

Лабораторная работа №8

Планировщики событий cron и at

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16 декабря 2025

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Цель работы

Основная цель

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

Ход выполнения работы

Проверка службы cron

```
raliev@raliev:~$ su
Password:
root@raliev:/home/raliev# cd
root@raliev:~
root@raliev:~# systemctl status crond -l
● crond.service - Command Scheduler
    Loaded: loaded (/usr/lib/systemd/system/crond.service; enabled; preset: enabled)
    Active: active (running) since Wed 2025-10-08 18:41:09 MSK; 6min ago
      Invocation: 83b13f3ece6b4340a5474444df8dfb4f
        Main PID: 1214 (crond)
          Tasks: 1 (limit: 24779)
        Memory: 1M (peak: 1.1M)
          CPU: 8ms
        CGroup: /system.slice/crond.service
                  └─1214 /usr/sbin/crond -n

Oct 08 18:41:09 raliev.localdomain systemd[1]: Started crond.service - Command Scheduler.
Oct 08 18:41:09 raliev.localdomain crond[1214]: (CRON) STARTUP (1.7.0)
Oct 08 18:41:09 raliev.localdomain crond[1214]: (CRON) INFO (Syslog will be used instead of sendmail.)
Oct 08 18:41:09 raliev.localdomain crond[1214]: (CRON) INFO (RANDOM_DELAY will be scaled with factor 78)
Oct 08 18:41:09 raliev.localdomain crond[1214]: (CRON) INFO (running with inotify support)
root@raliev:~#
```

Рис. 1: Статус службы crond

Изучение файла /etc/crontab

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

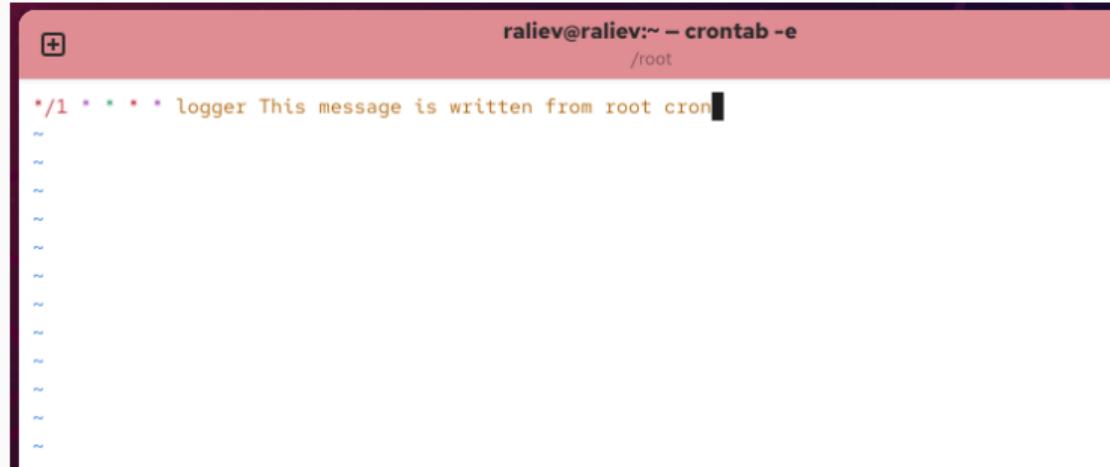
# For details see man 4 crontabs

# 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@raliev:~#
```

Рис. 2: Содержимое файла /etc/crontab

Добавление задания cron



A screenshot of a terminal window titled "raliev@raliev:~ – crontab -e /root". The window shows a single line of cron syntax: "* * * * * logger This message is written from root cron". The terminal has a dark theme with light-colored text.

```
* * * * * logger This message is written from root cron
```

Рис. 3: Создание задания в crontab

Проверка выполнения задания

```
root@raliev:~#  
root@raliev:~# crontab -l  
no crontab for root  
root@raliev:~# crontab -e  
no crontab for root - using an empty one  
crontab: installing new crontab  
root@raliev:~# crontab -l  
*/1 * * * * logger This message is written from root cron  
root@raliev:~# grep written /var/log/messages  
Oct  8 18:50:02 raliev root[4579]: This message is written from root cron  
root@raliev:~# grep written /var/log/messages  
Oct  8 18:50:02 raliev root[4579]: This message is written from root cron  
Oct  8 18:51:01 raliev root[4759]: This message is written from root cron  
Oct  8 18:52:01 raliev root[4898]: This message is written from root cron  
root@raliev:~#
```

Рис. 4: Результат выполнения задания cron

Изменение расписания



A screenshot of a terminal window titled "raliev@raliev:~ – crontab -e /root". The window shows a single line of cron scheduling:

