))
58
59
60 # 1. mapmpq를 연결 리스트에서 떼어냅니다.
61 #
62 # - (mapmpq) 오프셋의 값을 읽습니다. (new_lastmpq).
63 CopyDeaths(curpl, mapmpq, True)
64 CopyDeaths(new_lastmpq, CurrentPlayer)
65
66
67 #      : EUD 트리거가 끝난 다음에는 new_lastmpq가 마지막 MPQ가 됩니다.
68 #
69 # - (new_lastmpq+4)에 EAFA5203 대입
70 CopyDeaths(curpl, new_lastmpq, True)
71 P8T(actions=SetDeaths(curpl, Add, 1, 0))
72 P8T(actions=SetDeaths(CurrentPlayer, SetTo, 0xEAFA5203, 0))
73
74
75 # - 1505ADFC에 (new_lastmpq) 대입
76 CopyDeaths(EPD(0x1505ADFC), new_lastmpq)
77
78
79
80
81 # 2. mapmpq를 연결 리스트 맨 앞에 다시 집어넣습니다.
82 #
83 # - 1505AE00 오프셋의 값을 읽습니다. (old_firstmpq)
84 CopyDeaths(old_firstmpq, EPD(0x1505AE00))
85
86
```



```
89 # - (mapmpq+4)에 (old_firstmpq) 대입
90 CopyDeaths(curpl, mapmpq, True)
91 P8T(actions=[
92     SetDeaths(CurrentPlayer, SetTo, 0x1505ADFC, 0),
93     SetDeaths(curpl, Add, 1, 0)
94 ])
95 CopyDeaths(CurrentPlayer, old_firstmpq)
96
97
98 # - (old_firstmpq)에 (mapmpq) 대입
99 CopyDeaths(curpl, old_firstmpq, True)
100 CopyDeaths(CurrentPlayer, mapmpq)
101
102
103 # - 1505AE00 에 (mapmpq) 대입
104 CopyDeaths(EPD(0x1505AE00), mapmpq)
105
106
107 # Current Player 원상복귀
108 P8T(actions=SetDeaths(curpl, SetTo, 7, 0))
109
110 SaveMap('dlgchange_test.scx')
```

만들어진 맵 : dlgchange_test.scx

: rez\gamemenu.bin 이 게임 메뉴로 사용됨

트리거 뺀 맵 : basemap.scx

원본 소스파일 : src.py

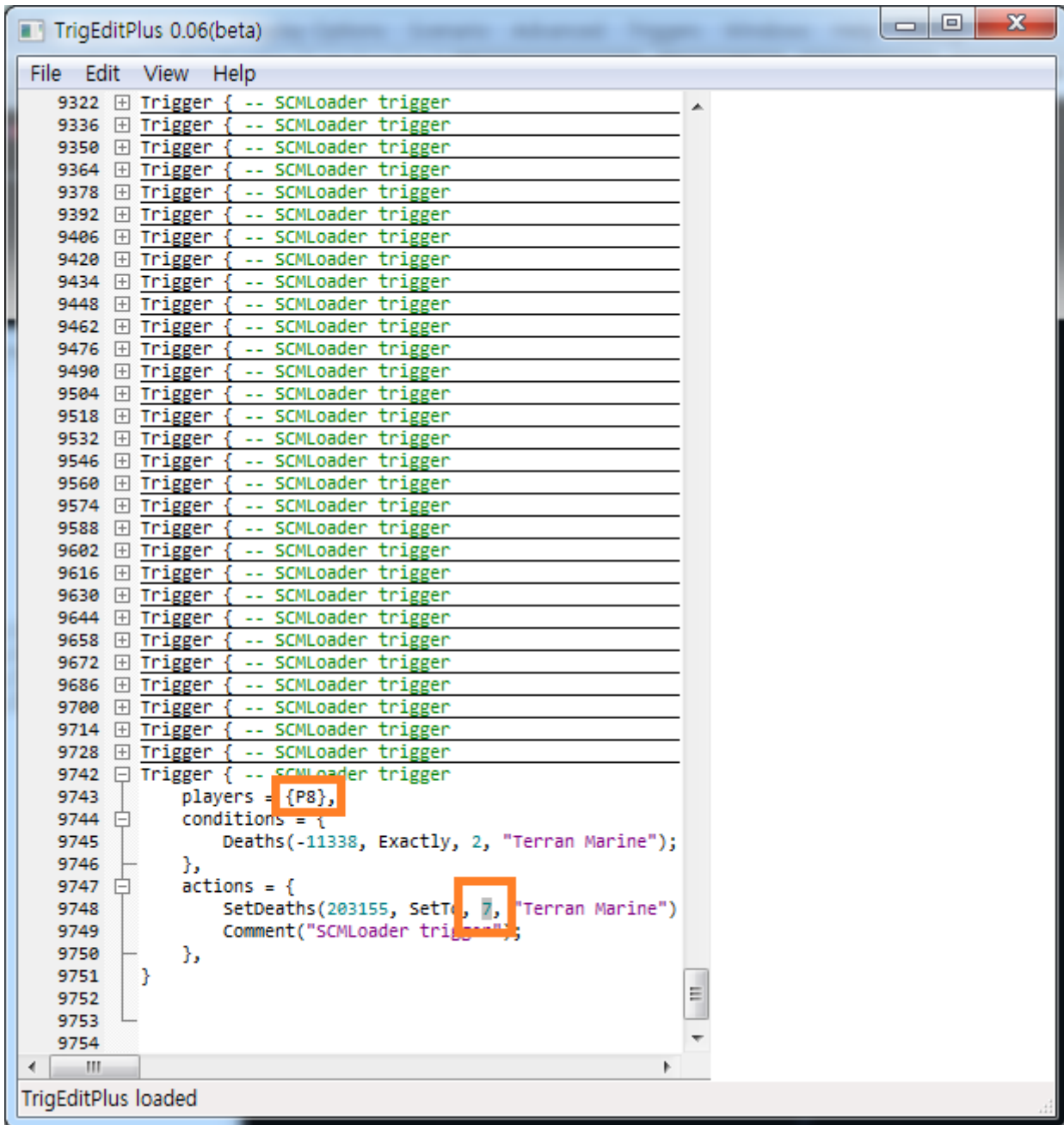
[참고]

그냥 이 트리거 쓰고싶은사람들은

dlgchange_test.scx의 트리거를 TrigEditPlus 로 굶으셔서

P8을 컴퓨터 플레이어 적당한거 하나 잡아서 찾아 바꾸기 하시고

저 밑에 7이란 숫자도 같이 바꿔주시면 됩니다. P8이면 7 P4면 3.



#IT·컴퓨터

첨부파일

dlgchange_test.scx

basemap.scx

src.py

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왜물어

whyask37님의 블로그입니다.

이웃추가

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이 블로그 인기글

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5. SFmpq (ShadowFlare's MPQ Library) 와 예제

2013. 9. 11.

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[별강의] 13. 트리거 프로그래밍 - TRIG-MRGN 루프

2014. 2. 24.

0

4. scenario.chk

2013. 9. 10.

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[별강의] 2. 데스 사이의 대입, 더하기

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