**КИЇВСЬКИЙ ФАХОВИЙ КОЛЕДЖ ЗВ’ЯЗКУ**

**WORK-CASE №7**

з дисципліни «Операційні системи»

Виконали: студенти **3** курсу, групи **КСМ-13А**

**Засенко Олександр**

(прізвище та ініціали)

**Дзюбенко Дмитро**

(прізвище та ініціали)

**Сторожук Костянтин**

(прізвище та ініціали)

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***The material was prepared by a student Zasenko***  
1. The main functions of the task scheduler:

1. Execution of programs and scripts: Schedulers allow you to tell the system when to execute certain programs or scripts.
2. Automate regular tasks: Schedulers allow you to automate repetitive or recurring tasks, which simplifies system administration.
3. Running system processes: They can start and manage system processes such as backups, cleaning log files, etc.
4. Manage execution priorities: Schedulers can prioritize tasks based on their importance and impact on system performance.
5. Monitoring of task execution: Provides the ability to track the execution of tasks, check their status and results.

2. Comparison of task scheduling options:

1. Windows - tasks (Task Scheduler):

* Provides a graphical interface for configuring tasks.
* Supports various events for triggering tasks (time, triggered by a specific event, etc.).
* Allows you to configure task repetition.

1. Linux - cron:

* Provides scheduling of tasks by time and date.
* It is configured using text files (crontab).
* Supports special characters for easy definition of time intervals.

Basic principles of working with the Cron scheduler in Linux:

1. Cron schedule:

* Cron uses crontab configuration files to define tasks and their execution times.
* The schedule consists of five fields that define the minute, hour, day of the month, month, and day of the week.

1. Commands:

* Each line of the crontab can specify the command to be executed, as well as other parameters (for example, the path to the executable file).

1. Advanced features:

* It is used to automate system tasks, backup, clean up temporary files, etc..

Alternatives to the Cron scheduler:

1. systemd-timers (Systemd):

* Integrated into the Systemd system manager in many modern Linux distributions.
* Provides more functionality and flexibility than standard Cron.

1. anacron:

* Similar to Cron, but designed for systems that can be turned off or in sleep mode for a long time.

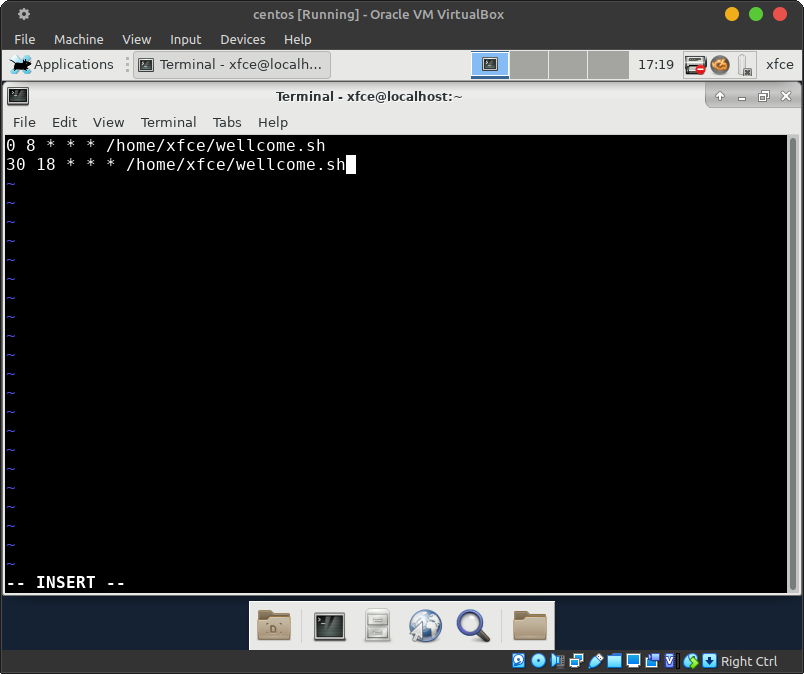
1. fcron:

