

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
memalloc_init(65535, BEST_FIT)

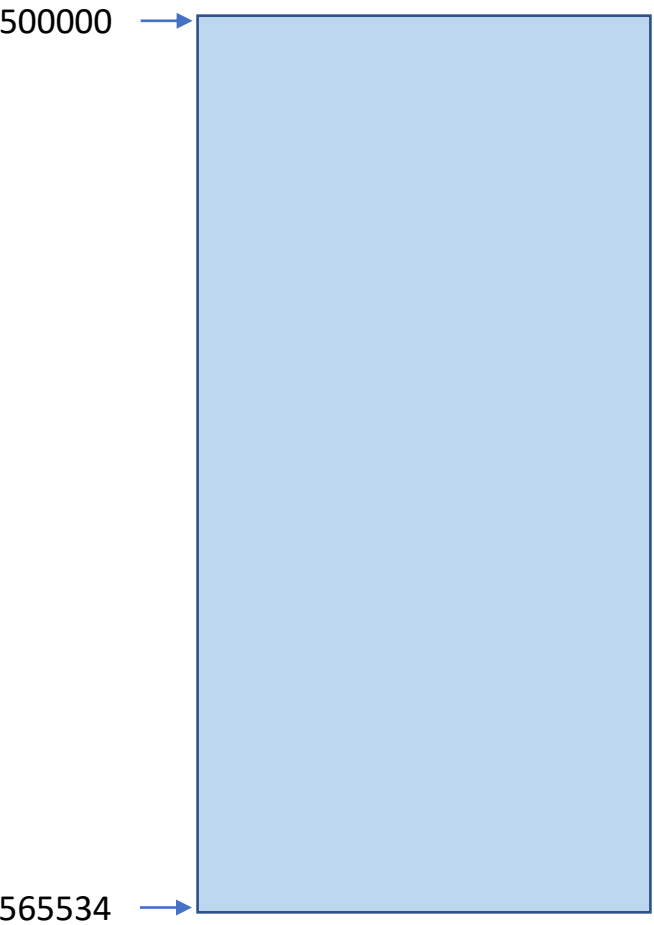


Code

```
unsigned char * ptr1 = NULL;  
unsigned char * ptr2 = NULL;  
unsigned char * ptr3 = NULL;  
unsigned char * ptr4 = NULL;  
memalloc_init(65535, BEST_FIT)
```

Variable	Value
ptr1	NULL
ptr2	NULL
ptr3	NULL
Ptr4	NULL

Arena



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

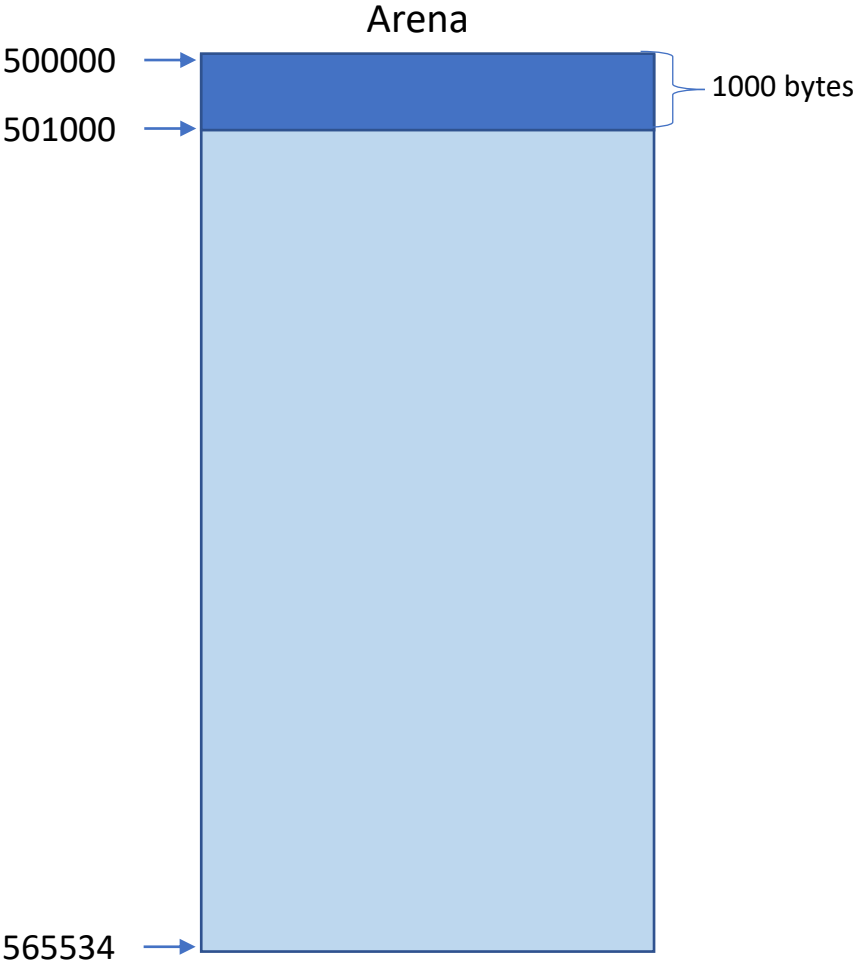
Changes that have occurred in Red

P
H

Code

```
unsigned char * ptr1 = NULL;  
unsigned char * ptr2 = NULL;  
unsigned char * ptr2 = NULL;  
unsigned char * ptr3 = NULL;  
  
memalloc_init(65535, BEST_FIT)  
  
ptr1 = memalloc_alloc(1000) [ returns 500000]
```

