

vmem.library AutoDocs(tm)

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Chapter 1

vmem.library AutoDocs(tm)

1.1 main

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```

1.2 background

?vmem.library/--background---

vmem.library/--background---

THE ** VIRTUAL MEMORY ** LIBRARY

(VERSION 1)

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These are the autodocs for programming vmem.library. VMem is a very simple set of six (6) functions, and four (4) macros. All you need to do to use VMem is :

- * Call vmAllocBlock (or use the macro vmAllocData) to get a control handle. (This is used by VMem to keep track of what's happening to your data).

- * Call `vmLock` (or use the macro `vmLockData`) to get a lock on the data you wanna use at that time.
- * Access your data.
- * Call `vmUnLock` (or use the macro `vmUnLockData`) to unlock the data again.
- * Call `vmFreeBlock` (or use the macro `vmFreeData`) to free the control handle you got by calling `vmAllocBlock` (or using `vmAllocData`)

The macro versions of the four functions just a simple way to alloc one element of data without the extra args required by the functions. (The functions have extra options to cope with array use.

The other two (2) functions are replacements for `exec.library's AllocMem()` and `FreeMem()` functions. They provide a few more functions than `exec's` versions, including flushing Virtual Memory if `exec's AllocMem` would normally fail.

See the individual autodocs below for a more detailed explanation.

1.3 vmallocblock

?vmem.library/vmAllocBlock

vmem.library/vmAllocBlock

NAME

`vmAllocBlock`

SYNOPSIS

```
vmBlock *vmb = vmAllocBlock(ULONG size,ULONG nels,ULONG memflags)
                        d0                d1                d2
```

FUNCTION

Allocates a `vmBlock` for control of data which will use virtual memory.

INPUTS

`size:`
 - size of each element in array
`nels:`
 - number of elements in array
`memflags:`
 - standard `exec.library/AllocMem()` memory attribute flags

RESULT

`vmb:`
 - Virtual memory control handle (`vmBlock`). This block stores information about your data, and is passed to the other virtual memory functions to let them know what state your data is in.

EXAMPLE

```
vmBlock *vmb;
struct Preferences *prefs_ptr; /*largest structure I could think of*/
ULONG i;
...

if(!(vmb = vmAllocBlock(sizeof(struct Preferences),10,MEMF_PUBLIC))
{
    /* vmAllocBlock failed - you're either *VERY* low on memory,
    or the the path that vmem.library is using is full */

    ...

}else
{
    for(i=0;i<NUM_ELS;i++)
    {
        if(!(prefs_ptr = vmLock(vmb,i))
        {
            /* data lock failed - disk error , or VERY low on mem */
            ....

        }else
        {
            /* you've got your data,do whatever you want with it */

            ....

            /* unlock the data when you've finished with it,so vmem
            will know when it's not in use */

            vmUnLock(vmb,i);

        }
    };

    /* when you've finished with all the data, free the control
    block */

    vmFreeBlock(vmb);
};
```

NOTES

BUGS

Doesn't handle saving across multiple disks/devices yet.

SEE ALSO

vmFreeBlock, vmLock, vmUnLock, vmAllocData

exec.library/AllocMem autodoc (for memory flag definitions)

1.4 vmallocdata

?vmem.library/vmAllocData

vmem.library/vmAllocData

NAME

vmAllocData (MACRO)

SYNOPSIS

```
vmBlock *b = vmAllocData(ULONG blocksize,ULONG memflags);
```

FUNCTION

This is defined in Libraries/VMem.h as

```
vmAllocBlock(blocksize,1,memflags)
```

It just Allocates a vmBlock which isn't an array,i.e. Only contains one element.See that function's autodoc for details.

INPUTS

RESULT

EXAMPLE

NOTES

BUGS

SEE ALSO

vmAllocBlock, vmLockData,vmUnLockData,vmFreeData

1.5 vmallocmem

?vmem.library/vmAllocMem

vmem.library/vmAllocMem

NAME

vmAllocMem

SYNOPSIS

```
VOID *memptr = vmAllocMem(ULONG size,ULONG attrs)
                        d0                d1
```

FUNCTION

Identical to exec.library/AllocMem except does extra checking and vmem flushing if needed.

INPUTS

Identical to `exec.library/AllocMem`. See that function's autodoc for more information.

RESULT

result:

- Pointer to memory which was allocated, or NULL if something went wrong.

EXAMPLE

NOTES

BUGS

SEE ALSO

`vmFreeMem`, `exec.library/AllocMem`.

1.6 vmflush

?vmem.library/vmFlush

vmem.library/vmFlush

NAME

`vmFlush`

SYNOPSIS

```
ULONG memflushed = vmFlush(ULONG memneeded, ULONG memflags);
                        d0                d0                d1
```

FUNCTION

Flushes required amount unused virtual memory from the system.

