Ledger

LinkedList[0].size = 65535
LinkedList[0].type = H
LinkedList[0].next = -1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

500000 is just an arbitrary number
picked for these examples to show a
value returned by the malloc() in
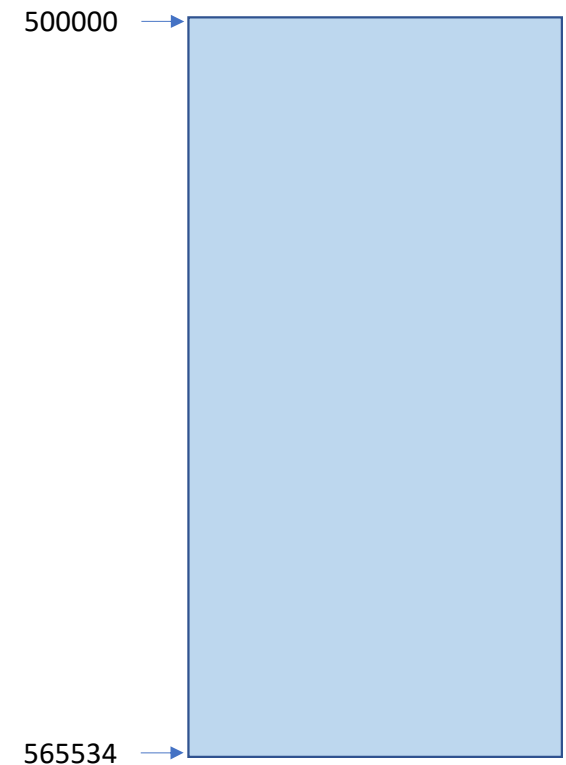mavalloc_init(65535, BEST_FIT)

P
H

Code

unsigned char * ptr1 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr3 = NULL;

unsigned char * ptr4 = NULL;

mavalloc_init(65535, BEST_FIT)

Variable	Value
ptr1	NULL
ptr2	NULL
ptr3	NULL
Ptr4	NULL

Arena

500000

565534

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 64535
LinkedList[1].type = H
LinkedList[1].next = -1
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
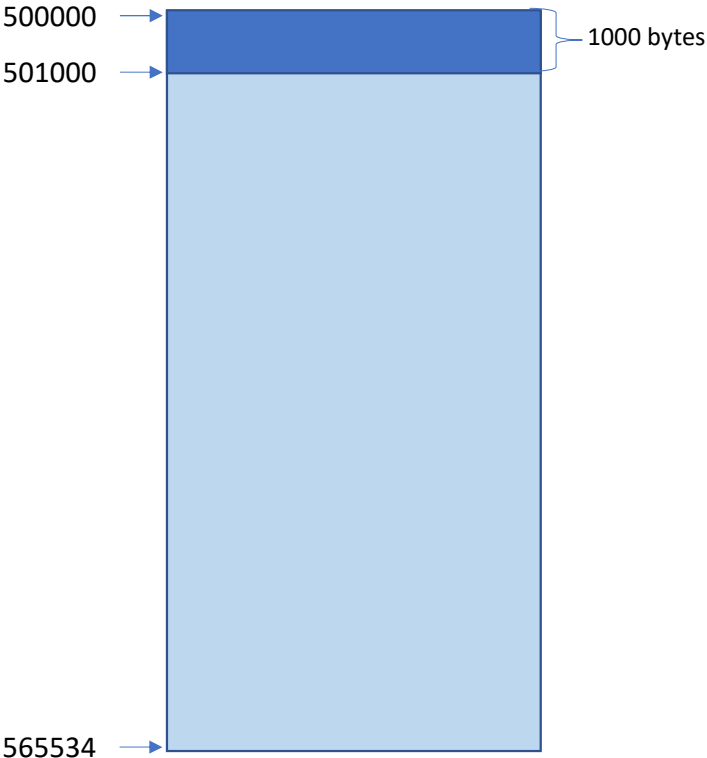LinkedList[1].arena = 501000

Changes that have
occurred in Red

P
H

Code

unsigned char * ptr1 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr3 = NULL;

mavalloc_init(65535, BEST_FIT)

ptr1 = mavalloc_alloc(1000) [returns 500000]

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	NULL
Ptr4	NULL

Arena

500000

501000

1000 bytes

565534

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 5000
LinkedList[1].type = P
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 59535
LinkedList[2].type = H
LinkedList[2].next = -1
LinkedList[2].previous = 1
LinkedList[2].in_use = 1;
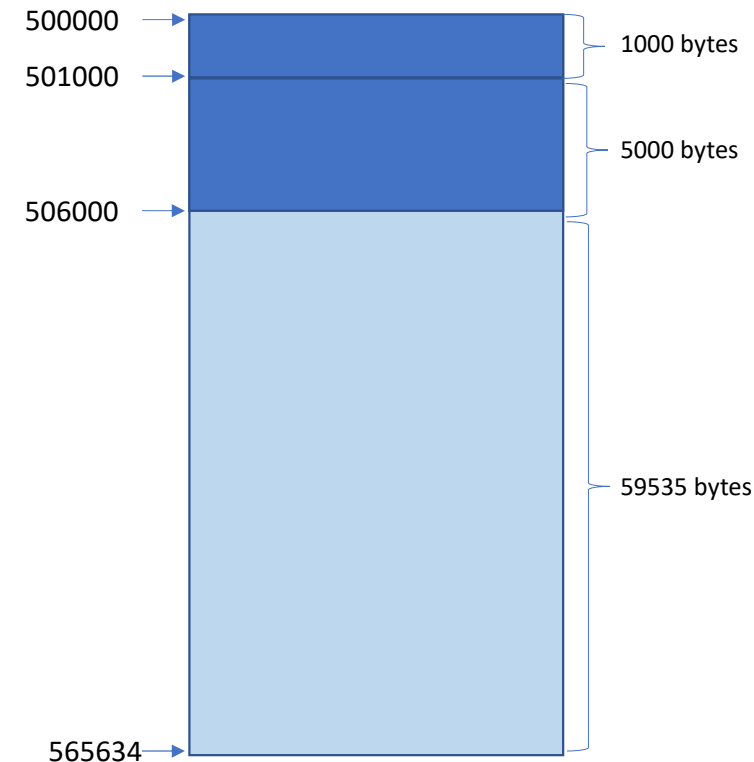LinkedList[2].arena = 506000