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	NULL
Ptr4	NULL



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

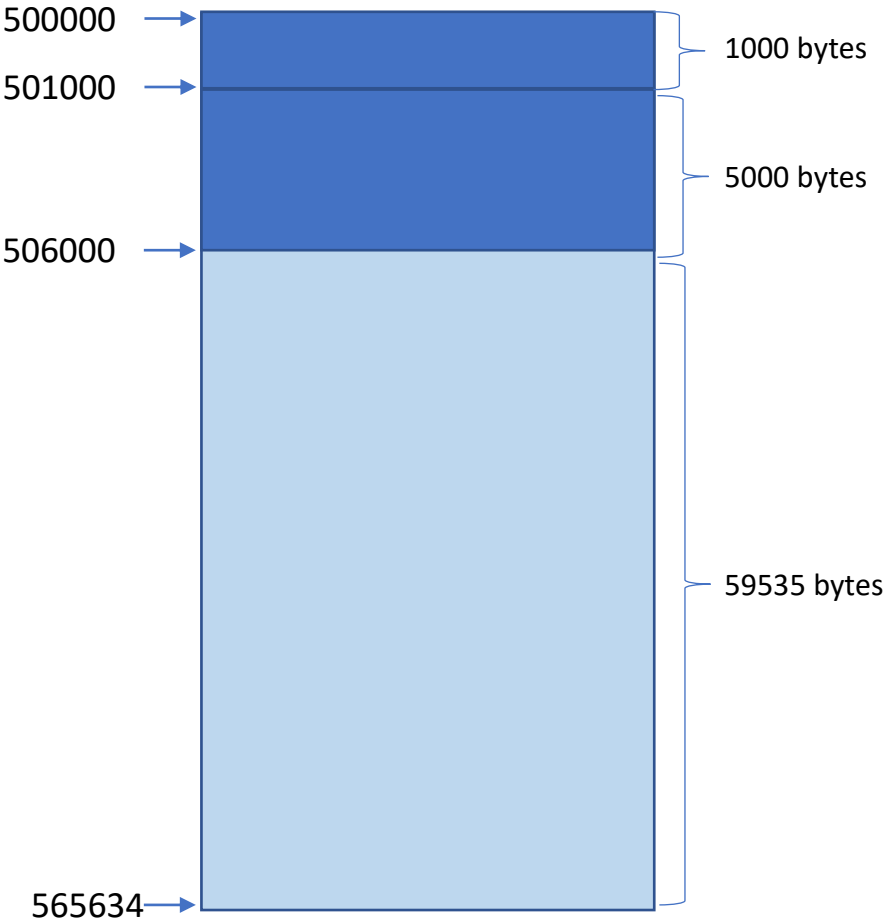
P
H

Code

```
unsigned char * ptr1 = NULL;  
unsigned char * ptr2 = NULL;  
unsigned char * ptr2 = NULL;  
memalloc_init(65535, BEST_FIT)  
ptr1 = memalloc_alloc(1000)  
ptr2 = memalloc_alloc(5000) [ returns 501000]
```

Variable	Value
ptr1	500000
ptr2	501000
ptr3	NULL
ptr4	NULL

Arena



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

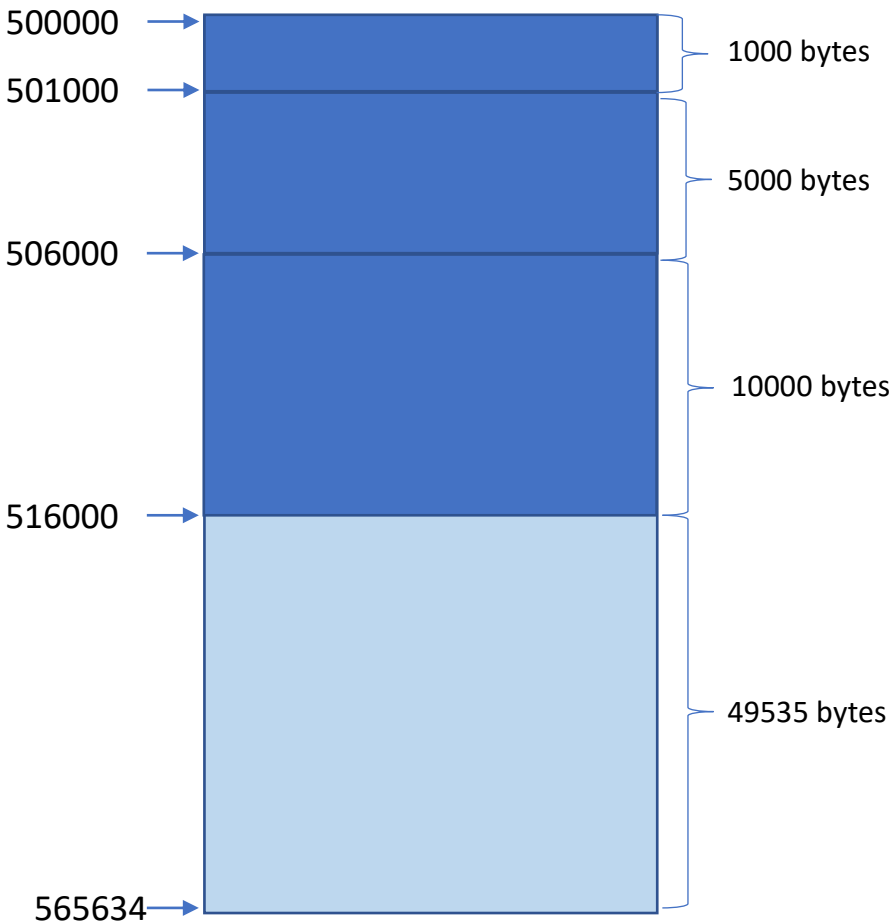


Code

```
unsigned char * ptr1 = NULL;  
unsigned char * ptr2 = NULL;  
unsigned char * ptr2 = NULL;  
memalloc_init(65535, FIRST_FIT)  
ptr1 = memalloc_alloc(1000)  
ptr2 = memalloc_alloc(5000)  
ptr3 = memalloc_alloc(10000) [ returns 506000]
```

