pwd — Unix Password Database

Purpose: Read user data from Unix password database.

The pwd module can be used to read user information from the Unix password database (usually `/etc/passwd`). The read-only interface returns tuple-like objects with named attributes for the standard fields of a password record.

Index	Attribute	Meaning
0	pw_name	The user’s login name
1	pw_passwd	Encrypted password (optional)
2	pw_uid	User id (integer)
3	pw_gid	Group id (integer)
4	pw_gecos	Comment/full name
5	pw_dir	Home directory
6	pw_shell	Application started on login, usually a command interpreter

Querying All Users

This example prints a report of all of the “real” users on a system, including their home directories (where “real” is defined as having a name not starting with “_”). To load the entire password database, use `getpwall()`. The return value is a list with an undefined order, so it needs to be sorted before the report is printed.

```
# pwd_getpwall.py

import pwd
import operator

# Load all of the user data, sorted by username
all_user_data = pwd.getpwall()
interesting_users = sorted(
    (u for u in all_user_data
     if not u.pw_name.startswith('_')),
    key=operator.attrgetter('pw_name')
)

# Find the longest lengths for a few fields
username_length = max(len(u.pw_name)
                      for u in interesting_users) + 1
home_length = max(len(u.pw_dir)
                  for u in interesting_users) + 1
uid_length = max(len(str(u.pw_uid))
                 for u in interesting_users) + 1

# Print report headers
fmt = ' '.join(['{:<{username_length}}',
                '{:>{uid_length}}',
                '{:<{home_length}}',
                '{}'])
print(fmt.format('User',
                 'UID',
                 'Home Dir',
                 'Description',
                 username_length=username_length,
                 uid_length=uid_length,
                 home_length=home_length))
print('-' * username_length,
      '-' * uid_length,
      '-' * home_length,
      '-' * 20)
```

```
# Print the data
for u in interesting_users:
    print(fmt.format(u.pw_name,
                     u.pw_uid,
                     u.pw_dir,
                     u.pw_gecos,
                     username_length=username_length,
                     uid_length=uid_length,
                     home_length=home_length))
```

Most of the example code above deals with formatting the results nicely. The `for` loop at the end shows how to access fields from the records by name.

```
$ python3 pwd_getpwall.py

User                UID Home Dir          Description
---------- ----------- ----------------- --------------------
Guest               201 /Users/Guest      Guest User
daemon                1 /var/root         System Services
daemon                1 /var/root         System Services
dhellmann           501 /Users/dhellmann  Doug Hellmann
nobody       4294967294 /var/empty        Unprivileged User
nobody       4294967294 /var/empty        Unprivileged User
root                  0 /var/root         System Administrator
root                  0 /var/root         System Administrator
```

Querying User By Name

To read information about one user it is not necessary to read the entire password database. Use `getpwnam()`, to retrieve the information about a user by name.

```
# pwd_getpwnam.py

import pwd
import sys

username = sys.argv[1]
user_info = pwd.getpwnam(username)

print('Username:', user_info.pw_name)
print('Password:', user_info.pw_passwd)
print('Comment :', user_info.pw_gecos)
print('UID/GID :', user_info.pw_uid, '/', user_info.pw_gid)
print('Home    :', user_info.pw_dir)
print('Shell   :', user_info.pw_shell)
```

The passwords on the system where this example was run are stored outside of the main user database in a shadow file, so the password field, when set, is reported as all *.

```
$ python3 pwd_getpwnam.py dhellmann

Username: dhellmann
Password: ********
Comment : Doug Hellmann
UID/GID : 501 / 20
Home    : /Users/dhellmann
Shell   : /bin/bash

$ python3 pwd_getpwnam.py nobody

Username: nobody
Password: *
Comment : Unprivileged User
UID/GID : 4294967294 / 4294967294
Home    : /var/empty
Shell   : /usr/bin/false
```

Querying User By UID

Querying User By UID

It is also possible to look up a user by their numerical user id. This is useful to find the owner of a file:

```
# pwd_getpwuid_fileowner.py
```

```
import pwd
import os

filename = 'pwd_getpwuid_fileowner.py'
stat_info = os.stat(filename)
owner = pwd.getpwuid(stat_info.st_uid).pw_name

print('{} is owned by {} ({})'.format(
    filename, owner, stat_info.st_uid))
```

```
$ python3 pwd_getpwuid_fileowner.py

pwd_getpwuid_fileowner.py is owned by dhellmann (501)
```

The numeric user id is can also be used to find information about the user currently running a process:

```
# pwd_getpwuid_process.py
```

```
import pwd
import os

uid = os.getuid()
user_info = pwd.getpwuid(uid)
print('Currently running with UID={} username={}'.format(
    uid, user_info.pw_name))
```

```
$ python3 pwd_getpwuid_process.py

Currently running with UID=501 username=dhellmann
```

See also

- Standard library documentation for pwd
- spwd – Secure password database access for systems using shadow passwords.
- grp – The grp module reads Unix group information.

Unix-specific Services

grp — Unix Group Database

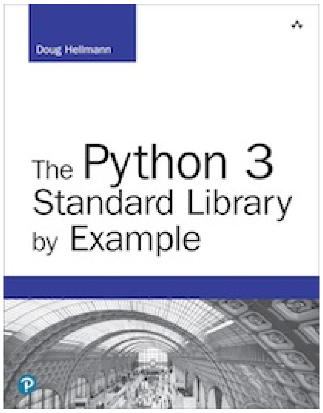
Quick Links

Querying All Users
Querying User By Name
Querying User By UID

This page was last updated 2016-12-03.

Navigation

Unix-specific Services
grp — Unix Group Database



The output from all the example programs from PyMOTW-3 has been generated with Python 3.7.1, unless otherwise noted. Some of the features described here may not be available in earlier versions of Python.

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This Site

Module Index
Index

Other Writing

Blog
The Python Standard Library By Example