Changes that have
occurred in Red

| P |
| H |

Code

unsigned char * ptr1 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr2 = NULL;

mavalloc_init(65535, BEST_FIT)

ptr1 = mavalloc_alloc(1000)

ptr2 = mavalloc_alloc(5000) [returns 501000]

Variable	Value
ptr1	500000
ptr2	501000
ptr3	NULL
ptr4	NULL

Arena

500000
501000

1000 bytes

5000 bytes

506000

59535 bytes

565634

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 5000
LinkedList[1].type = P
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 10000
LinkedList[2].type = P
LinkedList[2].next = 3
LinkedList[2].previous = 1
LinkedList[2].in_use = 1;
LinkedList[2].arena = 506000

LinkedList[3].size = 49535
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = 2
LinkedList[3].in_use = 1;
LinkedList[3].arena = 516000

Changes that have
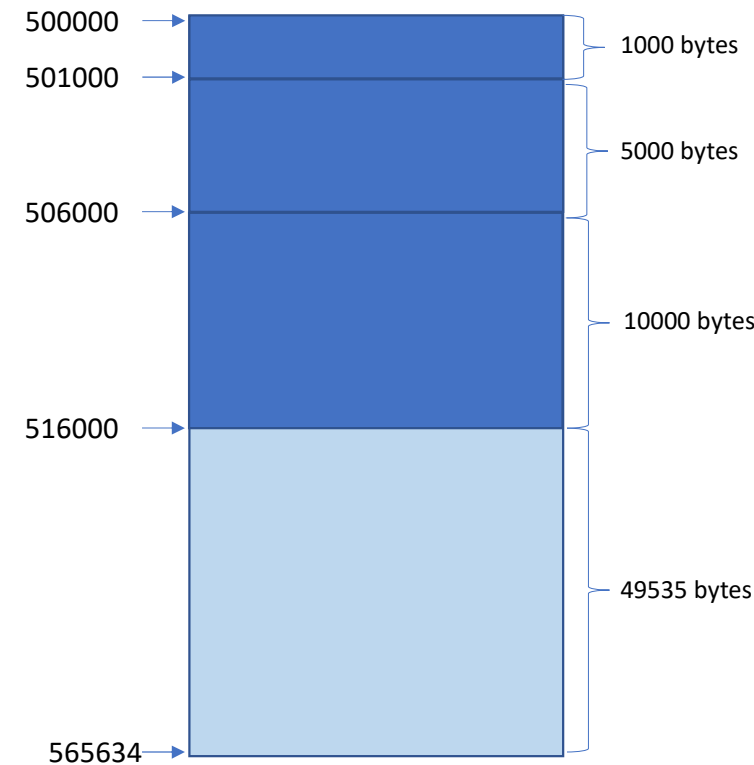occurred in Red

P
H

Code

```
unsigned char * ptr1 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr2 = NULL;

mavalloc_init(65535, FIRST_FIT)

ptr1 = mavalloc_alloc(1000)

ptr2 = mavalloc_alloc(5000)
```

ptr3 = mavalloc_alloc(10000) [returns 506000]

Variable	Value
ptr1	500000
ptr2	501000
ptr3	506000
ptr4	NULL

Arena

500000

1000 bytes

501000

5000 bytes

506000

10000 bytes

516000

49535 bytes

565634

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 5000
LinkedList[1].type = P
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 10000
LinkedList[2].type = P
LinkedList[2].next = 3
LinkedList[2].previous = 1
LinkedList[2].in_use = 1;
LinkedList[2].arena = 506000

LinkedList[3].size = 5000
LinkedList[3].type = P
LinkedList[3].next = 4
LinkedList[3].previous = 2
LinkedList[3].in_use = 1
LinkedList[3].arena = 516000