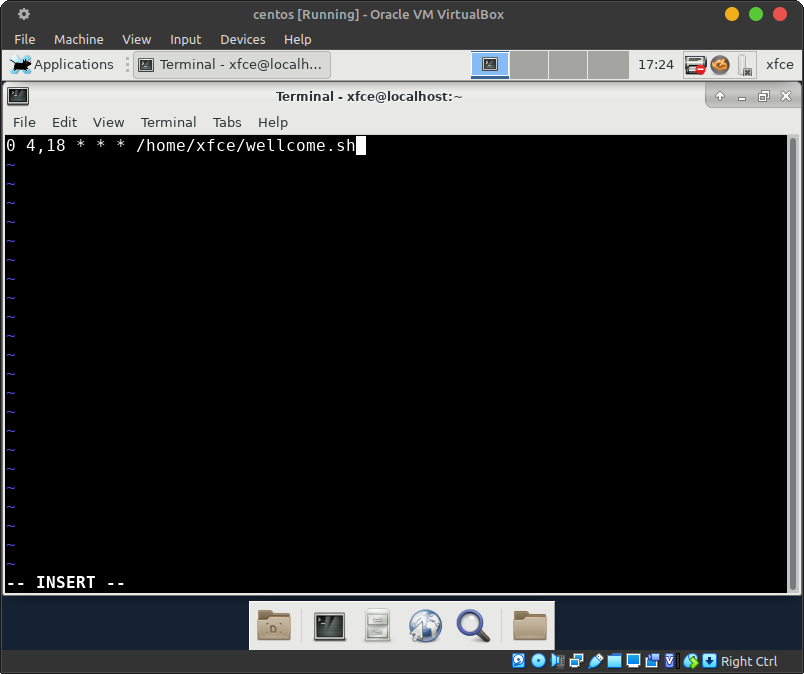
* Improved version of Cron with additional features such as managing access rights and running tasks when there is no system load.

***The material was prepared by a student Dziubenko***

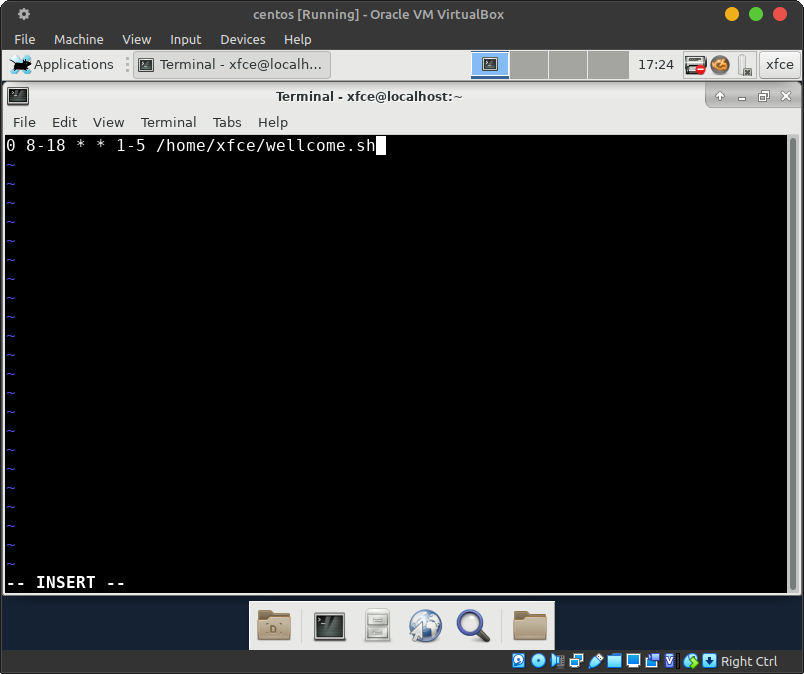
**Для вашої віртуальної машини зі встановленою ОС Linux здійсніть планування обраних вами задач (запуск додатків, вмикання/вимикання машини, очистка каталогів, видалення файлів, резервне копіювання, архівування тощо на ваш вибір) через планувальник Cron:**

To execute tasks using Cron, you need to edit the crontab file using the -e: crontab -e switch, and then check the functionality of the scheduler tasks using the -l: crontab -l switch. Execution of the scheduled task at a time clearly defined by you (for example, at 8 am, 6:30 pm, etc.).

