

Лабораторная работа №8

Планировщики событий

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Цель работы

Получение практических навыков планирования выполнения заданий с использованием планировщиков **cron** и **at** в Linux.

Ход выполнения



Просмотр конфигурации crontab

```
admazurkevich@admazurkevich:~$ su
Password:
root@admazurkevich:/home/admazurkevich# systemctl status crond -l
● crond.service - Command Scheduler
   Loaded: loaded (/usr/lib/systemd/system/crond.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-10-07 08:49:37 MSK; 1min 45s ago
 Invocation: 02948e5745464e58a999a312b0c42271
    Main PID: 1200 (crond)
      Tasks: 1 (limit: 24779)
     Memory: 1M (peak: 1.1M)
        CPU: 4ms
    CGroup: /system.slice/crond.service
            └─1200 /usr/sbin/crond -n

Oct 07 08:49:37 admazurkevich.localdomain crond[1200]: (CRON) STARTUP (1.7.0)
Oct 07 08:49:37 admazurkevich.localdomain systemd[1]: Started crond.service - Command Scheduler.
Oct 07 08:49:37 admazurkevich.localdomain crond[1200]: (CRON) INFO (Syslog will be used instead of sendmail.)
Oct 07 08:49:37 admazurkevich.localdomain crond[1200]: (CRON) INFO (RANDOM_DELAY will be scaled with factor 69% if us
Oct 07 08:49:37 admazurkevich.localdomain crond[1200]: (CRON) INFO (running with inotify support)
root@admazurkevich:/home/admazurkevich#
```

Рис. 1: Просмотр содержимого /etc/crontab

Добавление задания в cron

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

# For details see man 4 crontabs

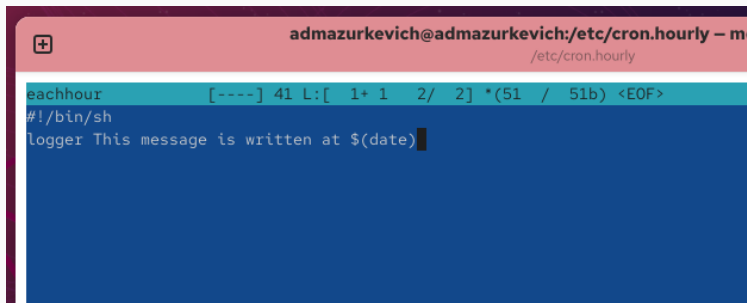
# Example of job definition:
# .----- minute (0 - 59)
# | .----- hour (0 - 23)
# | | .----- day of month (1 - 31)
# | | | .----- month (1 - 12) OR jan,feb,mar,apr ...
# | | | | .---- day of week (0 - 6) (Sunday=0 or 7) OR sun,mon,tue,wed,thu,fri,sat
# | | | | |
# * * * * * user-name  command to be executed

root@admazurkevich: /home/admazurkevich# crontab -l
no crontab for root
root@admazurkevich: /home/admazurkevich#
```

Рис. 2: Создание и проверка задания в crontab