```
0 */1 * * 1-5 logger This message is written from root cron
```

The line starts with "0", followed by a space, then "/1", another space, and so on. The text "logger This message is written from root cron" is displayed in orange. To the left of the terminal window, there is a vertical sidebar with several small, light-blue icons.

Рис. 5: Изменённая запись в crontab

Создание сценария eachhour

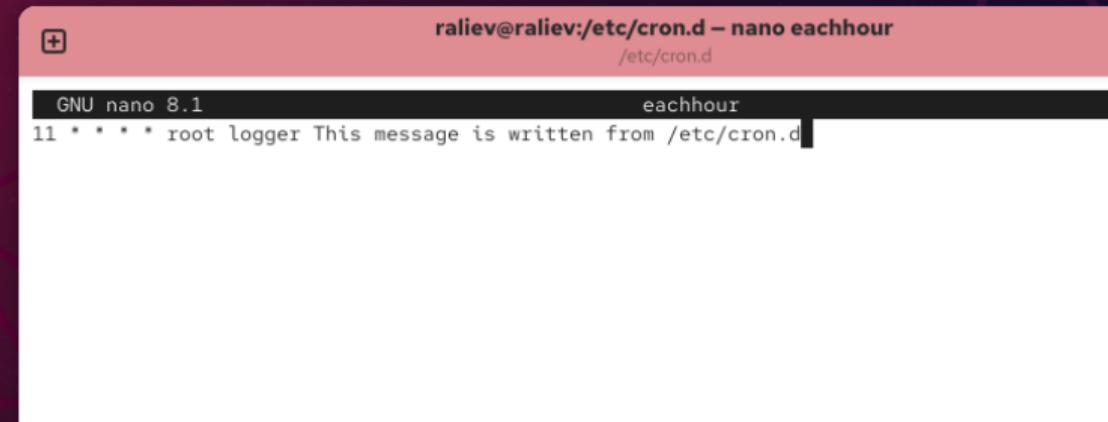


The screenshot shows a terminal window titled "raliev@raliev:/etc/cron.hourly – nano eachhour /etc/cron.hourly". The title bar is red. The terminal window has a dark background and contains the following text:

```
GNU nano 8.1          eachhour
#!/bin/sh
logger This message is written at $(date)
```

Рис. 6: Создание сценария eachhour

Планирование через /etc/cron.d



The screenshot shows a terminal window titled "raliev@raliev:/etc/cron.d – nano eachhour /etc/cron.d". The window displays the command "GNU nano 8.1" at the top, followed by the cron job definition "eachhour". The cron entry is: "11 * * * * root logger This message is written from /etc/cron.d".

```
raliev@raliev:/etc/cron.d – nano eachhour
/etc/cron.d
GNU nano 8.1
eachhour
11 * * * * root logger This message is written from /etc/cron.d
```

Рис. 7: Файл расписания в /etc/cron.d

Проверка службы atd

```
root@raliev:/etc/cron.d#  
root@raliev:/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 18:41:09 MSK; 14min ago  
    Invocation: 605ee8d29c1e4a6bbfbe461c7179576b  
      Docs: man:atd(8)  
     Main PID: 1213 (atd)  
        Tasks: 1 (limit: 24779)  
       Memory: 320K (peak: 1.1M)  
         CPU: 4ms  
      CGroup: /system.slice/atd.service  
             └─1213 /usr/sbin/atd -f  
  
Oct 08 18:41:09 raliev.localdomain systemd[1]: Started atd.service - Deferred execution scheduler.  
Oct 08 18:41:09 raliev.localdomain (atd)[1213]: atd.service: Referenced but unset environment variable >  
root@raliev:/etc/cron.d# at 18:58  
warning: commands will be executed using /bin/sh  
at Wed Oct  8 18:58:00 2025  
at> logger message from at  
at> <EOT>  
job 1 at Wed Oct  8 18:58:00 2025  
root@raliev:/etc/cron.d# atq  
1      Wed Oct  8 18:58:00 2025 a root
```

Рис. 8: Статус службы atd

Планирование задачи at

```
root@raliev:/etc/cron.d# grep 'from at' /var/log/messages
root@raliev:/etc/cron.d#
root@raliev:/etc/cron.d# grep 'from at' /var/log/messages
Oct  8 18:58:00 raliev root[6062]: message from at
root@raliev:/etc/cron.d# grep written /var/log/messages
Oct  8 18:50:02 raliev root[4579]: This message is written from root cron
Oct  8 18:51:01 raliev root[4759]: This message is written from root cron
Oct  8 18:52:01 raliev root[4898]: This message is written from root cron
Oct  8 19:00:01 raliev root[6347]: This message is written from root cron
Oct  8 19:01:01 raliev root[6491]: This message is written at Wed Oct 8 07:01:01 PM MSK 2025
root@raliev:/etc/cron.d#
```

Рис. 9: Результат выполнения задания at

Итоги работы

Вывод

В ходе работы были изучены механизмы планирования задач в Linux с использованием **cron** и **at**, рассмотрены примеры периодических и одноразовых запусков, а также способы управления расписаниями для разных пользователей.