

Operating System

smalloc

2022041052 GeumyoungKim

2022041046 JaeyunByeon

Overview

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- Complete smalloc.c, an in-house heap memory allocator for C programs
- Point of study
 - memory management API: mmap()
- Contents
 - operations
 - scenario1: smalloc_mode
 - scenario2: smalloc_mode
 - scenario3: smalloc_coalesce

Homework 2.
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Operations

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- `smalloc (size_t s)`
- `srealloc (void * p, size_t s)`
- `sfree (void * p)`
- `smalloc_mode(size_t s, smmode mode)`
- `smcoalesce ()`

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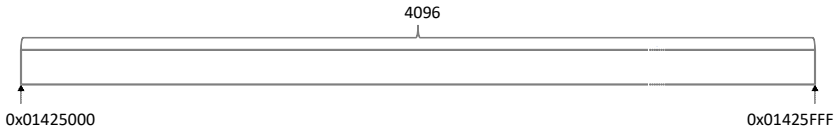
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Scenario1: smalloc_mode(1/3)

Let's consider this situation

- smalloc(3000);
- smalloc(2000);
- smalloc(4000);
- smalloc(1000);



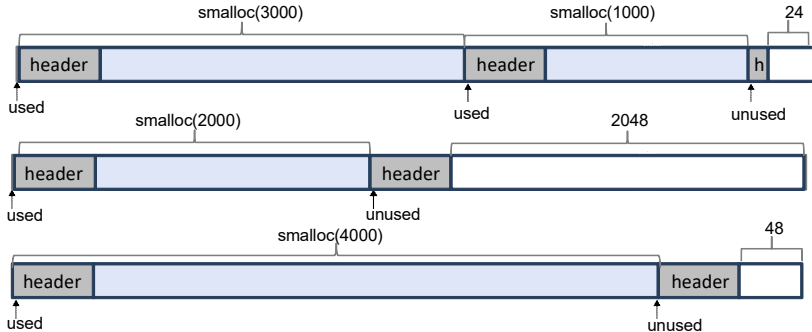
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Scenario1: smalloc_mode(2/3)

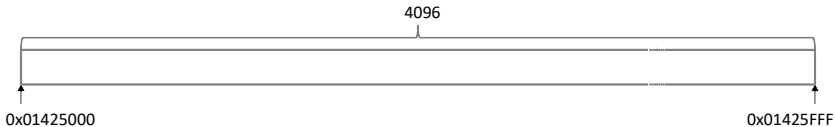
Maybe you imagine a situation like this.



Scenario2: smalloc_mode(1/3)

Let's consider this situation

```
-smalloc(3000);  
-smalloc(2000);  
-smalloc(4000);  
-smalloc(1000);  
-sfree(3000);
```



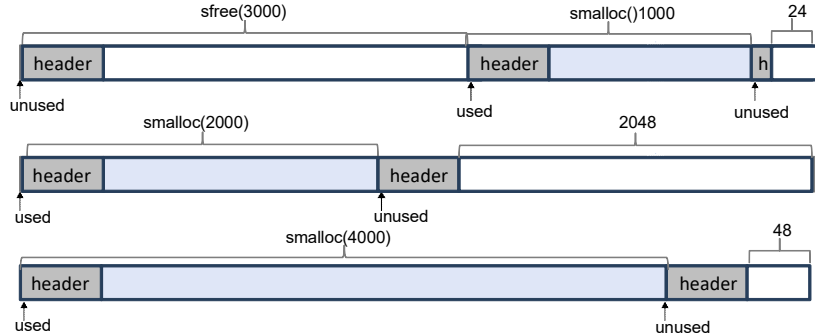
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Scenario2: smalloc_mode(2/3)

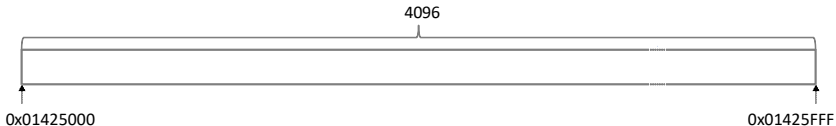
Maybe you imagine a situation like this.



Scenario3: smalloc_coalesce(1/3)

Let's consider test5 situation

```
-smalloc(1000);  
-smalloc(1000);  
-smalloc(1000);  
-smalloc(3000);  
-srealloc(500);  
-srealloc(1500);  
-sfree();  
-smcoalesce();
```



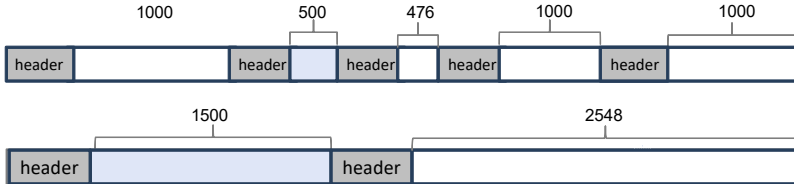
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Scenario3: smalloc_coalesce(2/3)

Maybe you imagine a situation like this.

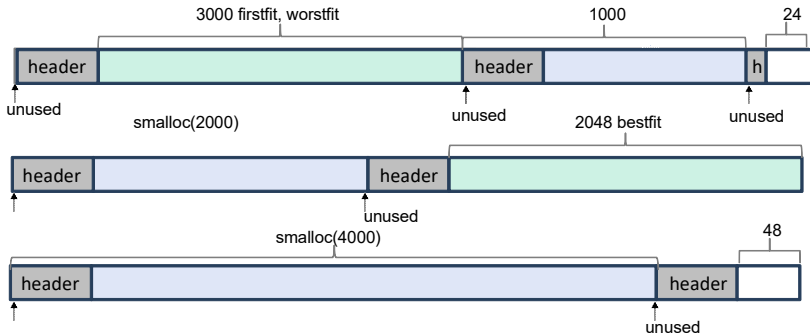


Scenario1: smalloc_mode(3/3)

- `malloc_mode(24, mode)`

Scenario2: smalloc_mode(3/3)

- malloc_mode(1000,mode)



Scenario3: smalloc_coalesce(3/3)

- smcoalesce()