LinkedList[4].size = 44535
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = 3
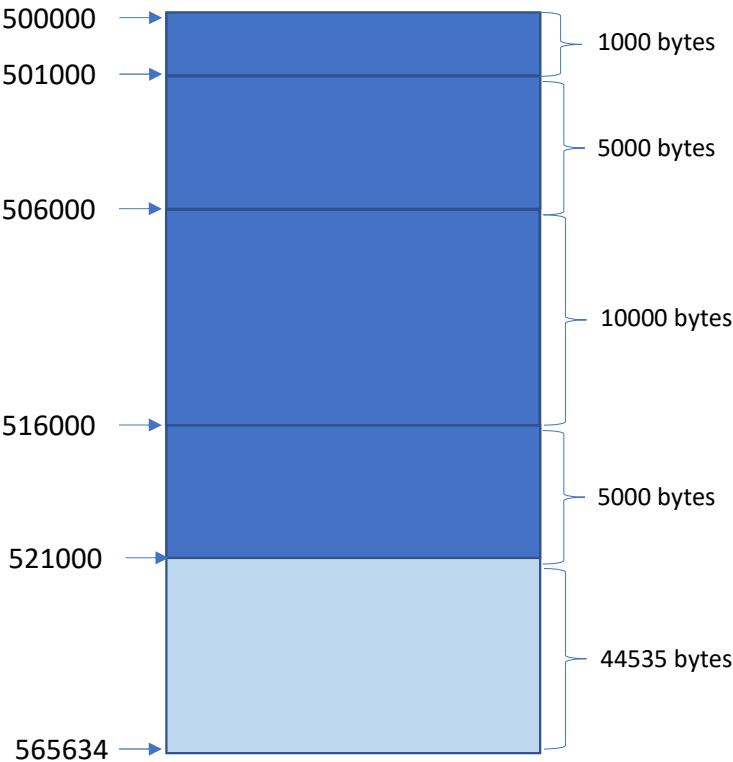LinkedList[4].in_use = 1
LinkedList[4].arena = 521000

P
H

Code

unsigned char * ptr1 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr2 = NULL;

mavalloc_init(65535, FIRST_FIT)

ptr1 = mavalloc_alloc(1000)

ptr2 = mavalloc_alloc(5000)

ptr3 = mavalloc_alloc(10000)

ptr4 = mavalloc_alloc(5000) [returns 516000]

Variable	Value
ptr1	500000
ptr2	501000
ptr3	506000
ptr4	516000

Arena

500000 → 1000 bytes
501000 → 5000 bytes
506000 → 10000 bytes
516000 → 5000 bytes
521000 → 44535 bytes
565634 →

Changes that have
occurred in Red

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 5000
LinkedList[1].type = H
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 10000
LinkedList[2].type = P
LinkedList[2].next = 3
LinkedList[2].previous = 1
LinkedList[2].in_use = 1;
LinkedList[2].arena = 506000

LinkedList[3].size = 5000
LinkedList[3].type = P
LinkedList[3].next = 4
LinkedList[3].previous = 2
LinkedList[3].in_use = 1
LinkedList[3].arena = 516000

LinkedList[4].size = 44535
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = 3
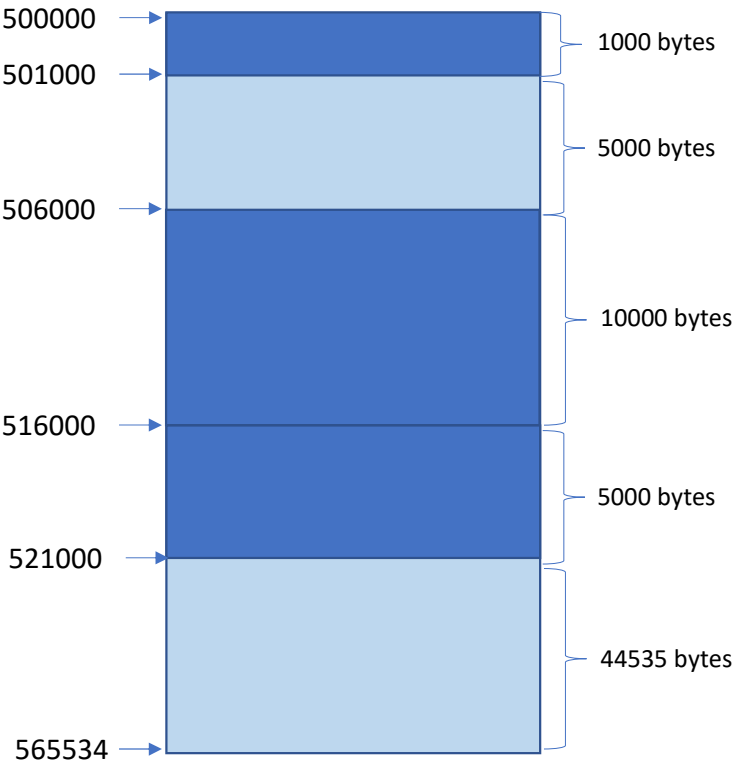LinkedList[4].in_use = 1
LinkedList[4].arena = 521000

P
H

Code

unsigned char * ptr1 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr2 = NULL;

mavalloc_init(65535, FIRST_FIT)

ptr1 = mavalloc_alloc(1000)

ptr2 = mavalloc_alloc(5000)

ptr3 = mavalloc_alloc(10000)

ptr4 = mavalloc_alloc(5000)

mavalloc_free(ptr2)

ptr2 = NULL

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	506000
ptr4	516000

Arena

500000
501000 — 1000 bytes
506000 — 5000 bytes
516000 — 10000 bytes
521000 — 5000 bytes
565534 — 44535 bytes

Changes that have occurred in Red

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 15000
LinkedList[1].type = H
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 5000
LinkedList[2].type = P
LinkedList[2].next = 3
LinkedList[2].previous = 2
LinkedList[2].in_use = 1
LinkedList[2].arena = 516000

LinkedList[3].size = 44535
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = 2
LinkedList[3].in_use = 1
LinkedList[3].arena = 521000

