

## “Cron” Job Setup in Mac Server

“Cron” job here is short for “chronos” job which runs periodically. As is often the case, “cron” job is a kind of daemon process with little interaction with user. Usually, we set such tasks for instance clearing logs, backup something as cron jobs. Therefore, knowing how it runs is very important.

The underlying scheme is that upon starting up, a process whose name is “crond” automatically reads “crontab” file for each user and then starts every “cron” job periodically. Overall speaking, it is not very hard to set “cron” jobs in the server, but there are still some tips we should keep in mind.

To see how many “cron” jobs of current user in the system, what we need to do is using such instruction: “crontab -l” which will list all the available “cron” jobs owned by current user.

```
login as: ██████████
Using keyboard-interactive authentication.
Password:
Access denied
Using keyboard-interactive authentication.
Password:
Last login: Mon Sep 10 14:01:43 2012 from 192.168.1.100
MacinClouds-Mac-mini:~ ██████████$ crontab -l
*/60 * * * * /Users/ao/cronjob/kill_idle_usersv1.4.sh
MacinClouds-Mac-mini:~ ██████████$ █
```

If we want to delete all the “cron” jobs of current user, we can use “crontab -r” instruction. The graph is shown as follows:

```
login as: [redacted]
Using keyboard-interactive authentication.
Password:
Access denied
Using keyboard-interactive authentication.
Password:
Last login: Mon Sep 10 14:01:43 2012 from 192.168.1.100
MacinClouds-Mac-mini:~ [redacted]$ crontab -l
*/60 * * * * /Users/ao/cronjob/kill_idle_usersv1.4.sh
MacinClouds-Mac-mini:~ [redacted]$ crontab -r
MacinClouds-Mac-mini:~ [redacted]$ crontab -l
crontab: no crontab for ao
MacinClouds-Mac-mini:~ [redacted]$ █
```

As you see now, there is no “cron” job for the current user now.

Now I will tell the detailed procedure of how to set up “cron” job in the server.

In my example, I will run a script which implements the function of checking all the users in the server and kill all the users’ process if they remain idle for more than 30 minutes.

1, Before setting up “cron” job, we must upload our shell script into some place in the server. I recommend a software tool whose name is “psftp”. It is very simple and convenient to upload local file into the server. The graph is as follows:

```
C:\Users\Alexander\Desktop\psftp.exe
psftp: no hostname specified; use "open host.name" to connect
psftp> open 1...
login as:
Using keyboard-interactive authentication.
Password:
Remote working directory is /Users/ao
psftp> ls
Listing directory /Users/ao
drwxr-xr-x  13 ao      staff    442 Sep 10 15:28 .
drwxr-xr-x   8 root    admin   272 Jul 23 13:27 ..
-rw-r-----   1 ao      staff     3 Jul 23 13:27 .CFUserTextEncoding
-rw-r-----   1 ao      staff  5855 Sep 10 15:28 .bash_history
-rw-r-----   1 ao      staff  5680 Sep 10 14:04 .viminfo
drwx-----   3 ao      staff   102 Jul 23 13:27 Desktop
drwx-----   4 ao      staff   136 Jul 23 13:27 Documents
drwx-----   4 ao      staff   136 Jul 23 13:27 Downloads
drwx-----  25 ao      staff   850 Jul 23 13:27 Library
drwx-----   3 ao      staff   102 Jul 23 13:27 Movies
drwx-----   3 ao      staff   102 Jul 23 13:27 Music
drwx-----   4 ao      staff   136 Jul 23 13:27 Pictures
drwxr-xr-x   5 ao      staff   170 Jul 23 13:27 Public
psftp> mkdir cronjob
mkdir /Users/ao/cronjob: OK
psftp> cd cronjob
Remote directory is now /Users/ao/cronjob
psftp> ls
Listing directory /Users/ao/cronjob
drwxr-xr-x   2 ao      staff    68 Sep 10 15:28 .
drwxr-xr-x  14 ao      staff   476 Sep 10 15:28 ..
psftp> put kill_idle_usersv1.4.sh
local:kill_idle_usersv1.4.sh => remote:/Users/ao/cronjob/kill_idle_usersv1.4.sh
psftp> ls
Listing directory /Users/ao/cronjob
drwxr-xr-x   3 ao      staff   102 Sep 10 15:29 .
drwxr-xr-x  14 ao      staff   476 Sep 10 15:28 ..
-rw-r--r--   1 ao      staff  3893 Sep 10 15:29 kill_idle_usersv1.4.sh
psftp>
```

As you can see, I created a folder named “cronjob”, and I successfully uploaded shell script called “kill\_idle\_usersv1.4.sh” in the folder “cronjob”. Here, we must record the absolute path of running script, please not here, absolute path, which is really important for setting “cron” job.