INPUTS

memneeded:

- Amount of *ADDITIONAL* free memory you need in bytes.

memflags:

- Type of memory to flush (standard `exec.library/AllocMem` memory attributes)

RESULT

memflushed:

- Amount of memory you got (in bytes).

EXAMPLE

NOTES

`memflushed` is the memory that was freed into the free memory list by this function - by the time it returns, another program might have pulled it from under you, so check results of `vmAllocMem` even if this function tells you there's enough mem.

BUGS

SEE ALSO

1.7 vmfreeblock

?vmem.library/vmFreeBlock

vmem.library/vmFreeBlock

NAME

vmFreeBlock

SYNOPSIS

```
void vmFreeBlock(vmBlock *b)
    a0
```

FUNCTION

Frees a virtual memory control block when you have finished with it.

INPUTS

b:
- pointer to the virtual memory block to free.

RESULT

Frees all memory used for this virtual memory data, deletes any virtual memory files which exist on disk, and does other general cleanup stuff.

EXAMPLE

See vmAllocBlock()'s example above.

NOTES

BUGS

SEE ALSO

vmAllocBlock, vmLock, vmUnLock, vmFreeData

1.8 vmfreedata

?vmem.library/vmFreeData

vmem.library/vmFreeData

NAME

vmFreeData (MACRO)

SYNOPSIS

```
void vmFreeData(vmBlock *);
```

FUNCTION

This is defined in Libraries/VMem.h as vmFreeBlock(b). It does exactly the same as vmFreeBlock, and is only provided to make the macros vmAllocData, vmLockData, and vmUnLockData more programmer-friendly. See vmFreeBlock()'s autodoc for usage.

INPUTS

RESULT

EXAMPLE

NOTES

BUGS

SEE ALSO

vmFreeBlock, vmAllocData, vmLockData, vmUnLockData

1.9 vmfreemem

?vmem.library/vmFreeMem

vmem.library/vmFreeMem

NAME

vmFreeMem

SYNOPSIS

```
VOID vmFreeMem(VOID *memptr, ULONG size)
                d0          d1
```

FUNCTION

Identical to exec.library/FreeMem except does extra checking.

INPUTS

Identical to exec.library/FreeMem. See that function's autodoc for more information.

RESULT

EXAMPLE

NOTES

BUGS

SEE ALSO

vmAllocMem, exec.library/FreeMem

1.10 vmlock

?vmem.library/vmLock

vmem.library/vmLock

NAME

vmLock

SYNOPSIS

```

VOID *ptr = vmLock(vmBlock *b,ULONG el)
           d0             a0             d0

```

FUNCTION

Locks a particular element of virtual memory data for use.

INPUTS

b:
- Virtual Memory control block which required data belongs to.

el:
- Particular element of data that you want to access.

RESULT

ptr:
- Actual memory address of data element which is now safe to access.

EXAMPLE

See vmAllocBlock()'s example above.

NOTES**BUGS****SEE ALSO**

vmAllocBlock, vmUnLock, vmFreeBlock, vmLockData

1.11 vmlockdata

?vmem.library/vmLockData

vmem.library/vmLockData

NAME

vmLockData (MACRO)

SYNOPSIS

```
VOID *memptr = vmLockData(vmBlock *blk)
```

FUNCTION

This is defined in Libraries/VMem.h as vmLock(blk,0).
It just locks a block of memory for a vmBlock with one element.
See that function's autodoc for details

INPUTS**RESULT****EXAMPLE**

NOTES

BUGS

SEE ALSO

vmLock, vmAllocData, vmUnLockData, vmFreeData

1.12 vmunlock

?vmem.library/vmUnLock

vmem.library/vmUnLock

NAME

vmUnLock

SYNOPSIS

```
void vmUnLock(vmBlock *b,ULONG el)
                a0          d0
```

FUNCTION

Unlocks a virtual memory data element which was locked by vmLock().

INPUTS

b:
- pointer to the virtual memory control block for the data.
el:
- The number of the element to unlock.

RESULT

Unlocks the data. When data has no more locks on it, and real memory gets low, the data will be saved to a vmem file, and the real memory is freed.

EXAMPLE

See vmAllocBlock()'s example, above.

NOTES

Note that this function takes the NUMBER of the element you wish to unlock, and not a pointer to the data as you might expect.

BUGS

SEE ALSO

vmAllocBlock, vmLock, vmFreeBlock, vmUnLockData

1.13 vmunlockdata

?vmem.library/vmUnLockData

vmem.library/vmUnLockData

NAME

vmUnlockData (MACRO)

SYNOPSIS

```
void vmUnlockData(vmBlock *blk);
```

FUNCTION

This is defined in Libraries/VMem.h as `vmUnlock(blk,0)`. It just unlocks a block of memory for a `vmBlock` with one element. See that function's autodoc for details.

INPUTS

RESULT

EXAMPLE

NOTES

BUGS

SEE ALSO

`vmUnlock`, `vmAllocData`, `vmLockData`, `vmFreeData`