Variable	Value
ptr1	500000
ptr2	501000
ptr3	506000
ptr4	NULL

Arena



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

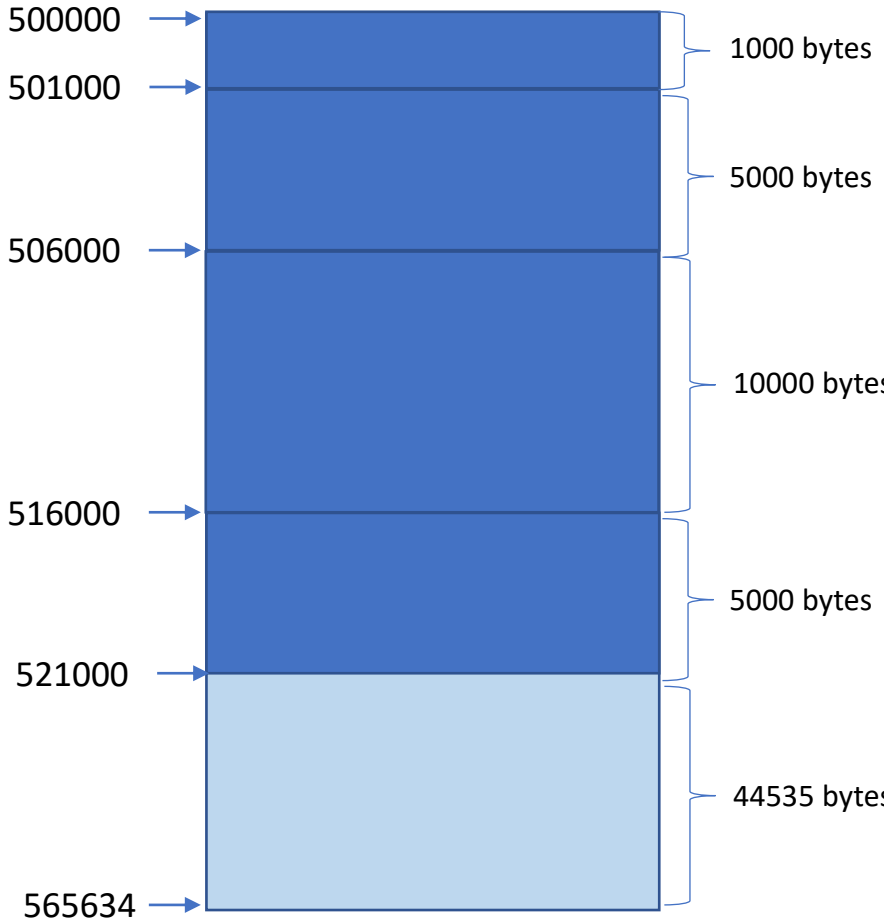


Code

```
unsigned char * ptr1 = NULL;  
unsigned char * ptr2 = NULL;  
unsigned char * ptr2 = NULL;  
memalloc_init(65535, FIRST_FIT)  
ptr1 = memalloc_alloc(1000)  
ptr2 = memalloc_alloc(5000)  
ptr3 = memalloc_alloc(10000)  
ptr4 = memalloc_alloc(5000) [ returns 516000]
```

Variable	Value
ptr1	500000
ptr2	501000
ptr3	506000
ptr4	516000

Arena



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**

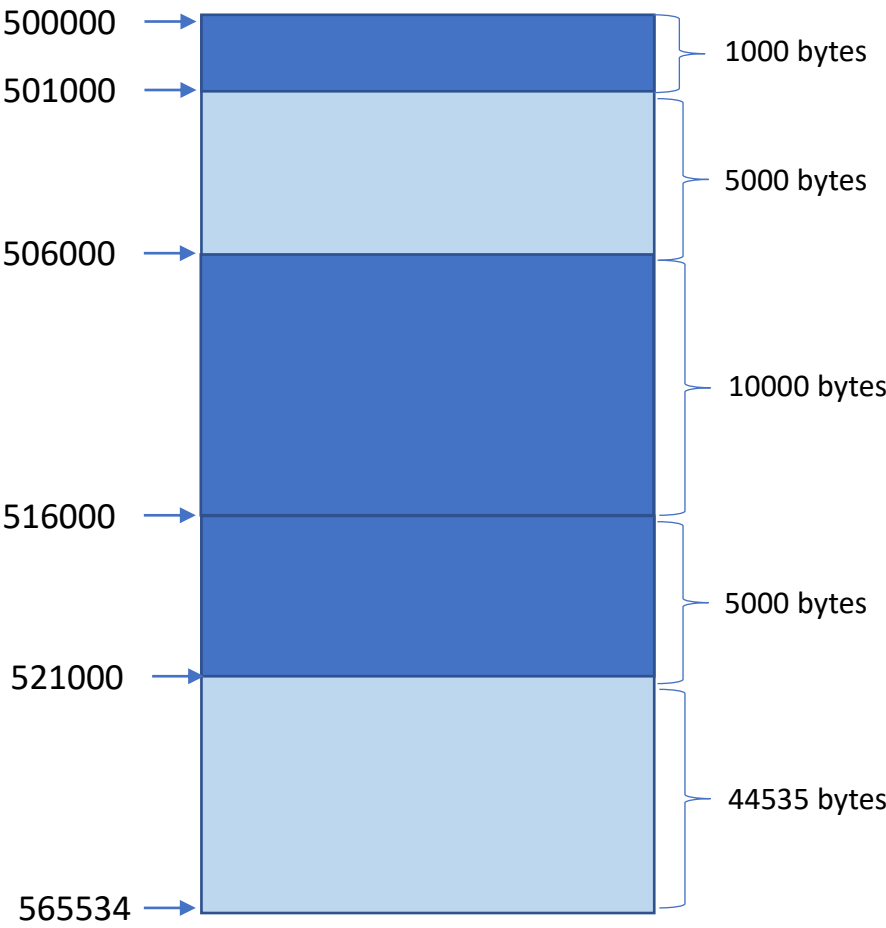


Code

```
unsigned char * ptr1 = NULL;  
unsigned char * ptr2 = NULL;  
unsigned char * ptr2 = NULL;  
memalloc_init(65535, FIRST_FIT)  
ptr1 = memalloc_alloc(1000)  
ptr2 = memalloc_alloc(5000)  
ptr3 = memalloc_alloc(10000)  
ptr4 = memalloc_alloc(5000)  
  
memalloc_free( ptr2 )  
  
ptr2 = NULL
```

