

Ghoti.io CUtil

0.1

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Chapter 1

Ghoti.io CUtil Library

1.0.1 Overview

The Ghoti.io CUtil Library is a collection of C libraries to aid in the development of C applications by providing helpful and commonly used tools and features.

1.0.2 Installation

1.0.2.1 Build From Source

```
make build
make install
```

1.0.3 Compiling With The Library

```
cc `pkg-config --libs --cflags ghoti.io-cutil_dev` <YOUR SOURCE FILE>
```


Chapter 2

File Index

2.1 File List

Here is a list of all documented files with brief descriptions:

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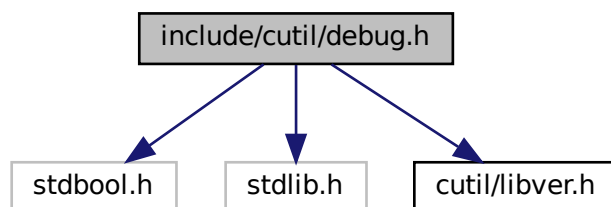
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File Documentation

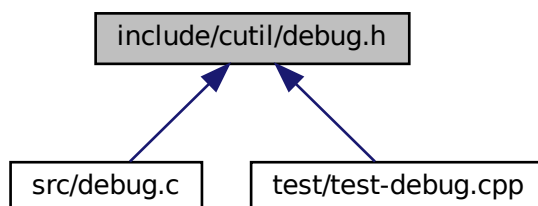
3.1 include/cutil/debug.h File Reference

Header file for debugging-related functions.

```
#include <stdbool.h>
#include <stdlib.h>
#include "cutil/libver.h"
Include dependency graph for debug.h:
```



This graph shows which files directly or indirectly include this file:



Macros

- #define **malloc**(size) [gcu_malloc](#)(size, __FILE__, __LINE__)
- #define **calloc**(nitems, size) [gcu_calloc](#)(nitems, size, __FILE__, __LINE__)
- #define **realloc**(pointer, size) [gcu_realloc](#)(pointer, size, __FILE__, __LINE__)
- #define **free**(pointer) [gcu_free](#)(pointer, __FILE__, __LINE__)

Functions

- void * [gcu_malloc](#) (size_t size, const char *file, size_t line)
Wrapper for the standard malloc() function.
- void * [gcu_calloc](#) (size_t nitems, size_t size, const char *file, size_t line)
Wrapper for the standard calloc() function.
- void * [gcu_realloc](#) (void *pointer, size_t size, const char *file, size_t line)
Wrapper for the standard realloc() function.
- void [gcu_free](#) (void *pointer, const char *file, size_t line)
Wrapper for the standard free() function.
- void [gcu_mem_start](#) (void)
Signal that intercepted memory management calls should be logged to stderr.
- void [gcu_mem_stop](#) (void)
Signal that intercepted memory management calls should no longer be logged to stderr.

3.1.1 Detailed Description

Header file for debugging-related functions.

3.1.2 Function Documentation

3.1.2.1 gcu_calloc()

```
void* gcu_calloc (
    size_t nitems,
    size_t size,
    const char * file,
    size_t line )
```

Wrapper for the standard calloc() function.

Parameters

<i>nitems</i>	The number of items to allocate.
<i>size</i>	The number of bytes in each item.
<i>file</i>	The name of the file from which the function was called.
<i>line</i>	The line number on which the function was called.

Returns

The beginning byte of the allocated memory.

3.1.2.2 gcu_free()

```
void gcu_free (
    void * pointer,
    const char * file,
    size_t line )
```

Wrapper for the standard free() function.

Parameters

<i>pointer</i>	The beginning byte of the currently allocated memory.
<i>file</i>	The name of the file from which the function was called.
<i>line</i>	The line number on which the function was called.

3.1.2.3 gcu_malloc()

```
void* gcu_malloc (
    size_t size,
    const char * file,
    size_t line )
```

Wrapper for the standard malloc() function.

Parameters

<i>size</i>	The number of bytes requested.
<i>file</i>	The name of the file from which the function was called.
<i>line</i>	The line number on which the function was called.

Returns

The beginning byte of the allocated memory.

3.1.2.4 gcu_realloc()

```
void* gcu_realloc (
    void * pointer,
```

```

size_t size,
const char * file,
size_t line )

```

Wrapper for the standard `realloc()` function.

