



Linux Ubuntu 26.04 Manual Pages on command 'encrypt_r.3'

\$ man encrypt_r.3

encrypt(3) Library Functions Manual encrypt(3)

NAME

encrypt, setkey, encrypt_r, setkey_r - encrypt 64-bit messages

LIBRARY

Password hashing library (libcrypt, -lcrypt)

SYNOPSIS

```
#define _XOPEN_SOURCE      /* See feature_test_macros(7) */

#include <unistd.h>

[[deprecated]] void encrypt(char block[64], int edflag);

#define _XOPEN_SOURCE      /* See feature_test_macros(7) */

#include <stdlib.h>

[[deprecated]] void setkey(const char *key);

#define _GNU_SOURCE        /* See feature_test_macros(7) */

#include <crypt.h>

[[deprecated]] void setkey_r(const char *key, struct crypt_data *data);

[[deprecated]] void encrypt_r(char *block, int edflag,
                             struct crypt_data *data);
```

DESCRIPTION

These functions encrypt and decrypt 64-bit messages. The setkey() function sets the key used by encrypt(). The key argument used here is an array of 64 bytes, each of which has numerical value 1 or 0. The bytes key[n] where n=8*i-1 are ignored, so that the effective key length is 56 bits.

The encrypt() function modifies the passed buffer, encoding if edflag is 0, and decoding if

These two functions are not reentrant, that is, the key data is kept in static storage. The functions `setkey_r()` and `encrypt_r()` are the reentrant versions. They use the following structure to hold the key data:

Before calling `setkey_r()` set `data->initialized` to zero.

These functions do not return any value.

Set errno to zero before calling the above functions. On success, errno is unchanged.

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

STANDARDS

encrypt()

setkey()

POSIX.1-2008.

encrypt_r()

setkey_r()

None.

HISTORY

Removed in glibc 2.28.

Because they employ the DES block cipher, which is no longer considered secure, these functions were removed from glibc. Applications should switch to a modern cryptography library, such as libgcrypt.

encrypt()

setkey()

POSIX.1-2001, SUS, SVr4.

Availability in glibc

See crypt(3).

Features in glibc

In glibc 2.2, these functions use the DES algorithm.

EXAMPLES

```
#define _XOPEN_SOURCE
#include <crypt.h>
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>

int
main(void)
{
    char key[64];
    char orig[9] = "eggplant";
    char buf[64];
    char txt[9];
    for (size_t i = 0; i < 64; i++) {
```

```

    key[i] = rand() & 1;
}
for (size_t i = 0; i < 8; i++) {
    for (size_t j = 0; j < 8; j++) {
        buf[i * 8 + j] = orig[i] >> j & 1;
    }
    setkey(key);
}
printf("Before encrypting: %s\n", orig);
encrypt(buf, 0);
for (size_t i = 0; i < 8; i++) {
    for (size_t j = 0, txt[i] = '\0'; j < 8; j++) {
        txt[i] |= buf[i * 8 + j] << j;
    }
    txt[8] = '\0';
}
printf("After encrypting: %s\n", txt);
encrypt(buf, 1);
for (size_t i = 0; i < 8; i++) {
    for (size_t j = 0, txt[i] = '\0'; j < 8; j++) {
        txt[i] |= buf[i * 8 + j] << j;
    }
    txt[8] = '\0';
}
printf("After decrypting: %s\n", txt);
exit(EXIT_SUCCESS);
}

```

SEE ALSO

[cbc_crypt\(3\)](#), [crypt\(3\)](#), [ecb_crypt\(3\)](#)