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	506000
ptr4	516000

Arena



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

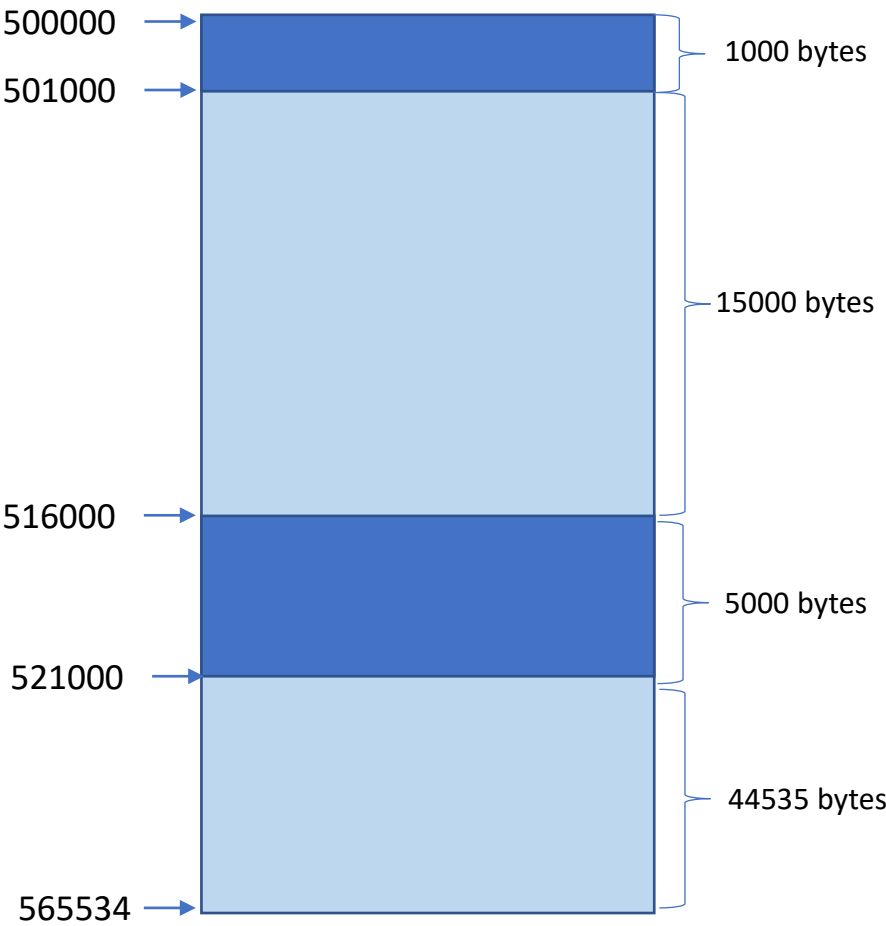


Code

```
unsigned char * ptr1 = NULL;  
unsigned char * ptr2 = NULL;  
unsigned char * ptr2 = NULL;  
memalloc_init(65535, FIRST_FIT)  
ptr1 = memalloc_alloc(1000)  
ptr2 = memalloc_alloc(5000)  
ptr3 = memalloc_alloc(10000)  
ptr4 = memalloc_alloc(5000)  
memalloc_free( ptr2 )  
ptr2 = NULL  
memalloc_free( ptr3 )  
ptr3 = NULL
```

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	NULL
ptr4	516000

Arena



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
```

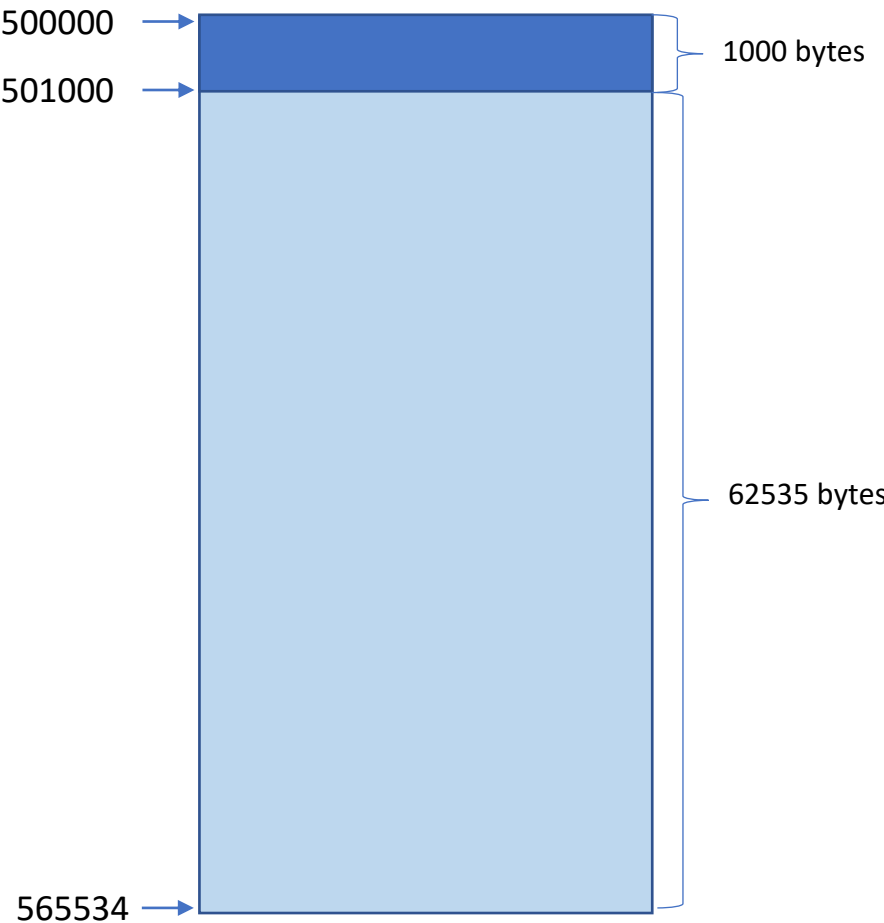


Code