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
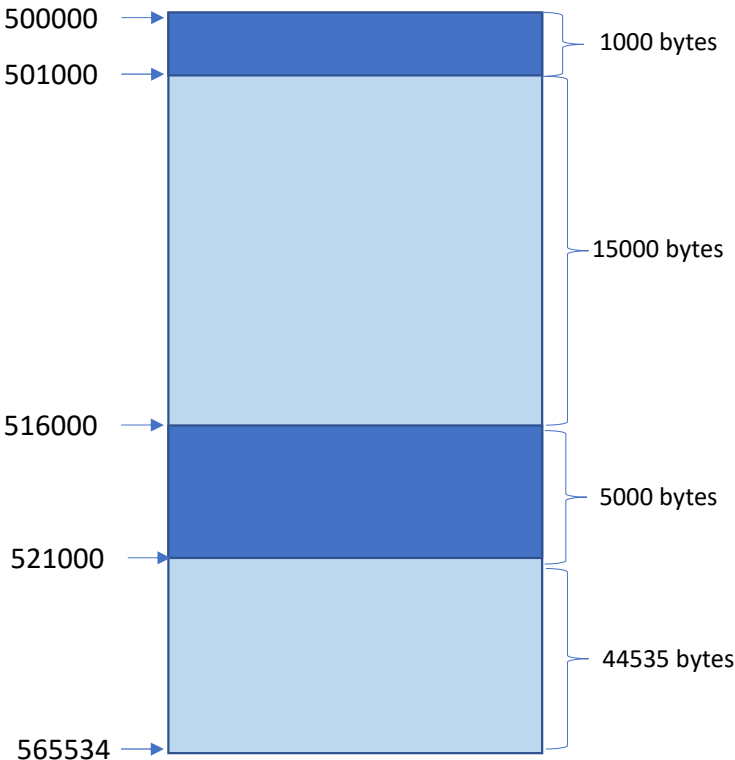LinkedList[4].in_use = 0
LinkedList[4].arena = NULL

P
H

Code

unsigned char * ptr1 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr2 = NULL;

mavalloc_init(65535, FIRST_FIT)

ptr1 = mavalloc_alloc(1000)

ptr2 = mavalloc_alloc(5000)

ptr3 = mavalloc_alloc(10000)

ptr4 = mavalloc_alloc(5000)

mavalloc_free(ptr2)

ptr2 = NULL

mavalloc_free(ptr3)

ptr3 = NULL

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	NULL
ptr4	516000

Arena

500000 → 1000 bytes
501000 →
15000 bytes
516000 → 5000 bytes
521000 →
44535 bytes
565534 →

Changes that have
occurred in Red

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 64534
LinkedList[1].type = H
LinkedList[1].next = -1
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = -1
LinkedList[2].type = H
LinkedList[2].next = -1
LinkedList[2].previous = -1
LinkedList[2].in_use = 0
LinkedList[2].arena = NULL

LinkedList[3].size = -1
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = -1
LinkedList[3].in_use = 0
LinkedList[3].arena = NULL

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
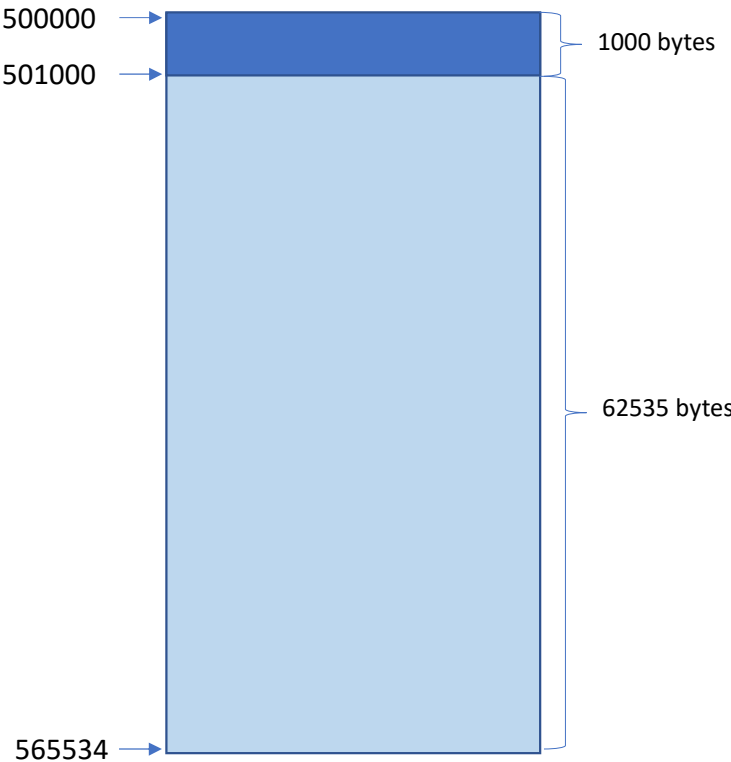LinkedList[4].in_use = 0
LinkedList[4].arena = NULL

P
H

Code

unsigned char * ptr1 = NULL;

unsigned char * ptr2 = NULL;

unsigned char * ptr2 = NULL;

mavalloc_init(65535, FIRST_FIT)

ptr1 = mavalloc_alloc(1000)

ptr2 = mavalloc_alloc(5000)

ptr3 = mavalloc_alloc(10000)

ptr4 = mavalloc_alloc(5000)

mavalloc_free(ptr2)

ptr2 = NULL

mavalloc_free(ptr3)

ptr3 = NULL

mavalloc_free(ptr4)

ptr4 = NULL

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	NULL
ptr4	NULL

Arena

500000
501000

1000 bytes

62535 bytes

565534

Changes that have
occurred in Red

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 1000
LinkedList[1].type = P
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 63535
LinkedList[2].type = H
LinkedList[2].next = -1
LinkedList[2].previous = 1
LinkedList[2].in_use = 1
LinkedList[2].arena = 502000

