
Subject: Re: Core 2019

Posted by [mirek](#) on Sun, 09 Jun 2019 21:25:20 GMT

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Here is the code for logging all huge allocations (replace in Core/hheap.cpp):

```
void *Heap::HugeAlloc(size_t count) // count in 4kb pages
{
    ASSERT(count);

#ifdef LSTAT
    if(count < 65536)
        hstat[count]++;
#endif

    huge_4KB_count += count;

    if(huge_4KB_count > huge_4KB_count_max) {
        huge_4KB_count_max = huge_4KB_count;
        if(MemoryUsedKb() > sKBLimit)
            Panic("MemoryLimitKb breached!");
        if(sPeak)
            Make(*sPeak);
    }

    if(!D::freelist[0]->next) { // initialization
        for(int i = 0; i < 2; i++)
            Dbl_Self(D::freelist[i]);
    }

    if(count > HPAGE) { // we are wasting 4KB to store just 4 bytes here, but this is >32MB after all..
        LTIMING("SysAlloc");
        byte *sysblk = (byte *)SysAllocRaw((count + 1) * 4096, 0);
        BlkHeader *h = (BlkHeader *)(sysblk + 4096);
        h->size = 0;
        *((size_t *)sysblk) = count;
        sys_count++;
        sys_size += 4096 * count;
        return h;
    }

    LTIMING("Huge Alloc");

    word wcount = (word)count;

    if(16 * free_4KB > huge_4KB_count) // keep number of free 4KB blocks in check
```

```

FreeSmallEmpty(INT_MAX, int(free_4KB - huge_4KB_count / 32));

for(int pass = 0; pass < 2; pass++) {
    for(int i = count >= 16; i < 2; i++) {
        BlkHeader *l = D::freelist[i];
        BlkHeader *h = l->next;
        while(h != l) {
            word sz = h->GetSize();
            if(sz >= count) {
                void *ptr = MakeAlloc(h, wcount);
                if(count > 16)
                    RLOG("HugeAlloc " << asString(ptr) << ", size: " << asString(count));
                return ptr;
            }
            h = h->next;
        }
    }
}

if(!FreeSmallEmpty(wcount, INT_MAX)) { // try to coalesce 4KB small free blocks back to huge
storage
    void *ptr = SysAllocRaw(HPAGE * 4096, 0);
    HugePage *pg = (HugePage *)MemoryAllocPermanent(sizeof(HugePage));
    pg->page = ptr;
    pg->next = huge_pages;
    huge_pages = pg;
    AddChunk((BlkHeader *)ptr, HPAGE); // failed, add 32MB from the system
    huge_chunks++;
}
}
Panic("Out of memory");
return NULL;
}

int Heap::HugeFree(void *ptr)
{
    BlkHeader *h = (BlkHeader *)ptr;
    if(h->size == 0) {
        LTIMING("Sys Free");
        byte *sysblk = (byte *)h - 4096;
        size_t count = *((size_t *)sysblk);
        SysFreeRaw(sysblk, (count + 1) * 4096);
        huge_4KB_count -= count;
        sys_count--;
        sys_size -= 4096 * count;
        return 0;
    }
    LTIMING("Huge Free");
    if(h->GetSize() > 16)

```

```
RLOG("HugeFree " << asString(ptr) << ", size: " << asString(h->GetSize()));  
huge_4KB_count -= h->GetSize();  
return BlkHeap::Free(h)->GetSize();  
}
```

```
bool Heap::HugeTryRealloc(void *ptr, size_t count)  
{  
    bool b = count <= HPAGE && BlkHeap::TryRealloc(ptr, count, huge_4KB_count);  
    if(b)  
        RLOG("HugeRealloc " << asString(ptr) << ", size: " << asString(count));  
    return b;  
}
```

(please test with active MemoryTryRealloc)
