

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.

All of these functions are reentrant but not thread-safe. That is, they may be called from separate threads only with different *cap_channel_t* arguments or with synchronization.

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

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