LinkedList[3].size = -1
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = -1
LinkedList[3].in_use = 0
LinkedList[3].arena = NULL

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
LinkedList[4].in_use = 0
LinkedList[4].arena = NULL

P
H

Code

mavalloc_free(ptr4)
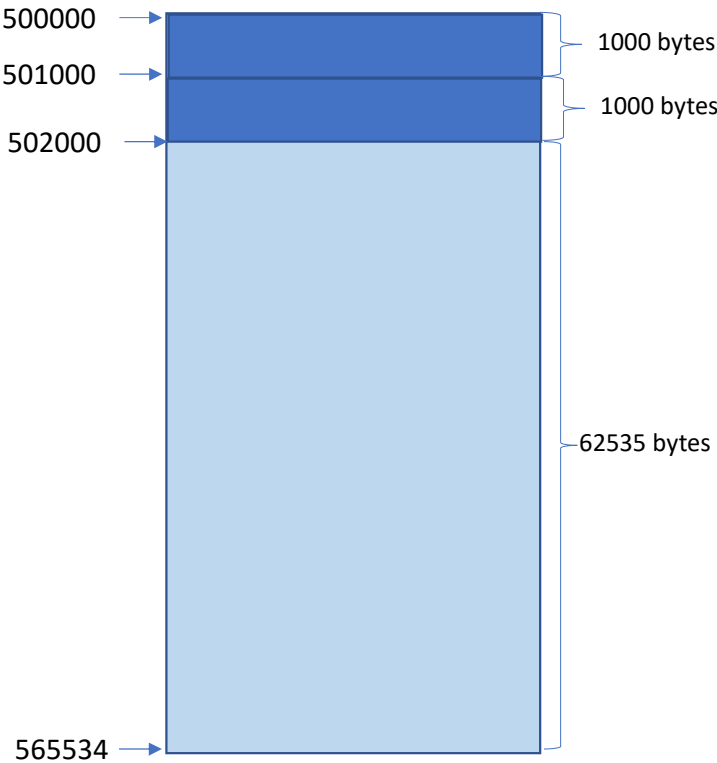
ptr4 = NULL

ptr2 = mavalloc_alloc(1000)

Trimmed some previously run code from this listing because I ran out of room.

Variable	Value
ptr1	500000
ptr2	501000
ptr3	NULL
ptr4	NULL

Arena

500000
501000
502000

1000 bytes
1000 bytes

62535 bytes

565534

Changes that have occurred in Red

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 1000
LinkedList[1].type = P
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 1000
LinkedList[2].type = P
LinkedList[2].next = 3
LinkedList[2].previous = 1
LinkedList[2].in_use = 1
LinkedList[2].arena = 502000

LinkedList[3].size = 62535
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = 2
LinkedList[3].in_use = 1
LinkedList[3].arena = 503000

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
LinkedList[4].in_use = 0
LinkedList[4].arena = NULL
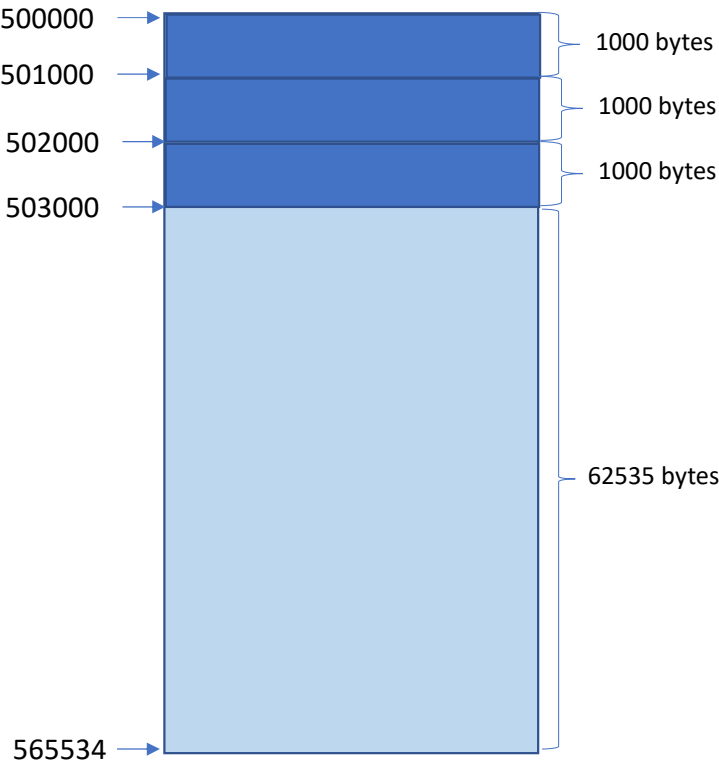
| P |
| H |

Code

mavalloc_free(ptr4)

ptr4 = NULL

ptr2 = mavalloc_alloc(1000)

ptr3 = mavalloc_alloc(1000)

Variable	Value
ptr1	500000
ptr2	501000
ptr3	502000
ptr4	NULL

Arena

500000
501000   1000 bytes
502000   1000 bytes
503000   1000 bytes

565534   62535 bytes

Changes that have
occurred in Red

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 1000
LinkedList[1].type = H
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 1000
LinkedList[2].type = P
LinkedList[2].next = 3
LinkedList[2].previous = 1
LinkedList[2].in_use = 1
LinkedList[2].arena = 502000