Parameters

<i>pointer</i>	The beginning byte of the currently allocated memory.
<i>size</i>	The newly requested size.
<i>file</i>	The name of the file from which the function was called.
<i>line</i>	The line number on which the function was called.

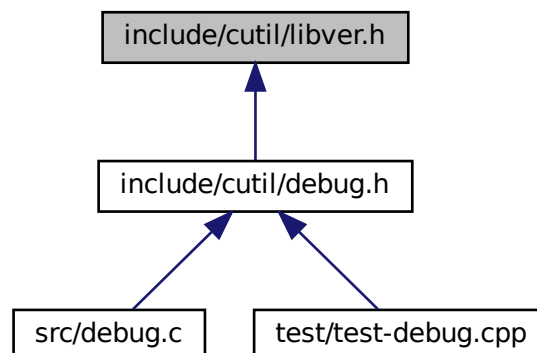
Returns

The beginning byte of the reallocated memory.

3.2 include/cutil/libver.h File Reference

Header file used to control the version numbering and function namespace for all of the library.

This graph shows which files directly or indirectly include this file:



Macros

- `#define GHOTIIO_CUTIL_NAME ghotiio_cutil_dev`
Used in conjunction with the GHOTIIO_CUTIL...
- `#define GHOTIIO_CUTIL_VERSION "dev"`
String representation of the version, provided as a convenience to the programmer.
- `#define GHOTIIO_CUTIL(NAME) GHOTIIO_CUTIL_CONCAT(GHOTIIO_CUTIL_NAME, _ ## NAME)`
Macro to generate a "namespaced" version of an identifier.
- `#define GHOTIIO_CUTIL_CONCAT_INNER(a, b) a ## b`
Helper macro to concatenate the #defines properly.
- `#define GHOTIIO_CUTIL_CONCAT(a, b) GHOTIIO_CUTIL_CONCAT_INNER(a,b)`
Helper macro to concatenate the #defines properly.

3.2.1 Detailed Description

Header file used to control the version numbering and function namespace for all of the library.

3.2.2 Macro Definition Documentation

3.2.2.1 GHOTIIO_CUTIL

```
#define GHOTIIO_CUTIL(  
    NAME ) GHOTIIO_CUTIL_CONCAT(GHOTIIO_CUTIL_NAME, _ ## NAME)
```

Macro to generate a "namespaced" version of an identifier.

Parameters

<i>NAME</i>	The name which will be prepended with the GHOTIIO_CUTIL_NAME.
-------------	---

3.2.2.2 GHOTIIO_CUTIL_CONCAT

```
#define GHOTIIO_CUTIL_CONCAT(  
    a,  
    b ) GHOTIIO_CUTIL_CONCAT_INNER(a,b)
```

Helper macro to concatenate the #defines properly.

It requires two levels of processing.

Parameters

<i>a</i>	The first part of the identifier.
<i>b</i>	The second part of the identifier.

Returns

A call to the GHOTIIO_CUTIL_CONCAT_INNER() macro.

3.2.2.3 GHOTIIO_CUTIL_CONCAT_INNER

```
#define GHOTIIO_CUTIL_CONCAT_INNER(  
    a,  
    b ) a ## b
```

Helper macro to concatenate the `#defines` properly.

It requires two levels of processing.

This macro should only be called by the `GHOTIIO_CUTIL_CONCAT()` macro.

Parameters

<i>a</i>	The first part of the identifier.
<i>b</i>	The second part of the identifier.

Returns

The concatenation of *a* to *b*.

3.2.2.4 GHOTIIO_CUTIL_NAME

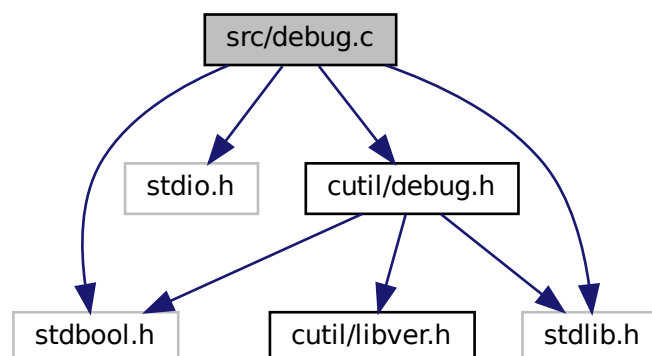
```
#define GHOTIIO_CUTIL_NAME ghotiio_cutil_dev
```

Used in conjunction with the `GHOTIIO_CUTIL...`

macros to produce a namespaced function name for use by all exported functions in this library.

