

RTrack Documentation

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Chapter 1

RTrack Documentation

1.1 RTrack

RTrack - Resource Tracking Link Library

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Development by Boris Folgmann

RTrack 0.1 (15.8.95) User Manual

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1.2 copyrights

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1.3 description

DESCRIPTION

RTrack.lib is a link library for resource tracking. All resource allocations are maintained in a linked list and automatically freed before exiting. The linked list is located in a memory pool, so the small allocations don't fragment memory. One RTrack list node is only 12 Bytes in size and the list handling is so fast that you won't have any overhead worth mentioning.

This version works 100% but the set of supported routines is not complete yet. Please contact the author if you need a specific function in your program.

1.4 requirements

SYSTEM REQUIREMENTS

Kickstart 2.04

Workbench 2.0

amiga.lib V40 for memory pool functions

1.5 contents

CONTENTS

This software package consists of the following files:

RTrack.lib

The RTrack link library.

include/proto/rtrack.h

include/clib/rtrack_protos.h

Headerfiles for using RTrack.lib.

test.c

SMAKEFILE

SCOPTIONS

Example program.

RTrack.guide

This AmigaGuide document for Multiview.

PSI

Proximity Softworks information text.

Some icons are part of **MagicWB** and included with permission of the author.

1.6 installation

INSTALLATION

If you use SAS/C simply copy the includes to your INCLUDE: directory and RTrack.lib to your LIB: directory.

copy include include: all

copy RTrack.lib lib:

Place this documentation where you want.

1.7 usage

USAGE

This version of the link library is in SAS/C object module library format.

RTrack uses some auto initialisation and termination functions (beginning with `_STI` and `_STD`) which are supported by SAS/C only. Therefore you have to link with SAS/C startup-code.

If you use no startup-code or your own custom startup-code you must call `_STI_RTrackInit()` before and `_STD_RTrackCleanup()` after your `main()` function. Note that `_STI_RTrackInit()` returns non zero for failure, in this case you should not call your main function but `_STD_RTrackCleanup()` and then exit your program with `RETURN_FAIL` (returncode 20).

```
int YourProgram()
{
int rc;
... /* Init stuff, open dos etc. */
if (! _STI_RTrackInit())
rc = main();
else
rc = RETURN_FAIL;
_STD_RTrackCleanup();
... /* Cleanup stuff, close dos etc. */
return rc;
}
```

If you compile with SAS/C standard startup-code this is all done automatically. Make sure that `dos.library` is opened before `_STI_RTrackInit()` is called because `ERROR_NO_FREE_STORE` is set as secondary result code with `SetIoErr()` if memory pool allocation fails.

If you compile with a different ANSI-C compiler which can link with the SAS/C link library it should work like this:

```
int main(void)
{
atexit(_STD_RTrackCleanup); /* Let exit() call the cleanup function! */
/* Needed for RTracks autoexit function. */
if (_STI_RTrackInit()) /* exit() on init error */
exit(RETURN_FAIL);
... /* go on with your stuff */
return your_rc; /* _STI_RTrackCleanup is called */
/* automatically! */
}
```

1.8 functions

FUNCTIONS

All functions of RTrack.lib begin with 'rk'.

e.g. allocate some mem:

```
mem = rkAllocVec(100, MEMF_ANY);
```

If you want to exit on failures automatically then call at any time:

```
rkAutoExit(TRUE);
```

If any RTrack call fails RTrack will not return NULL but call

```
exit(RETURN_FAIL);
```

This behaviour can be disabled at any time:

```
rkAutoExit(FALSE);
```

You need to have your own exit() function, if you don't link with startup-code! If you want to free a resource manually before exiting use the appropriate function for explicit freeing:

```
rkFreeVec(mem);
```

RTrack will not call FreeVec() if the supplied pointer is not in the allocated resources list but give an error message and continue the program.

Have a look at the test.c program. Compile with:

```
sc test.c LIB RTrack.lib
```

RTrackDump() is for debugging purposes only and prints the contents of the list.

If you use RTrack remember to only autofree resources which are needed during the whole program run. Others should be freed as soon as they are no longer needed with the appropriate rkFunction.

If your executable is linked with catch.o the resources will also be freed if your program crashes.

1.9 hints

HINTS

As a bonus you are able to use RTracks private memory pool from within your program. Therefore you don't have to handle your own memory pool if you are satisfied with a pool with MEMF_ANY and a puddle size of 1K (this is the current value and may change in the future). The functions are called RTrackAllocAny() and RTrackFreeAny(). They are easy to use e.g. for storing strings or other small data structures. Don't use it for public data which needs to be shared with other tasks since you need MEMF_PUBLIC in this case.

Note: Standard AllocMem() and FreeMem() are not provided as RTrack functions since RTrack must keep track of the size of the memory anyway, so use RTrackAllocVec() and RTrackFreeVec() instead.

1.10 history

HISTORY

0.1 (15.8.95) Release

First public release.
