

**NAME**

**cap\_getpwent, cap\_getpwnam, cap\_getpwuid, cap\_getpwent\_r, cap\_getpwnam\_r, cap\_getpwuid\_r, cap\_setpassent, cap\_setpwent, cap\_endpwent, cap\_pwd\_limit\_cmds, cap\_pwd\_limit\_fields, cap\_pwd\_limit\_users** - library for password database operations in capability mode

**LIBRARY**

library "libcap\_pwd"

**SYNOPSIS**

```
#include <libcasper.h>
```

```
#include <casper/cap_pwd.h>
```

```
struct passwd *
```

```
cap_getpwent(cap_channel_t *chan);
```

```
struct passwd *
```

```
cap_getpwnam(cap_channel_t *chan, const char *login);
```

```
struct passwd *
```

```
cap_getpwuid(cap_channel_t *chan, uid_t uid);
```

```
int
```

```
cap_getpwent_r(cap_channel_t *chan, struct passwd *pwd, char *buffer, size_t bufsize,  
  struct passwd **result);
```

```
int
```

```
cap_getpwnam_r(cap_channel_t *chan, const char *name, struct passwd *pwd, char *buffer,  
  size_t bufsize, struct passwd **result);
```

```
int
```

```
cap_getpwuid_r(cap_channel_t *chan, uid_t uid, struct passwd *pwd, char *buffer, size_t bufsize,  
  struct passwd **result);
```

```
int
```

```
cap_setpassent(cap_channel_t *chan, int stayopen);
```

```
void
```

```
cap_setpwent(cap_channel_t *chan);
```

```
void
```

```
cap_endpwent(cap_channel_t *chan);
```

*int*

```
cap_pwd_limit_cmds(cap_channel_t *chan, const char * const *cmds, size_t ncmds);
```

*int*

```
cap_pwd_limit_fields(cap_channel_t *chan, const char * const *fields, size_t nfields);
```

*int*

```
cap_pwd_limit_users(cap_channel_t *chan, const char * const *names, size_t nnames, uid_t *uids,
    size_t nuids);
```

## DESCRIPTION

The functions **cap\_getpwent()**, **cap\_getpwnam()**, **cap\_getpwuid()**, **cap\_getpwent\_r()**, **cap\_getpwnam\_r()**, **cap\_getpwuid\_r()**, **cap\_setpassent()**, **cap\_setpwent()**, and **cap\_endpwent()** are respectively equivalent to **getpwent(3)**, **getpwnam(3)**, **getpwuid(3)**, **getpwent\_r(3)**, **getpwnam\_r(3)**, **getpwuid\_r(3)**, **setpassent(3)**, **setpwent(3)**, and **cap\_endpwent(3)** except that the connection to the **system.pwd** service needs to be provided.

The **cap\_pwd\_limit\_cmds()** function limits the functions allowed in the service. The *cmds* variable can be set to **getpwent**, **getpwnam**, **getpwuid**, **getpwent\_r**, **getpwnam\_r**, **getpwuid\_r**, **setpassent**, **setpwent**, or **endpwent** which will allow to use the function associated with the name. The *ncmds* variable contains the number of *cmds* provided.

The **cap\_pwd\_limit\_fields()** function allows limit fields returned in the structure *passwd*. The *fields* variable can be set to **pw\_name**, **pw\_passwd**, **pw\_uid**, **pw\_gid**, **pw\_change**, **pw\_class**, **pw\_gecos**, **pw\_dir**, **pw\_shell**, **pw\_expire** or **pw\_fields**. The field which was set as the limit will be returned, while the rest of the values not set this way will have default values. The *nfields* variable contains the number of *fields* provided.

The **cap\_pwd\_limit\_users()** function allows to limit access to users. The *names* variable allows to limit users by name and the *uids* variable by the user number. The *nnames* and *nuids* variables provide numbers of limited names and uids.

## EXAMPLES

The following example first opens a capability to casper and then uses this capability to create the **system.pwd** casper service and uses it to get a user name.

```
cap_channel_t *capcas, *cappwd;
const char *cmds[] = { "getpwuid" };
```

```
const char *fields[] = { "pw_name" };
uid_t uid[] = { 1 };
struct passwd *passwd;

/* Open capability to Casper. */
capcas = cap_init();
if (capcas == NULL)
    err(1, "Unable to contact Casper");

/* Enter capability mode sandbox. */
if (cap_enter() < 0 && errno != ENOSYS)
    err(1, "Unable to enter capability mode");

/* Use Casper capability to create capability to the system.pwd service. */
cappwd = cap_service_open(capcas, "system.pwd");
if (cappwd == NULL)
    err(1, "Unable to open system.pwd service");

/* Close Casper capability, we don't need it anymore. */
cap_close(capcas);

/* Limit service to one single function. */
if (cap_pwd_limit_cmds(cappwd, cmds, nitems(cmds)))
    err(1, "Unable to limit access to system.pwd service");

/* Limit service to one field as we only need name of the user. */
if (cap_pwd_limit_fields(cappwd, fields, nitems(fields)))
    err(1, "Unable to limit access to system.pwd service");

/* Limit service to one uid. */
if (cap_pwd_limit_users(cappwd, NULL, 0, uid, nitems(uid)))
    err(1, "Unable to limit access to system.pwd service");

passwd = cap_getpwuid(cappwd, uid[0]);
if (passwd == NULL)
    err(1, "Unable to get name of user");

printf("UID %d is associated with name %s.\n", uid[0], passwd->pw_name);

cap_close(cappwd);
```

**SEE ALSO**

cap\_enter(2), endpwent(3), err(3), getpwent(3), getpwent\_r(3), getpwnam(3), getpwnam\_r(3), getpwuid(3), getpwuid\_r(3), setpassent(3), setpwent(3), capsicum(4), nv(9)

**HISTORY**

The **cap\_pwd** service first appeared in FreeBSD 10.3.

**AUTHORS**

The **cap\_pwd** service was implemented by Pawel Jakub Dawidek <[pawel@dawidek.net](mailto:pawel@dawidek.net)> under sponsorship from the FreeBSD Foundation.

This manual page was written by  
Mariusz Zaborski <[oshogbo@FreeBSD.org](mailto:oshogbo@FreeBSD.org)>.