3.3 src/debug.c File Reference

```
#include <stdbool.h>
#include <stdio.h>
#include <stdlib.h>
#include "cutil/debug.h"
Include dependency graph for debug.c:
```



Functions

- void * [gcu_malloc](#) (size_t size, const char *file, size_t line)
Wrapper for the standard malloc() function.
- void * [gcu_calloc](#) (size_t nitems, size_t size, const char *file, size_t line)
Wrapper for the standard calloc() function.
- void * [gcu_realloc](#) (void *pointer, size_t size, const char *file, size_t line)
Wrapper for the standard realloc() function.
- void [gcu_free](#) (void *pointer, const char *file, size_t line)
Wrapper for the standard free() function.
- void [gcu_mem_start](#) (void)
Signal that intercepted memory management calls should be logged to stderr.
- void [gcu_mem_stop](#) (void)
Signal that intercepted memory management calls should no longer be logged to stderr.

Variables

- bool **capture** = true

3.3.1 Function Documentation

3.3.1.1 gcu_calloc()

```
void* gcu_calloc (
    size_t nitems,
    size_t size,
    const char * file,
    size_t line )
```

Wrapper for the standard calloc() function.

Parameters

<i>nitems</i>	The number of items to allocate.
<i>size</i>	The number of bytes in each item.
<i>file</i>	The name of the file from which the function was called.
<i>line</i>	The line number on which the function was called.

Returns

The beginning byte of the allocated memory.

3.3.1.2 gcu_free()

```
void gcu_free (
    void * pointer,
    const char * file,
    size_t line )
```

Wrapper for the standard free() function.

Parameters

<i>pointer</i>	The beginning byte of the currently allocated memory.
<i>file</i>	The name of the file from which the function was called.
<i>line</i>	The line number on which the function was called.

3.3.1.3 gcu_malloc()

```
void* gcu_malloc (
    size_t size,
    const char * file,
    size_t line )
```

Wrapper for the standard malloc() function.

Parameters

<i>size</i>	The number of bytes requested.
<i>file</i>	The name of the file from which the function was called.
<i>line</i>	The line number on which the function was called.

Returns

The beginning byte of the allocated memory.

3.3.1.4 gcu_realloc()

```
void* gcu_realloc (
    void * pointer,
    size_t size,
    const char * file,
    size_t line )
```

Wrapper for the standard realloc() function.

Parameters

<i>pointer</i>	The beginning byte of the currently allocated memory.
<i>size</i>	The newly requested size.
<i>file</i>	The name of the file from which the function was called.
<i>line</i>	The line number on which the function was called.

Returns

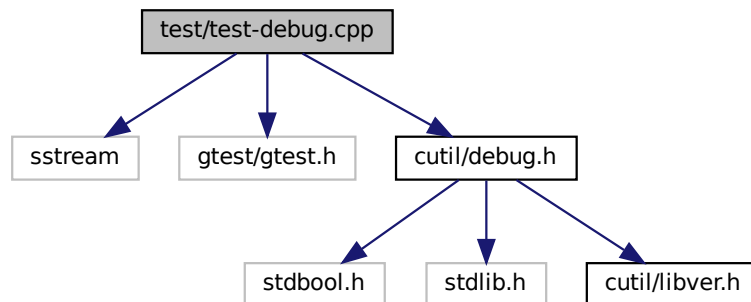
The beginning byte of the reallocated memory.

3.4 test/test-debug.cpp File Reference

Test the behavior of Ghoti.io Util HasParameters class.

```
#include <sstream>
#include <gtest/gtest.h>
#include "cutil/debug.h"
```

Include dependency graph for test-debug.cpp:



Functions

- **TEST** (Memory, MallocReallocFree)
- **TEST** (Memory, CallocFree)
- **TEST** (Memory, StopStartCapture)
- int **main** (int argc, char **argv)

3.4.1 Detailed Description

Test the behavior of Ghoti.io Util HasParameters class.

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