

Лабораторная работа №8

Планировщики событий

Шаханеоядж Хаоладар

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Российский университет дружбы народов, Москва, Россия

Цель работы

Получение навыков работы с планировщиками событий **cron** и **at** в операционной системе Linux.

Ход выполнения работы

```
haoladar@haoladar:~$ su
Password:
root@haoladar:/home/haoladar#
root@haoladar:/home/haoladar# systemctl status crond
● crond.service - Command Scheduler
   Loaded: loaded (/usr/lib/systemd/system/crond.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-10-08 15:04:25 MSK; 15min ago
 Invocation: eae2c9b7975144a796e43c1542f4dd3a
    Main PID: 1202 (crond)
      Tasks: 1 (limit: 24779)
     Memory: 1M (peak: 1.1M)
        CPU: 6ms
    CGroup: /system.slice/crond.service
            └─1202 /usr/sbin/crond -n

Oct 08 15:04:25 haoladar.localdomain systemd[1]: Started crond.service - Command Scheduler.
Oct 08 15:04:25 haoladar.localdomain crond[1202]: (CRON) STARTUP (1.7.0)
Oct 08 15:04:25 haoladar.localdomain crond[1202]: (CRON) INFO (Syslog will be used instead of sendmail.)
Oct 08 15:04:25 haoladar.localdomain crond[1202]: (CRON) INFO (RANDOM_DELAY will be scaled with factor 85%
Oct 08 15:04:25 haoladar.localdomain crond[1202]: (CRON) INFO (running with inotify support)
root@haoladar:/home/haoladar# cat /etc/crontab
```

Рис. 1: Проверка статуса службы crond

```
root@haoladar:/home/haoladar# cat /etc/crontab
SHELL=/bin/bash
PATH=/sbin:/bin:/usr/sbin:/usr/bin
MAILTO=root

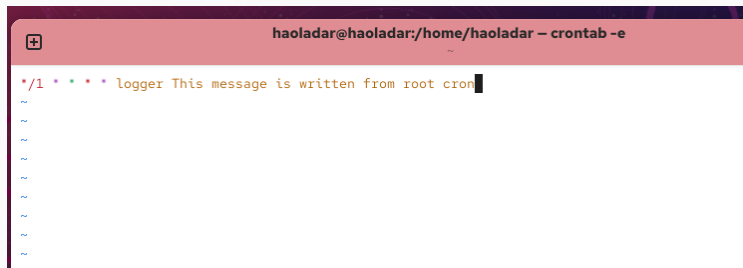
# For details see man 4 crontabs

# Example of job definition:
# .----- minute (0 - 59)
# | .----- hour (0 - 23)
# | | .----- day of month (1 - 31)
# | | | .----- month (1 - 12) OR jan,feb,mar,apr ...
# | | | | .---- day of week (0 - 6) (Sunday=0 or 7) OR sun,mon,tue,wed,thu,fri,sat
# | | | | |
# * * * * * user-name  command to be executed

root@haoladar:/home/haoladar#
```

Рис. 2: Содержимое файла /etc/crontab

Создание задания через crontab -e



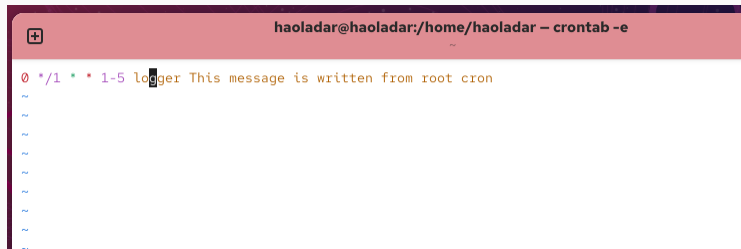
```
haoladar@haoladar:/home/haoladar - crontab -e
*/1 * * * * logger This message is written from root cron
~
~
~
~
~
~
~
~
~
```

Рис. 3: Создание нового задания cron

Проверка активных заданий cron

```
root@haoladar:~# crontab -l
root@haoladar:/home/haoladar# crontab -l
no crontab for root
root@haoladar:/home/haoladar# crontab -e
no crontab for root - using an empty one
crontab: installing new crontab
root@haoladar:/home/haoladar# crontab -l
*/1 * * * * logger This message is written from root cron
root@haoladar:/home/haoladar# grep written /var/log/messages
root@haoladar:/home/haoladar# grep written /var/log/messages
Oct  8 15:22:01 haoladar root[4341]: This message is written from root cron
Oct  8 15:23:01 haoladar root[4468]: This message is written from root cron
Oct  8 15:24:01 haoladar root[4583]: This message is written from root cron
root@haoladar:/home/haoladar#
```

