

【Linux Programming】 Day3(3)

▼ Class	Understanding Linux/Unix Programming
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【Ch2】 Users, Files, and the Manual

2.4 Question 2: How does who do it?

Learning about Unix from Unix

We can learn about any Unix command by using these four techniques:

- Read the manual
- Search the manual
- Read the .h files
- follow SEE ALSO links

Read the Manual

To learn about `who`, type

```
$ man who
```

and page down to the [DESCRIPTION](#) section. This paragraph appears in the SunOS manpage:

```
DESCRIPTION
The who utility can list the user's name, terminal line,
login time, elapsed time since activity occurred on the
line, and the process-ID of the command interpreter (shell)
for each current UNIX system user. It examines the
/var/adm/utmp file to obtain its information. If file is
given, that file (which must be in utmp(4) format) is exam-
ined. Usually, file will be /var/adm/wtmp, which contains a
history of all the logins since the file was last created.
```

`who` examines the `/var/adm/utmp` file to obtain its information. It appears, from this description, that the list of current users is stored in a file. `who` just reads the file.

Note:

This may differ on different systems. On my Ubuntu system, the manpage shows this:

```
If FILE is not specified, use /var/run/utmp. /var/log/wtmp as FILE is
common. If ARG1 ARG2 given, -m presumed: 'am i' or 'mom likes' are
usual.
```

It shows that the users information is stored on `/var/run/utmp` or `/var/log/wtmp`.

Search the Manual

The `man` command allows us to search the manual for keywords. Use the `-k` option for searching. To find out more about `utmp`, type

```
$ man -k utmp
```

```

arthur@ubuntu:~/Desktop$ man -k utmp
endutent (3) - access utmp file entries
endutxent (3) - access utmp file entries
getutent (3) - access utmp file entries
getutent_r (3) - access utmp file entries
getutid (3) - access utmp file entries
getutid_r (3) - access utmp file entries
getutline (3) - access utmp file entries
getutline_r (3) - access utmp file entries
getutmp (3) - copy utmp structure to utmpx, and vice versa
getutmpx (3) - copy utmp structure to utmpx, and vice versa
getutxent (3) - access utmp file entries
getutxid (3) - access utmp file entries
getutxline (3) - access utmp file entries
login (3) - write utmp and wtmp entries
logout (3) - write utmp and wtmp entries
pututline (3) - access utmp file entries
pututxline (3) - access utmp file entries
sessreg (1) - manage utmpx/wtmpx entries for non-init clients
setutent (3) - access utmp file entries
setutxent (3) - access utmp file entries
systemd-update-utmp (8) - Write audit and utmp updates at bootup, runlevel ch...
systemd-update-utmp-runlevel.service (8) - Write audit and utmp updates at bo...
systemd-update-utmp.service (8) - Write audit and utmp updates at bootup, run...
utmp (5) - login records
utmpdump (1) - dump UTMP and WTMP files in raw format
utmpname (3) - access utmp file entries
utmpx (5) - login records
utmpxname (3) - access utmp file entries

```

Each line of output lists the topic, the title of the manpage, and a brief description.

The notation `utmp(5)` means that manpage for `utmp` is in section 5 of the manual

Then, search for `man 5 utmp` on my machine

```

$ man 4 utmp
utmp(4) utmp(4)

NAME
  utmp, wtmp - Login records

```

Chapter 2 Users, Files, and the Manual: who Is First

SYNOPSIS

```
#include <utmp.h>
```

DESCRIPTION

The `utmp` file records information about who is currently using the system.

The file is a sequence of `utmp` entries, as defined in `struct utmp` in the `utmp.h` file.

The `utmp` structure gives the name of the special file associated with the user's terminal, the user's login name, and the time of the login in the form of `time(3)`. The `ut_type` field is the type of entry, which can specify several symbolic constant values. The symbolic constants are defined in the `utmp.h` file.

The `wtmp` file records all logins and logouts. A null user name indicates a logout on the associated terminal. A terminal referenced with a tilde (~) indicates that the system was rebooted at the indicated time. The adjacent pair of entries with terminal names referenced by a vertical bar (|) or a right brace (}) indicate the system-maintained time just before and just after a date command has changed the system's time frame.

The `wtmp` file is maintained by `login(1)` and `init(8)`. Neither of these programs creates the file, so, if it is removed, record keeping is turned off. See `ac(8)` for information on the file.

FILES

```
/usr/include/utmp.h
```

```
/var/adm/utmp
```

more (88%)

The first manpage said who reads the `utmp` file. This manpage, the one for `utmp` says the `utmp` file is a sequence of `utmp` entries as defined in `struct utmp` in the `utmp.h` file.

The FILES section of the manpage tells us where `utmp.h` is. The file is `/usr/include/utmp.h`