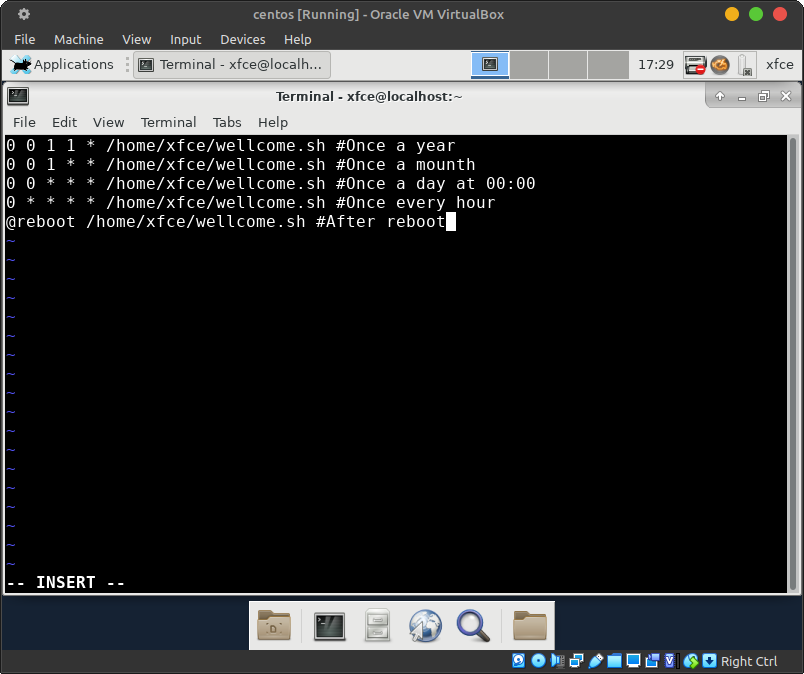


Performing the same task twice a day (you also determine the time yourself).

Performing the same task only on weekdays (or only on weekends) within a clearly defined time period (for example, from 8 a.m. to 6 p.m.).