```
unsigned char * ptr1 = NULL;
unsigned char * ptr2 = NULL;
unsigned char * ptr2 = NULL;
memalloc_init(65535, FIRST_FIT)
ptr1 = memalloc_alloc(1000)
ptr2 = memalloc_alloc(5000)
ptr3 = memalloc_alloc(10000)
ptr4 = memalloc_alloc(5000)
memalloc_free( ptr2 )
ptr2 = NULL
memalloc_free( ptr3 )
ptr3 = NULL
memalloc_free( ptr4 )
ptr4 = NULL
```

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	NULL
ptr4	NULL

Arena



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
```



Code

```
memalloc_free( ptr4 )

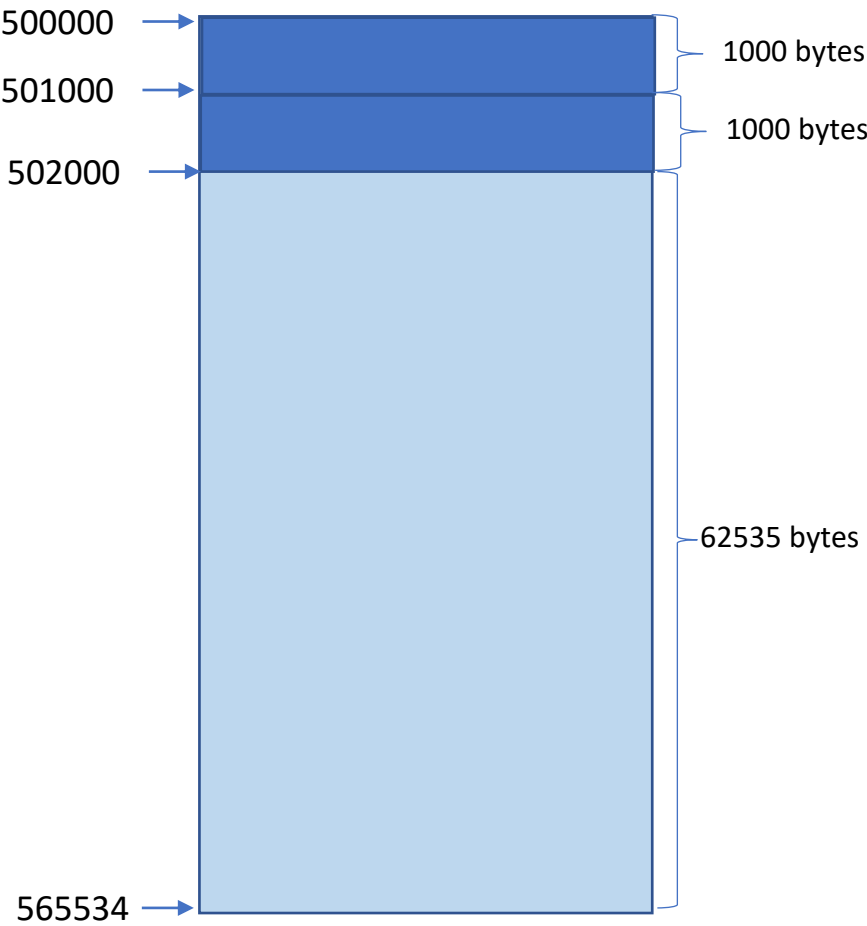
ptr4 = NULL

ptr2 = memalloc_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



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
```



Code

```
memalloc_free( ptr4 )

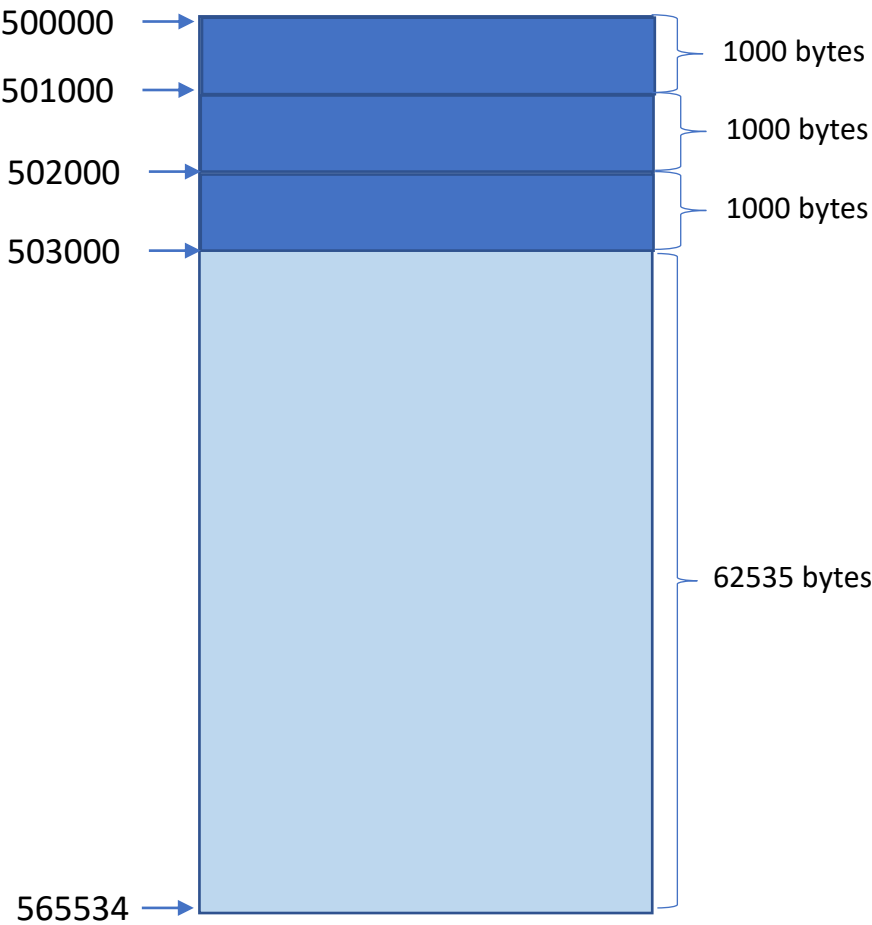
ptr4 = NULL

ptr2 = memalloc_alloc(1000)

ptr3 = memalloc_alloc(1000)
```