LinkedList[3].size = 62535
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = 2
LinkedList[3].in_use = 1
LinkedList[3].arena = 503000

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
LinkedList[4].in_use = 0
LinkedList[4].arena = NULL

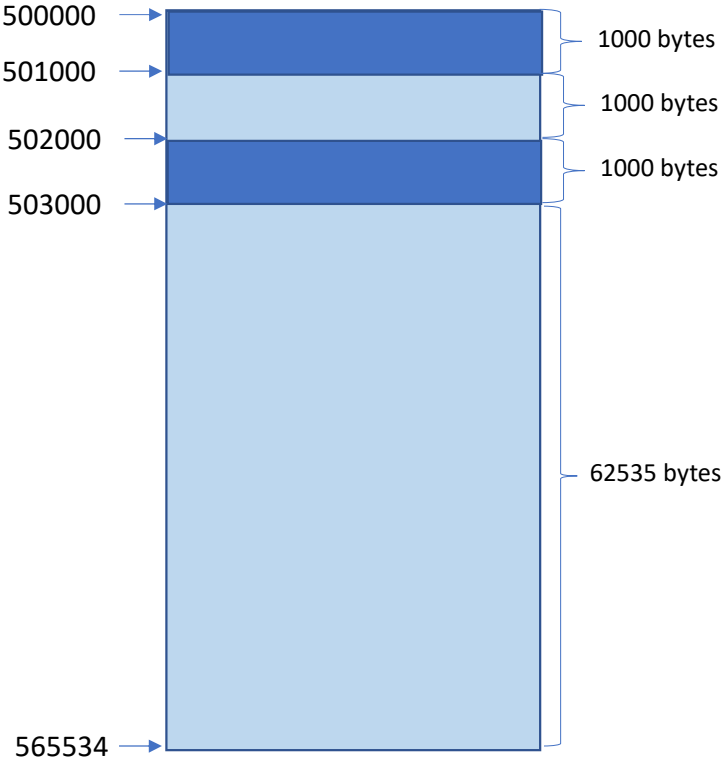| P |
|---|
| H |

Code

mavalloc_free(ptr4)

ptr4 = NULL

ptr2 = mavalloc_alloc(1000)

ptr3 = mavalloc_alloc(1000)

mavalloc_free(ptr2)

ptr2 = NULL

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	502000
ptr4	NULL

Arena

500000
501000 — 1000 bytes
502000 — 1000 bytes
503000 — 1000 bytes

62535 bytes

565534

Changes that have occurred in Red

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 500
LinkedList[1].type = P
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 500
LinkedList[2].type = H
LinkedList[2].next = 3
LinkedList[2].previous = 1
LinkedList[2].in_use = 1
LinkedList[2].arena = 501500

LinkedList[3].size = 1000
LinkedList[3].type = P
LinkedList[3].next = 4
LinkedList[3].previous = 2
LinkedList[3].in_use = 1
LinkedList[3].arena = 502000

LinkedList[4].size = 62534
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = 3
LinkedList[4].in_use =1
LinkedList[4].arena = 503000

P
H

Code

mavalloc_free(ptr4)
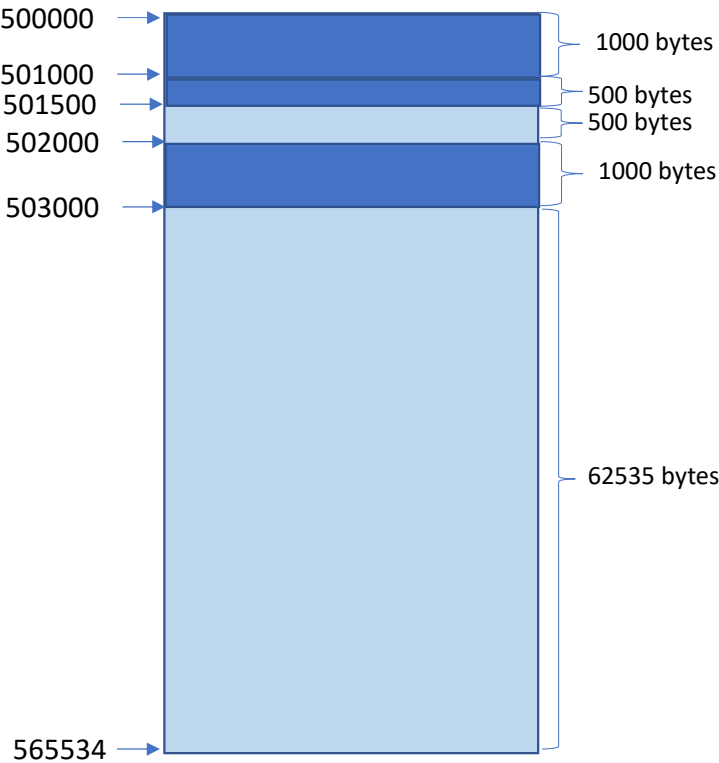
ptr4 = NULL

ptr2 = mavalloc_alloc(1000)

ptr3 = mavalloc_alloc(1000)

mavalloc_free(ptr2)

ptr2 = NULL

ptr2 = mavalloc_alloc(500)

Variable	Value
ptr1	500000
ptr2	501000
ptr3	502000
ptr4	NULL

Arena

500000
501000 — 1000 bytes
501500 — 500 bytes
502000 — 500 bytes
503000 — 1000 bytes

62535 bytes

565534

Changes that have occurred in Red

Ledger

LinkedList[0].size = 1000
LinkedList[0].type = P
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 1000
LinkedList[1].type = H
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 501000