Рис. 4: Проверка списка заданий cron

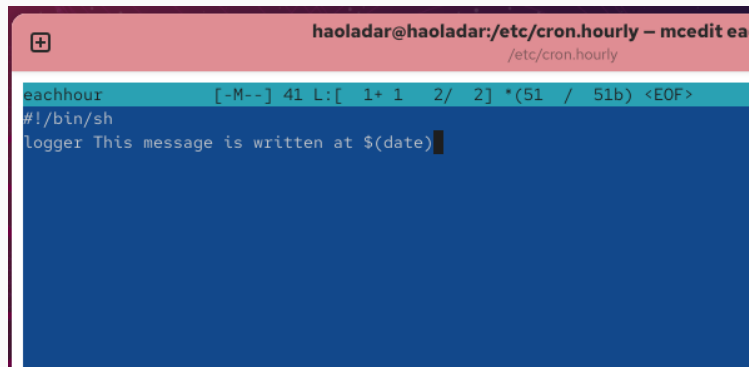


A terminal window titled "haoladar@haoladar:/home/haoladar – crontab -e". The window shows a cron job entry being edited. The first line is "0 */1 * * 1-5 logger This message is written from root cron". The cursor is positioned at the end of the command "logger". Below the first line, there are several empty lines, each preceded by a tilde (~) character, indicating a list of cron jobs.

```
haoladar@haoladar:/home/haoladar – crontab -e
0 */1 * * 1-5 logger This message is written from root cron
~
~
~
~
~
~
~
~
```

Рис. 5: Изменённая запись crontab

Создание сценария /etc/cron.hourly/eachhour



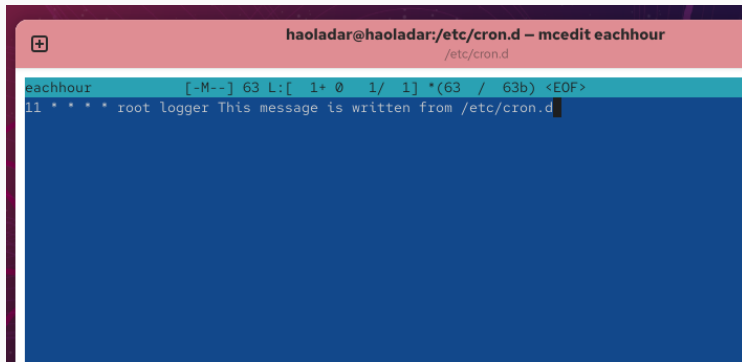
The screenshot shows a terminal window with a pink title bar. The title bar contains a plus icon, the username 'haoladar@haoladar', the current directory '/etc/cron.hourly', and the editor 'mcedit ea'. Below the title bar, the file name '/etc/cron.hourly' is displayed. The main area of the terminal has a blue background and shows the following text: a header line 'eachhour [-M--] 41 L:[1+ 1 2/ 2] *(51 / 51b) <EOF>', followed by a shebang line '#!/bin/sh', and then the command 'logger This message is written at \$(date)' with a cursor at the end.

```
haoladar@haoladar:/etc/cron.hourly – mcedit ea
/etc/cron.hourly

eachhour [-M--] 41 L:[ 1+ 1 2/ 2] *(51 / 51b) <EOF>
#!/bin/sh
logger This message is written at $(date)
```

Рис. 6: Создание сценария eachhour

Создание задания /etc/cron.d/eachhour



The screenshot shows a terminal window titled "haoladar@haoladar:/etc/cron.d - mcedit eachhour". The window displays the content of the file /etc/cron.d/eachhour. The first line is a cron job entry: "11 * * * * root logger This message is written from /etc/cron.d". The second line is a comment: "# * * * * root logger This message is written from /etc/cron.d". The terminal has a dark blue background and a light blue title bar.

```
haoladar@haoladar:/etc/cron.d - mcedit eachhour
/etc/cron.d
eachhour      [-M--] 63 L:[ 1+ 0  1/ 1] *(63 / 63b) <EOF>
11 * * * * root logger This message is written from /etc/cron.d
# * * * * root logger This message is written from /etc/cron.d
```

Рис. 7: Создание задания eachhour в /etc/cron.d

Проверка службы atd

```
root@haoladar:/etc/cron.d#  
root@haoladar:/etc/cron.d# systemctl status atd  
● atd.service - Deferred execution scheduler  
   Loaded: loaded (/usr/lib/systemd/system/atd.service; enabled; preset: enabled)  
   Active: active (running) since Wed 2025-10-08 15:04:25 MSK; 25min ago  
 Invocation: a1fac4918b8b4635988189b8ce936381  
    Docs: man:atd(8)  
   Main PID: 1199 (atd)  
      Tasks: 1 (limit: 24779)  
  Memory: 320K (peak: 1.1M)  
     CPU: 2ms  
   CGroup: /system.slice/atd.service  
           └─1199 /usr/sbin/atd -f  
  
Oct 08 15:04:25 haoladar.localdomain systemd[1]: Started atd.service - Deferred execution scheduler.  
Oct 08 15:04:25 haoladar.localdomain (atd)[1199]: atd.service: Referenced but unset environment variable ev  
root@haoladar:/etc/cron.d# at 15:31  
warning: commands will be executed using /bin/sh  
at Wed Oct 8 15:31:00 2025  
at> logger message from at  
at> <EOT>  
job 1 at Wed Oct 8 15:31:00 2025  
root@haoladar:/etc/cron.d# atq  
1      Wed Oct 8 15:31:00 2025 a root  
root@haoladar:/etc/cron.d# grep 'from at' /var/log/messages  
Oct 8 15:31:00 haoladar root[5835]: message from at  
root@haoladar:/etc/cron.d#
```

Рис. 8: Проверка статуса службы atd

Итоги работы

- Освоены принципы планирования заданий в Linux с помощью **cron** и **at**
- Получены навыки создания, редактирования и проверки расписаний
- Изучены способы ограничения доступа пользователей к планировщику
- Закреплены умения анализа системных журналов для контроля выполнения задач