Variable	Value
ptr1	500000
ptr2	501000
ptr3	502000
ptr4	NULL

Arena



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
```



Code

```
memalloc_free( ptr4 )

ptr4 = NULL

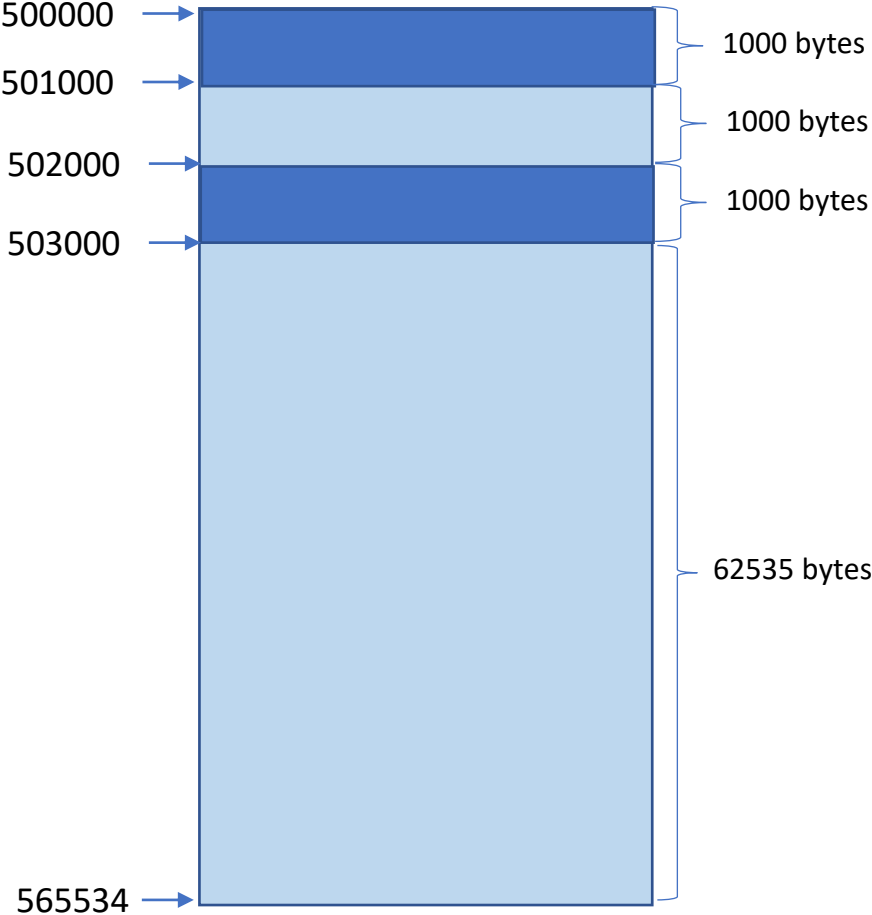
ptr2 = memalloc_alloc(1000)
ptr3 = memalloc_alloc(1000)

memalloc_free(ptr2)

ptr2 = NULL
```

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	502000
ptr4	NULL

Arena



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
```



Code

```
memalloc_free( ptr4 )

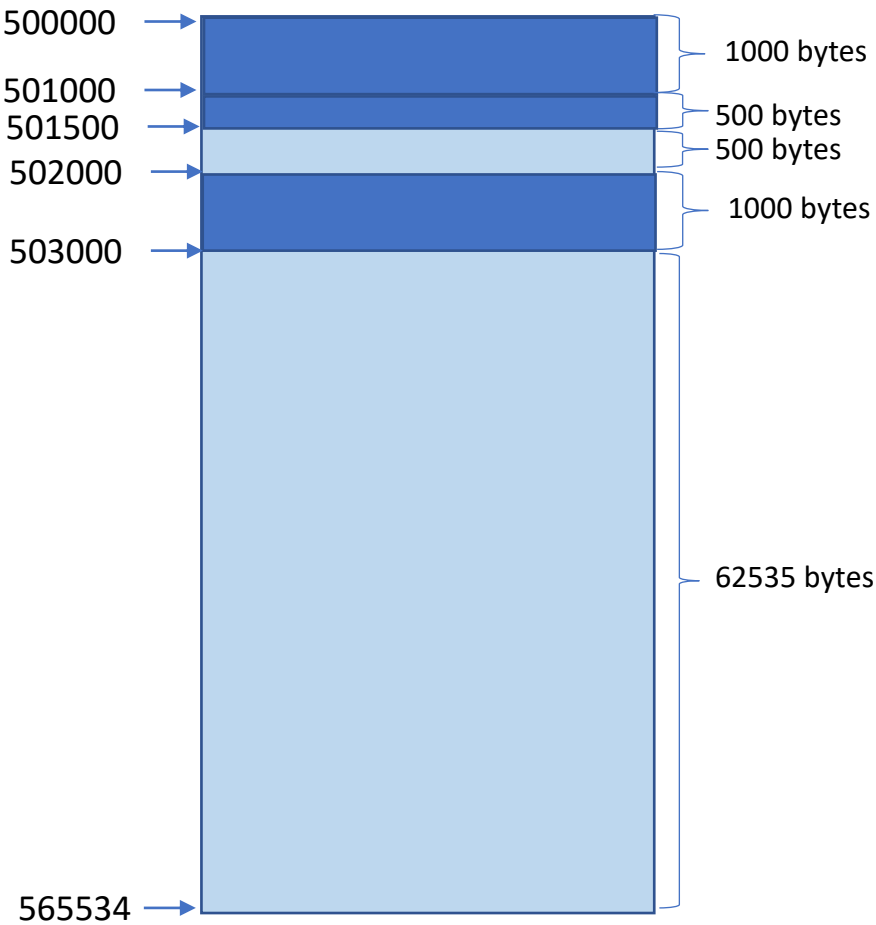
ptr4 = NULL

ptr2 = memalloc_alloc(1000)
ptr3 = memalloc_alloc(1000)
memalloc_free(ptr2)
ptr2 = NULL

ptr2 = memalloc_alloc(500)
```