LinkedList[2].size = 1000
LinkedList[2].type = P
LinkedList[2].next = 3
LinkedList[2].previous = 1
LinkedList[2].in_use = 1
LinkedList[2].arena = 502000

LinkedList[3].size = 62534
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = 2
LinkedList[3].in_use = 1
LinkedList[3].arena = 503000

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
LinkedList[4].in_use =0
LinkedList[4].arena = -1

P
H

Code

mavalloc_free(ptr4)

ptr4 = NULL

ptr2 = mavalloc_alloc(1000)
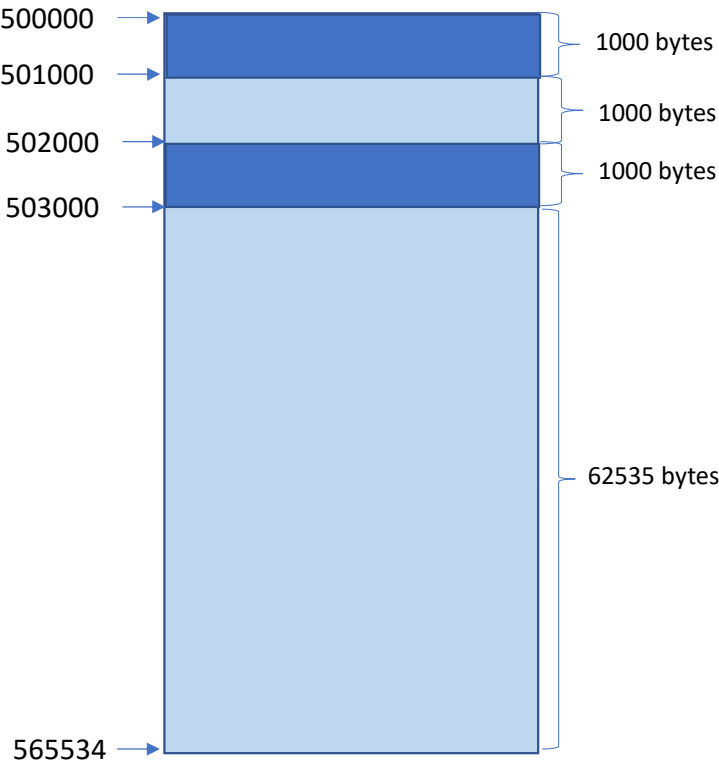
ptr3 = mavalloc_alloc(1000)

mavalloc_free(ptr2)

ptr2 = NULL

ptr2 = mavalloc_alloc(500)

mavalloc_free(ptr2)

ptr2 = NULL

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	502000
ptr4	NULL

Arena

500000

501000 — 1000 bytes

502000 — 1000 bytes

503000 — 1000 bytes

565534 — 62535 bytes

Changes that have occurred in Red

Ledger

LinkedList[0].size = 2000
LinkedList[0].type = H
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = 1000
LinkedList[1].type = P
LinkedList[1].next = 2
LinkedList[1].previous = 0
LinkedList[1].in_use = 1;
LinkedList[1].arena = 502000

LinkedList[2].size = 62534
LinkedList[2].type = H
LinkedList[2].next = 3
LinkedList[2].previous = 1
LinkedList[2].in_use = 1
LinkedList[2].arena = 500000

LinkedList[3].size = -1
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = -1
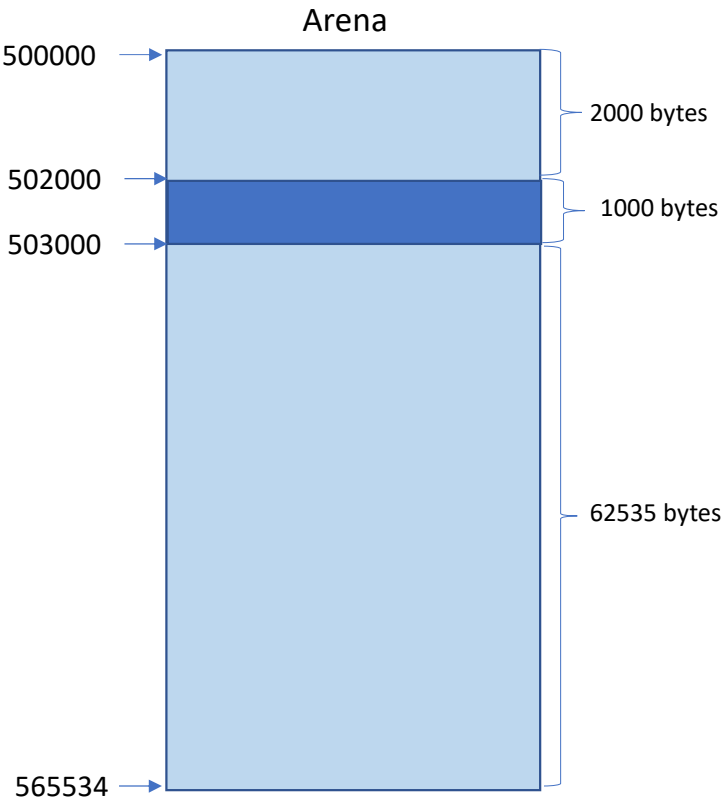LinkedList[3].in_use = 0
LinkedList[3].arena = -1

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
LinkedList[4].in_use =0
LinkedList[4].arena = -1