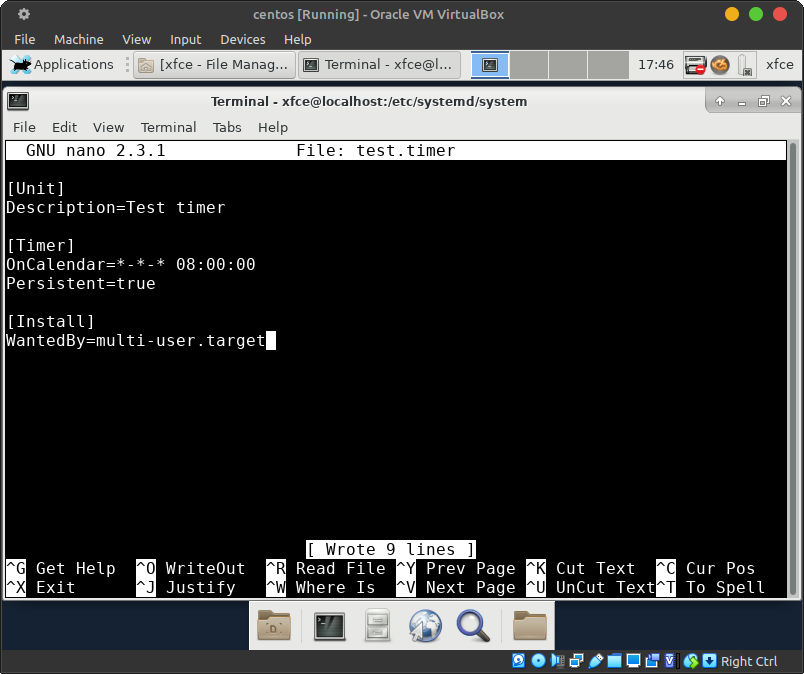
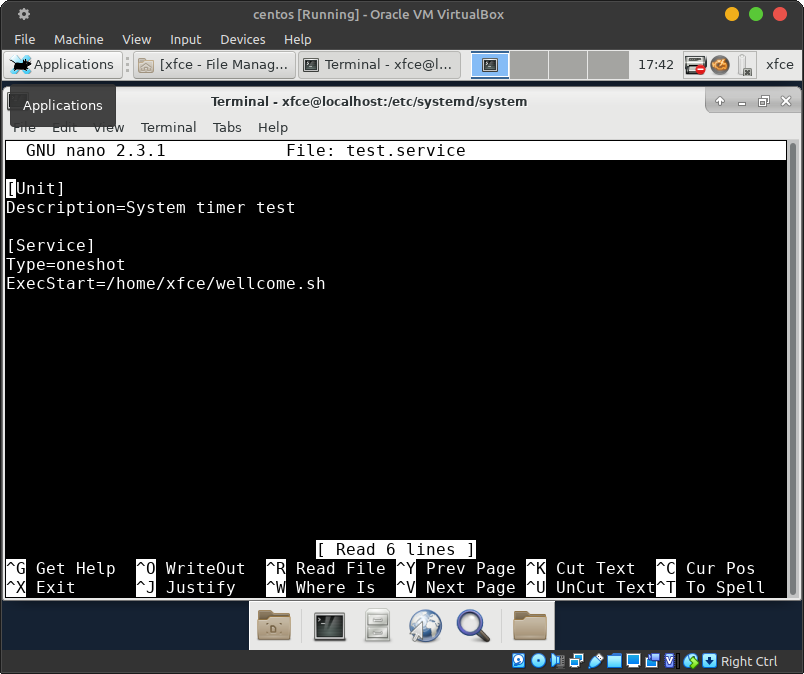