Variable	Value
ptr1	500000
ptr2	501000
ptr3	502000
ptr4	NULL

Arena



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
```

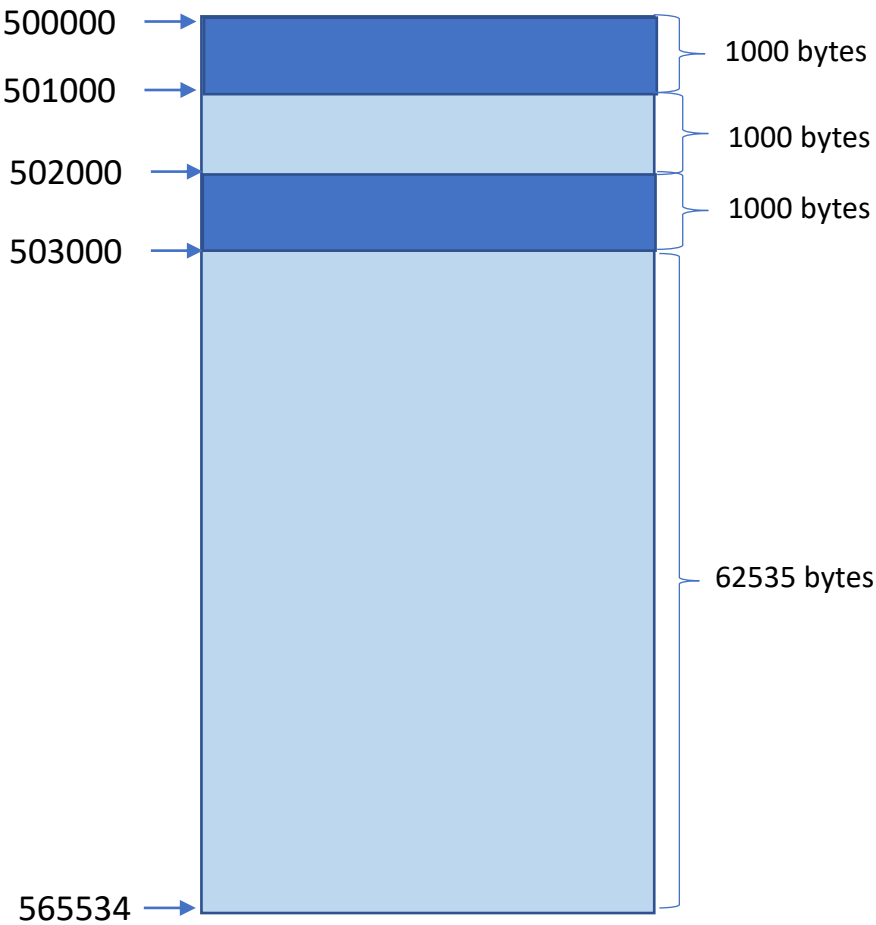


Code

```
memalloc_free( ptr4 )
ptr4 = NULL
ptr2 = memalloc_alloc(1000)
ptr3 = memalloc_alloc(1000)
memalloc_free(ptr2)
ptr2 = NULL
ptr2 = memalloc_alloc(500)
memalloc_free(ptr2)
ptr2 = NULL
```

Variable	Value
ptr1	500000
ptr2	NULL
ptr3	502000
ptr4	NULL

Arena



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
```