P
H

Code

mavalloc_free(ptr4)

ptr4 = NULL

ptr2 = mavalloc_alloc(1000)

ptr3 = mavalloc_alloc(1000)

mavalloc_free(ptr2)

ptr2 = NULL

ptr2 = mavalloc_alloc(500)

mavalloc_free(ptr2)

ptr2 = NULL

mavalloc_free(ptr1)

ptr1 = NULL

Variable	Value
ptr1	NULL
ptr2	NULL
ptr3	502000
ptr4	NULL

Arena

500000

2000 bytes

502000

1000 bytes

503000

62535 bytes

565534

Changes that have occurred in Red

Ledger

LinkedList[0].size = 65535
LinkedList[0].type = H
LinkedList[0].next = 1
LinkedList[0].previous = -1
LinkedList[0].in_use = 1;
LinkedList[0].arena = 500000

LinkedList[1].size = -1
LinkedList[1].type = H
LinkedList[1].next = -1
LinkedList[1].previous = -1
LinkedList[1].in_use =0
LinkedList[1].arena = -1

LinkedList[2].size = -1
LinkedList[2].type = H
LinkedList[2].next = -1
LinkedList[2].previous = -1
LinkedList[2].in_use =0
LinkedList[2].arena = -1

LinkedList[3].size = -1
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = -1
LinkedList[3].in_use =0
LinkedList[4].arena = -1

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
LinkedList[4].in_use =0
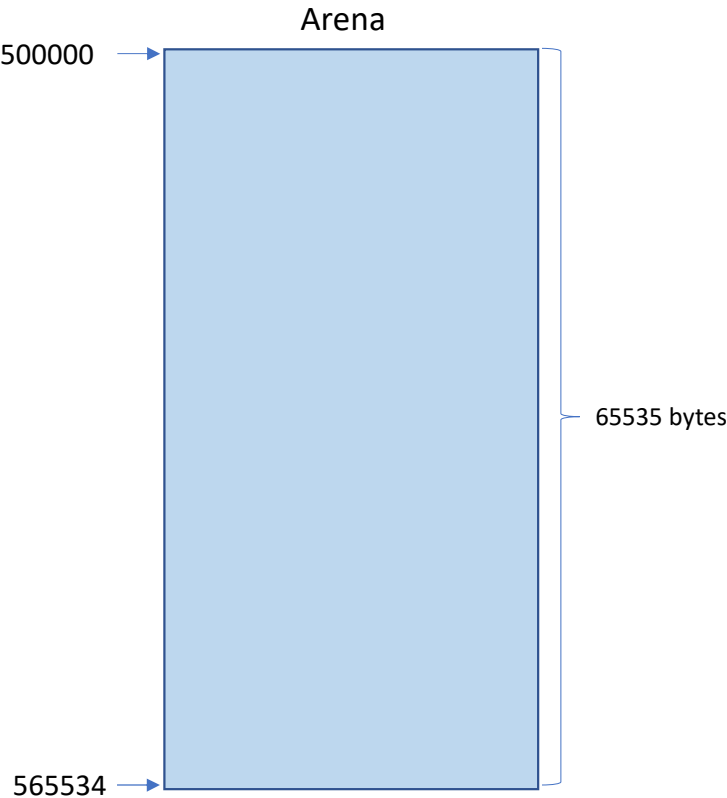LinkedList[4].arena = -1

P
H

Code

mavalloc_free(ptr4)

ptr4 = NULL

ptr2 = mavalloc_alloc(1000)

ptr3 = mavalloc_alloc(1000)

mavalloc_free(ptr2)

ptr2 = NULL

ptr2 = mavalloc_alloc(500)

mavalloc_free(ptr2)

ptr2 = NULL

mavalloc_free(ptr1)

ptr1 = NULL

mavalloc_free(ptr3)

ptr3 = NULL

Variable	Value
ptr1	NULL
ptr2	NULL
ptr3	NULL
ptr4	NULL

Arena

500000

65535 bytes

565534

Changes that have occurred in Red

Ledger

LinkedList[0].size = -1
LinkedList[0].type = H
LinkedList[0].next = -1
LinkedList[0].previous = -1
LinkedList[0].in_use =0
LinkedList[0].arena = -1

LinkedList[1].size = -1
LinkedList[1].type = H
LinkedList[1].next = -1
LinkedList[1].previous = -1
LinkedList[1].in_use =0
LinkedList[1].arena = -1

LinkedList[2].size = -1
LinkedList[2].type = H
LinkedList[2].next = -1
LinkedList[2].previous = -1
LinkedList[2].in_use =0
LinkedList[2].arena = -1

LinkedList[3].size = -1
LinkedList[3].type = H
LinkedList[3].next = -1
LinkedList[3].previous = -1
LinkedList[3].in_use =0
LinkedList[4].arena = -1

LinkedList[4].size = -1
LinkedList[4].type = H
LinkedList[4].next = -1
LinkedList[4].previous = -1
LinkedList[4].in_use =0
LinkedList[4].arena = -1

P
H

Code

mavalloc_free(ptr4)

ptr4 = NULL

ptr2 = mavalloc_alloc(1000)

ptr3 = mavalloc_alloc(1000)

mavalloc_free(ptr2)

ptr2 = NULL

ptr2 = mavalloc_alloc(500)

mavalloc_free(ptr2)

ptr2 = NULL

mavalloc_free(ptr1)

ptr1 = NULL

mavalloc_free(ptr3)

ptr3 = NULL

mavalloc_destroy()

Variable	Value
ptr1	NULL
ptr2	NULL
ptr3	NULL
ptr4	NULL

Arena

Changes that have occurred in Red