

Re: malloc

Source: http://coding.derkeiler.com/Archive/C_CPP/comp.lang.c/2006-12/msg01341.html

- *From:* milinddeore@xxxxxxxxx
 - *Date:* 6 Dec 2006 06:36:51 -0800
-

santosh wrote:

ramu wrote:

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ramu wrote:

Hi,
Will the memory allocated by malloc and
realloc be contiguous?

regards

Do you mean across separate calls? If so, then no. The
standard makes
no such guarantee. If you want such a feature, (why?), then
you'll have
to roll your own allocator.

If I use both the calls ie. malloc and realloc together, how the allocated
memory will be
ie. contiguous or not?

Please fix your quoting. You're quoting your own text.

You need to be more specific. As I mentioned earlier, for any single
allocation of malloc() or calloc() or realloc(), the bytes of the
allocated memory can be regarded as contiguous. But this can't be
assumed for separate blocks of allocated memory, unless they were
originally allocated as a single block and later on divided up by
pointers into logically separate blocks.

1.
`int *p = malloc(100 * sizeof *p);`

Re: malloc

Here the 100 int's pointed to by p can be regarded as contiguous. i.e. pointer arithmetic will work as expected.

2.

```
double *d1 = malloc(100 * sizeof *d1);
```

```
double *d2 = realloc(d2, 100 * sizeof *d2);
```

Here the elements of d1 have no necessary relationship with elements of d2, i.e. pointer arithmetic will not work across them, though within each block, elements can be regarded as contiguous.

3.

```
unsigned char *p = malloc(100);
```

```
p = realloc(p, 200);
```

Again, an old pointer value, valid for the first allocation of p, will not be valid when p has been reallocated, (unless of course, realloc() fails).

4.

```
long *b = malloc(1000 * sizeof *b);
```

```
long *b1 = b, *b2 = b+250, *b3 = b2+500;
```

Here, b1, b2 and b3 point to logically separate blocks of memory, but since you've partitioned them from a single call to malloc(), they can all be regarded as contiguous with each other, in the proper order, as long as you don't reallocate or move any of the blocks.

\$\$ Good mathematics, but of no use. What if brk/sbrk gives new pages, as the old page is over. For your information pages are just the virtual mapping and not guaranteed that they will come contiguous memory manner.

HTH