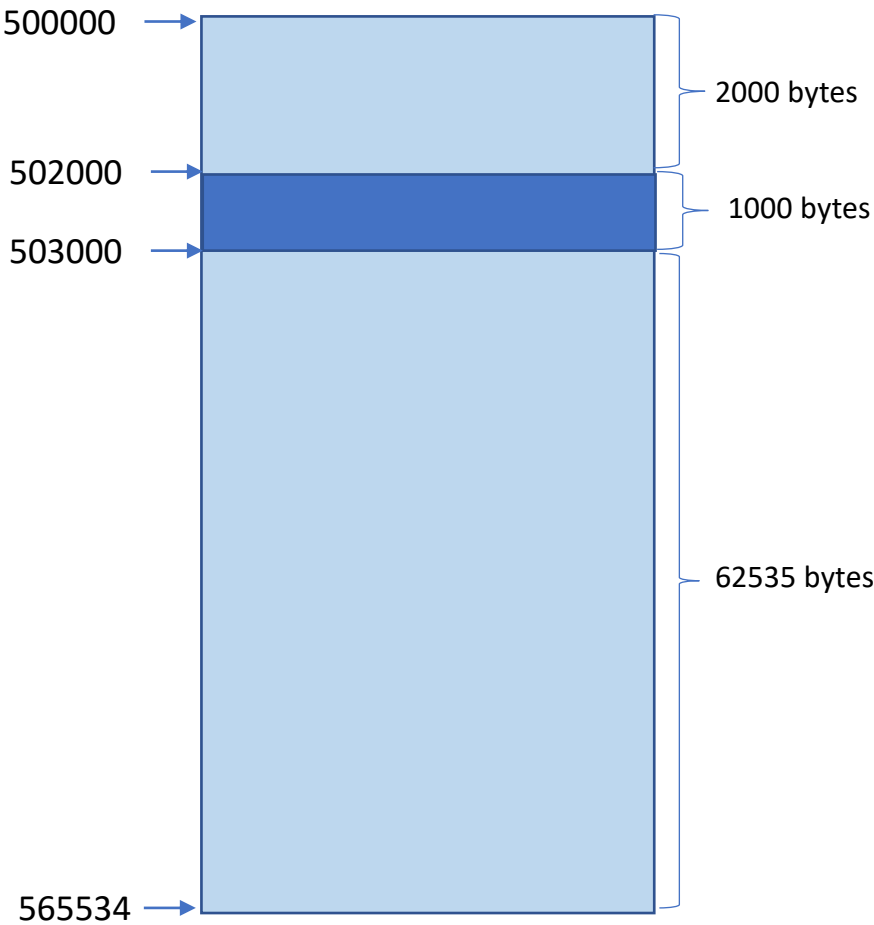


Code

```
memalloc_free( ptr4 )
ptr4 = NULL
ptr2 = memalloc_alloc(1000)
ptr3 = memalloc_alloc(1000)
memalloc_free(ptr2)
ptr2 = NULL
ptr2 = memalloc_alloc(500)
memalloc_free(ptr2)
ptr2 = NULL
memalloc_free(ptr1)
ptr1 = NULL
```

Variable	Value
ptr1	NULL
ptr2	NULL
ptr3	502000
ptr4	NULL

Arena



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[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
```

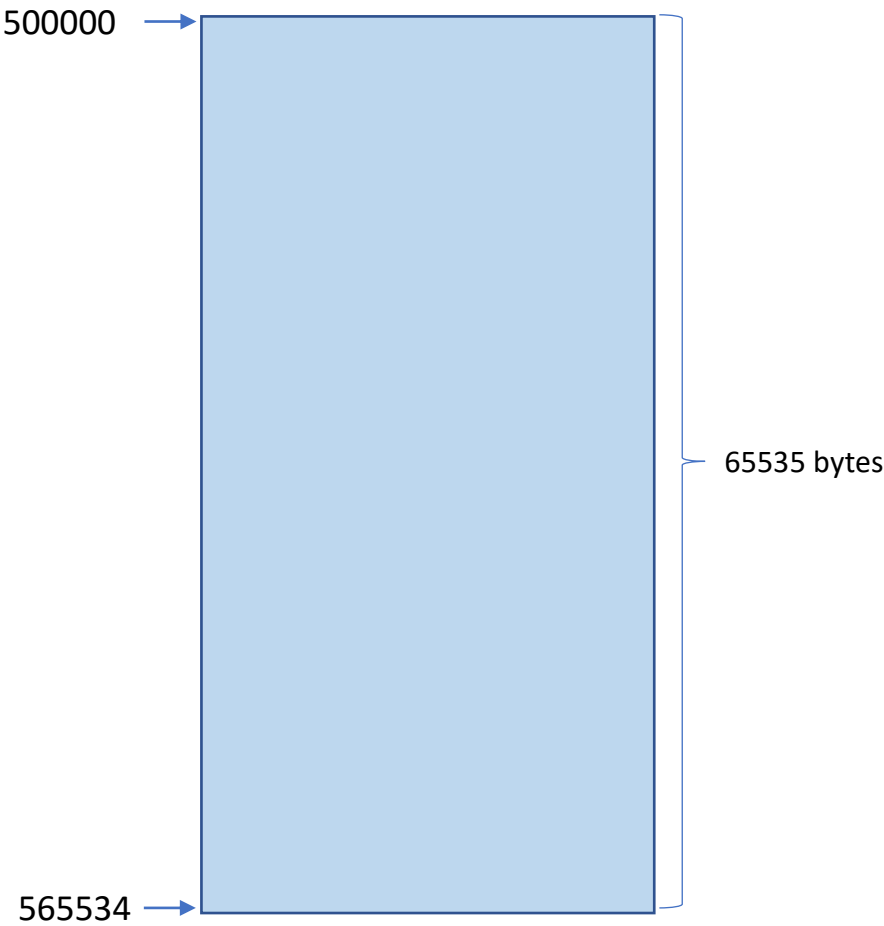


Code

```
memalloc_free( ptr4 )
ptr4 = NULL
ptr2 = memalloc_alloc(1000)
ptr3 = memalloc_alloc(1000)
memalloc_free(ptr2)
ptr2 = NULL
ptr2 = memalloc_alloc(500)
memalloc_free(ptr2)
ptr2 = NULL
memalloc_free(ptr1)
ptr1 = NULL
memalloc_free(ptr3)
ptr3 = NULL
```

Variable	Value
ptr1	NULL
ptr2	NULL
ptr3	NULL
ptr4	NULL

Arena



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[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

```
memalloc_free( ptr4 )  
  
ptr4 = NULL  
  
ptr2 = memalloc_alloc(1000)  
  
ptr3 = memalloc_alloc(1000)  
  
memalloc_free(ptr2)  
  
ptr2 = NULL  
  
ptr2 = memalloc_alloc(500)  
  
memalloc_free(ptr2)  
  
ptr2 = NULL  
  
memalloc_free(ptr1)  
  
ptr1 = NULL  
  
memalloc_free(ptr3)  
  
ptr3 = NULL  
  
memalloc_destroy()
```

Variable	Value
ptr1	NULL
ptr2	NULL
ptr3	NULL
ptr4	NULL

Arena

Changes that have occurred in Red