2, Now we can create a “cron” job of current user in the server using “crontab -e” instruction.

```
login as: [redacted]
Using keyboard-interactive authentication.
Password:
Last login: Mon Sep 10 15:37:51 2012 from 192.168.1.100
MacinClouds-Mac-mini:~ ao$ crontab -e
```

Then we can edit our “crontab” file, in my example, in order to have quick test, I will run the shell script every 5 minutes. So the “cron” job descriptor will be like this:

```
* /5 * * * * /Users/ao/cronjob/kill_idle_usersv1.4.sh
~
~
~
~
```

There are six columns in all: minute(1-59), hour(1-24), day(1-31), month(1-12), weekday(1-7), command. In addition, “\*” means any in the first five columns, “/” means “per”, for example, “\*/5” means every five minutes. The above instruction will run the shell script whose name is “kill\_idle\_usersv1.4.sh” in folder “Users/ao/cronjob” every five minutes.

Here we already set up a “cron” job. **Another thing here is that in Mac system, we needn’t restart the “crond” process, while in Linux server, we should resart “crond” process.**

Will the above two steps make the “cron” run periodically? **No!!!**

### **\*Change Permission!!!!**

When every 5 minutes, the current user will receive an email about the information of running “cron” job. Its location is in “/var/mail/{user name}”.

```
You have new mail in /var/mail/ao
MacinClouds-Mac-mini:cronjob ao$
```

But in my example, I received an email indicating server can’t run the “cron” job. I will show the graph as follows:

```
From ao@MacinClouds-Mac-mini.local Mon Sep 10 16:05:01 2012
Return-Path: <ao@MacinClouds-Mac-mini.local>
X-Original-To: ao
Delivered-To: ao@MacinClouds-Mac-mini.local
Received: by MacinClouds-Mac-mini.local (Postfix, from userid 504)
        id EE141455AA3; Mon, 10 Sep 2012 16:05:00 -0700 (PDT)
From: ao@MacinClouds-Mac-mini.local (Cron Daemon)
To: ao@MacinClouds-Mac-mini.local
Subject: Cron <ao@MacinClouds-Mac-mini> /Users/ao/cronjob/kill_idle_usersv1.4.sh
X-Cron-Env: <SHELL=/bin/sh>
X-Cron-Env: <PATH=/usr/bin:/bin>
X-Cron-Env: <LOGNAME=ao>
X-Cron-Env: <USER=ao>
X-Cron-Env: <HOME=/Users/ao>
Message-Id: <20120910230500.EE141455AA3@MacinClouds-Mac-mini.local>
Date: Mon, 10 Sep 2012 16:05:00 -0700 (PDT)

/bin/sh: /Users/ao/cronjob/kill_idle_usersv1.4.sh: Permission denied
```

The reason is that we don't have enough permission to run the script. So we should change the script permission mode using "chmod" instruction, only by doing this, can we make the script run periodically.

```
MacinClouds-Mac-mini:cronjob ao$ chmod 755 kill_idle_usersv1.4.sh
MacinClouds-Mac-mini:cronjob ao$
```

The owner can read, write and execute this script, the group users can read and execute this script, the other users can read and execute this script.

After changing file permission mode, we can finally successfully run the script every 5 minutes. The successful running information is as follows:

```
From ao@MacinClouds-Mac-mini.local Mon Sep 10 16:35:00 2012
Return-Path: <ao@MacinClouds-Mac-mini.local>
X-Original-To: ao
Delivered-To: ao@MacinClouds-Mac-mini.local
Received: by MacinClouds-Mac-mini.local (Postfix, from userid 504)
        id D937F455BD6; Mon, 10 Sep 2012 16:35:00 -0700 (PDT)
From: ao@MacinClouds-Mac-mini.local (Cron Daemon)
To: ao@MacinClouds-Mac-mini.local
Subject: Cron <ao@MacinClouds-Mac-mini> /Users/ao/cronjob/kill_idle_usersv1.4.sh
X-Cron-Env: <SHELL=/bin/sh>
X-Cron-Env: <PATH=/usr/bin:/bin>
X-Cron-Env: <LOGNAME=ao>
X-Cron-Env: <USER=ao>
X-Cron-Env: <HOME=/Users/ao>
Message-Id: <20120910233500.D937F455BD6@MacinClouds-Mac-mini.local>
Date: Mon, 10 Sep 2012 16:35:00 -0700 (PDT)

cp: restricted_list.txt: No such file or directory
Starting now
    logfile --> /Users/ao/cronjob/kill_user_list.log
    Restricted user list --> restricted_list.txt
*****START of SCRIPT RUN : Mon Sep 10 16:35:00 PDT 2012*****
*

*****END OF SCRIPT RUN : Mon Sep 10 16:35:00 PDT 2012*****
^
^
^
```

Thank you for viewing my article.