```
root@admazurkevich:/home/admazurkevich# crontab -l
no crontab for root
root@admazurkevich:/home/admazurkevich#
root@admazurkevich:/home/admazurkevich# crontab -e
no crontab for root - using an empty one
crontab: installing new crontab
root@admazurkevich:/home/admazurkevich# crontab -l
*/1 * * * * logger This message is written from root cron
root@admazurkevich:/home/admazurkevich# grep written /var/log/messages
root@admazurkevich:/home/admazurkevich# grep written /var/log/messages
Oct  7 08:54:01 admazurkevich root[4014]: This message is written from root cron
root@admazurkevich:/home/admazurkevich# crontab -e
crontab: installing new crontab
Backup of root's previous crontab saved to /root/.cache/crontab/crontab.bak
root@admazurkevich:/home/admazurkevich# crontab -l
0 */1 * * 1-5 logger This message is written from root cron
root@admazurkevich:/home/admazurkevich# █
```

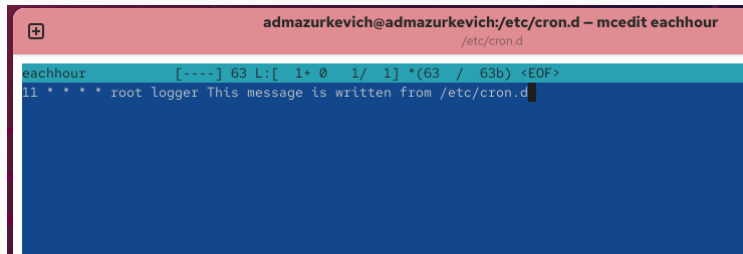
Рис. 3: Появление записей cron в журнале



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

Рис. 4: Сценарий eachhour в каталоге /etc/cron.hourly

Добавление задания в /etc/cron.d



The screenshot shows a terminal window with a pink title bar. The title bar text is "admazurkevich@admazurkevich:/etc/cron.d – mcedit eachhour" and the path "/etc/cron.d" is shown below it. The terminal content shows the file "eachhour" being edited. The first line is a cron schedule: "[----] 63 L:[1+ 0 1/ 1] *(63 / 63b) <EOF>". The second line is the command: "11 * * * * root logger This message is written from /etc/cron.d". A black cursor is at the end of the second line.

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

Рис. 5: Создание файла расписания в /etc/cron.d

```
root@admazurkevich:/etc/cron.d# grep written /var/log/messages
Oct  7 08:54:01 admazurkevich root[4014]: This message is written from root cron
root@admazurkevich:/etc/cron.d# grep written /var/log/messages
Oct  7 08:54:01 admazurkevich root[4014]: This message is written from root cron
Oct  7 09:00:01 admazurkevich root[4982]: This message is written from root cron
Oct  7 09:01:01 admazurkevich root[5127]: This message is written at Tue Oct 7 09:01:01 AM MSK 2025
root@admazurkevich:/etc/cron.d# █
```

Рис. 6: Проверка выполнения заданий cron

Планирование задания через at

```
root@admazurkevich:/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 Tue 2025-10-07 08:49:37 MSK; 12min ago
     Invocation: 9145af3ad6344db194cd6c1bd8086f78
       Docs: man:atd(8)
    Main PID: 1198 (atd)
      Tasks: 1 (limit: 24779)
     Memory: 316K (peak: 1.1M)
        CPU: 2ms
    CGroup: /system.slice/atd.service
            └─1198 /usr/sbin/atd -f

Oct 07 08:49:37 admazurkevich.localdomain systemd[1]: Started atd.service - Deferred execution scheduler.
Oct 07 08:49:37 admazurkevich.localdomain (atd)[1198]: atd.service: Referenced but unset environment variable evaluates to empty value.
root@admazurkevich:/etc/cron.d#
root@admazurkevich:/etc/cron.d# at 9:05
warning: commands will be executed using /bin/sh
at Tue Oct 7 09:05:00 2025
at> logger message from at
at> <EOT>
job 1 at Tue Oct 7 09:05:00 2025
root@admazurkevich:/etc/cron.d# atq
1          Tue Oct 7 09:05:00 2025 a root
root@admazurkevich:/etc/cron.d# grep 'from at' /var/log/messages
root@admazurkevich:/etc/cron.d# grep 'from at' /var/log/messages
Oct 7 09:05:00 admazurkevich root[5760]: message from at
root@admazurkevich:/etc/cron.d#
```

Рис. 7: Проверка состояния службы atd

Выводы по проделанной работе

В ходе лабораторной работы были изучены и применены на практике средства планирования заданий в Linux.

Планировщик **cron** позволил создать периодические задачи, а служба **atd** — одноразовые задания.

Все эксперименты завершились успешно, что подтверждено записями в системном журнале.