NAME

getprotoent_r, getprotobyname_r, getprotobynumber_r – get protocol entry (reentrant)

SYNOPSIS

```
#include <netdb.h>

int getprotoent_r(struct protoent *result_buf, char *buf,
                  size_t buflen, struct protoent **result);

int getprotobyname_r(const char *name,
                  struct protoent *result_buf, char *buf,
                  size_t buflen, struct protoent **result);

int getprotobynumber_r(int proto,
                  struct protoent *result_buf, char *buf,
                  size_t buflen, struct protoent **result);
```

Feature Test Macro Requirements for glibc (see **feature_test_macros**(7)):

getprotoent_r(), **getprotobyname_r**(), **getprotobynumber_r**():
Since glibc 2.19:
_DEFAULT_SOURCE
Glibc 2.19 and earlier:
_BSD_SOURCE || _SVID_SOURCE

DESCRIPTION

The **getprotoent_r**(), **getprotobyname_r**(), and **getprotobynumber_r**() functions are the reentrant equivalents of, respectively, **getprotoent**(3), **getprotobyname**(3), and **getprotobynumber**(3). They differ in the way that the *protoent* structure is returned, and in the function calling signature and return value. This manual page describes just the differences from the nonreentrant functions.

Instead of returning a pointer to a statically allocated *protoent* structure as the function result, these functions copy the structure into the location pointed to by *result_buf*.

The *buf* array is used to store the string fields pointed to by the returned *protoent* structure. (The nonreentrant functions allocate these strings in static storage.) The size of this array is specified in *buflen*. If *buf* is too small, the call fails with the error **ERANGE**, and the caller must try again with a larger buffer. (A buffer of length 1024 bytes should be sufficient for most applications.)

If the function call successfully obtains a protocol record, then **result* is set pointing to *result_buf*; otherwise, **result* is set to NULL.

RETURN VALUE

On success, these functions return 0. On error, they return one of the positive error numbers listed in ERRORS.

On error, record not found (**getprotobyname_r**(), **getprotobynumber_r**()), or end of input (**getprotoent_r**()) *result* is set to NULL.

ERRORS

ENOENT
(**getprotoent_r**()) No more records in database.

ERANGE
buf is too small. Try again with a larger buffer (and increased *buflen*).

ATTRIBUTES

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

Interface	Attribute	Value
getprotoent_r(), **getprotobyname_r**(), **getprotobynumber_r**()	Thread safety	MT-Safe locale

CONFORMING TO

These functions are GNU extensions. Functions with similar names exist on some other systems, though typically with different calling signatures.

EXAMPLE

The program below uses **getprotobyname_r**() to retrieve the protocol record for the protocol named in its first command-line argument. If a second (integer) command-line argument is supplied, it is used as the initial value for *buflen*; if **getprotobyname_r**() fails with the error **ERANGE**, the program retries with larger buffer sizes. The following shell session shows a couple of sample runs:

```
$ ./a.out tcp 1
ERANGE! Retrying with larger buffer
getprotobyname_r() returned: 0 (success)  (buflen=78)
p_name=tcp; p_proto=6; aliases=TCP
$ ./a.out xxx 1
ERANGE! Retrying with larger buffer
getprotobyname_r() returned: 0 (success)  (buflen=100)
Call failed/record not found
```

Program source

```
#define _GNU_SOURCE
#include <ctype.h>
#include <netdb.h>
#include <stdlib.h>
#include <stdio.h>
#include <errno.h>
#include <string.h>

#define MAX_BUF 10000

int
main(int argc, char *argv[])
{
    int buflen, erange_cnt, s;
    struct protoent result_buf;
    struct protoent *result;
    char buf[MAX_BUF];
    char **p;

    if (argc < 2) {
        printf("Usage: %s proto-name [buflen]\n", argv[0]);
        exit(EXIT_FAILURE);
    }

    buflen = 1024;
    if (argc > 2)
        buflen = atoi(argv[2]);

    if (buflen > MAX_BUF) {
        printf("Exceeded buffer limit (%d)\n", MAX_BUF);
        exit(EXIT_FAILURE);
    }

    erange_cnt = 0;
    do {
```

```
            s = getprotobyname_r(argv[1], &result_buf,
                        buf, buflen, &result);
            if (s == ERANGE) {
                if (erange_cnt == 0)
                    printf("ERANGE! Retrying with larger buffer\n");
                erange_cnt++;

                /* Increment a byte at a time so we can see exactly
                   what size buffer was required */

                buflen++;

                if (buflen > MAX_BUF) {
                    printf("Exceeded buffer limit (%d)\n", MAX_BUF);
                    exit(EXIT_FAILURE);
                }
            }
        } while (s == ERANGE);

        printf("getprotobyname_r() returned: %s  (buflen=%d)\n",
                (s == 0) ? "0 (success)" : (s == ENOENT) ? "ENOENT" :
                strerror(s), buflen);

        if (s != 0 || result == NULL) {
            printf("Call failed/record not found\n");
            exit(EXIT_FAILURE);
        }

        printf("p_name=%s; p_proto=%d; aliases=",
                    result_buf.p_name, result_buf.p_proto);
        for (p = result_buf.p_aliases; *p != NULL; p++)
            printf("%s ", *p);
        printf("\n");

        exit(EXIT_SUCCESS);
    }
```

SEE ALSO

getprotoent(3), **protocols**(5)

COLOPHON

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