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Rocky Enterprise Linux 9.2 Manual Pages on command 'bsearch.3'

\$ man bsearch.3

BSEARCH(3) Linux Programmer's Manual BSEARCH(3)

NAME

bsearch - binary search of a sorted array

SYNOPSIS

```
#include <stdlib.h>

void *bsearch(const void *key, const void *base,
              size_t nmemb, size_t size,
              int (*compar)(const void *, const void *));
```

DESCRIPTION

The `bsearch()` function searches an array of `nmemb` objects, the initial member of which is pointed to by `base`, for a member that matches the object pointed to by `key`. The `size` of each member of the array is specified by `size`.

The contents of the array should be in ascending sorted order according to the comparison function referenced by `compar`. The `compar` routine is expected to have two arguments which point to the key object and to an array member, in that order, and should return an integer less than, equal to, or greater than zero if the key object is found, respectively, to be less than, to match, or be greater than the array member.

RETURN VALUE

The `bsearch()` function returns a pointer to a matching member of the array, or `NULL` if no match is found. If there are multiple elements that match the key, the element returned is unspecified.

ATTRIBUTES

For an explanation of the terms used in this section, see `attributes(7)`.

????????????????????????????????????

?Interface ? Attribute ? Value ?

????????????????????????????????????

?bsearch() ? Thread safety ? MT-Safe ?

????????????????????????????????????

CONFORMING TO

POSIX.1-2001, POSIX.1-2008, C89, C99, SVr4, 4.3BSD.

EXAMPLES

The example below first sorts an array of structures using `qsort(3)`, then retrieves desired elements using `bsearch()`.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#include <string.h>
```

```
struct mi {
```

```
    int nr;
```

```
    char *name;
```

```
} months[] = {
```

```
    { 1, "jan" }, { 2, "feb" }, { 3, "mar" }, { 4, "apr" },
```

```
    { 5, "may" }, { 6, "jun" }, { 7, "jul" }, { 8, "aug" },
```

```
    { 9, "sep" }, {10, "oct" }, {11, "nov" }, {12, "dec" }
```

```
};
```

```
#define nr_of_months (sizeof(months)/sizeof(months[0]))
```

```
static int
```

```
compmi(const void *m1, const void *m2)
```

```
{
```

```
    const struct mi *mi1 = m1;
```

```
    const struct mi *mi2 = m2;
```

```
    return strcmp(mi1->name, mi2->name);
```

```
}
```

```
int
```

```
main(int argc, char **argv)
```

```
{
```

```
    qsort(months, nr_of_months, sizeof(months[0]), compmi);
```

```

for (int i = 1; i < argc; i++) {
    struct mi key;

    struct mi *res;

    key.name = argv[i];

    res = bsearch(&key, months, nr_of_months,
                  sizeof(months[0]), compmi);

    if (res == NULL)

        printf("%s': unknown month\n", argv[i]);

    else

        printf("%s: month #%d\n", res->name, res->nr);
}

exit(EXIT_SUCCESS);
}

```

SEE ALSO

hsearch(3), lsearch(3), qsort(3), tsearch(3)

COLOPHON

This page is part of release 5.10 of the Linux man-pages project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.

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BSEARCH(3)