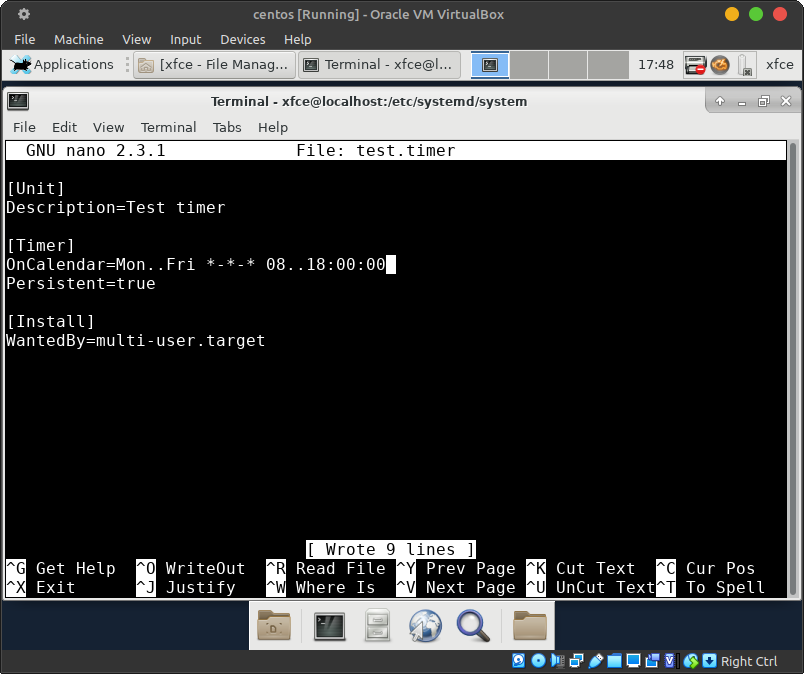
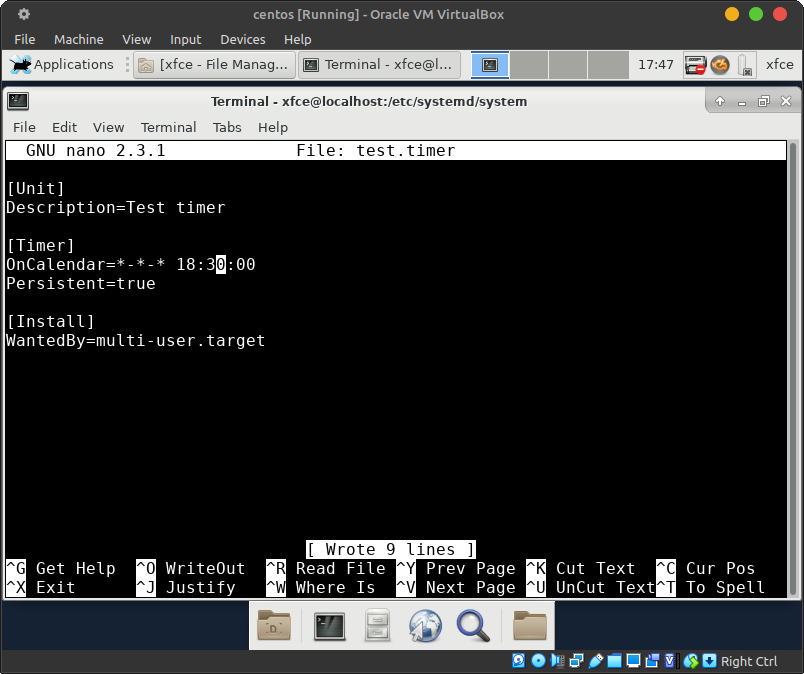
Execute tasks only once a year, once a month, once a day, every hour, at power on (after rebooting).

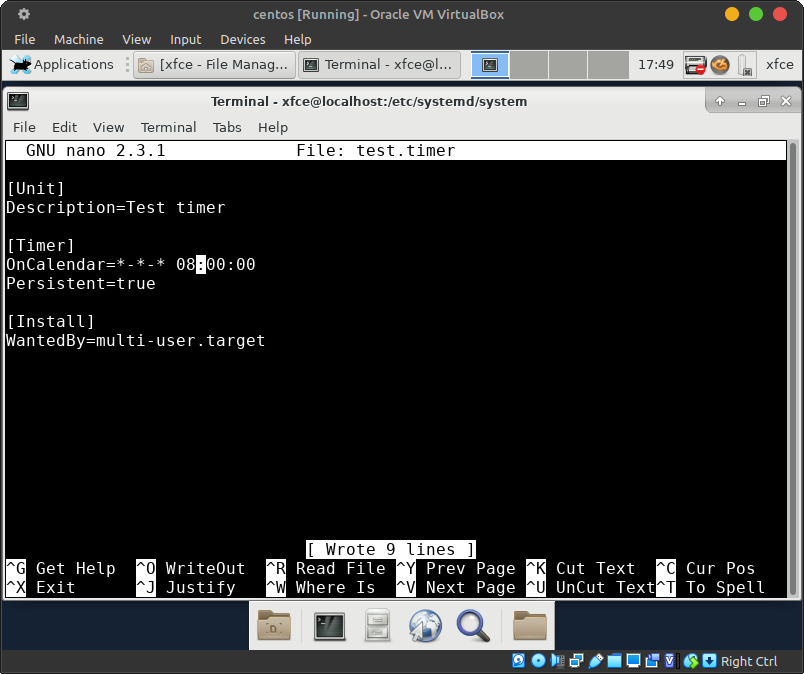
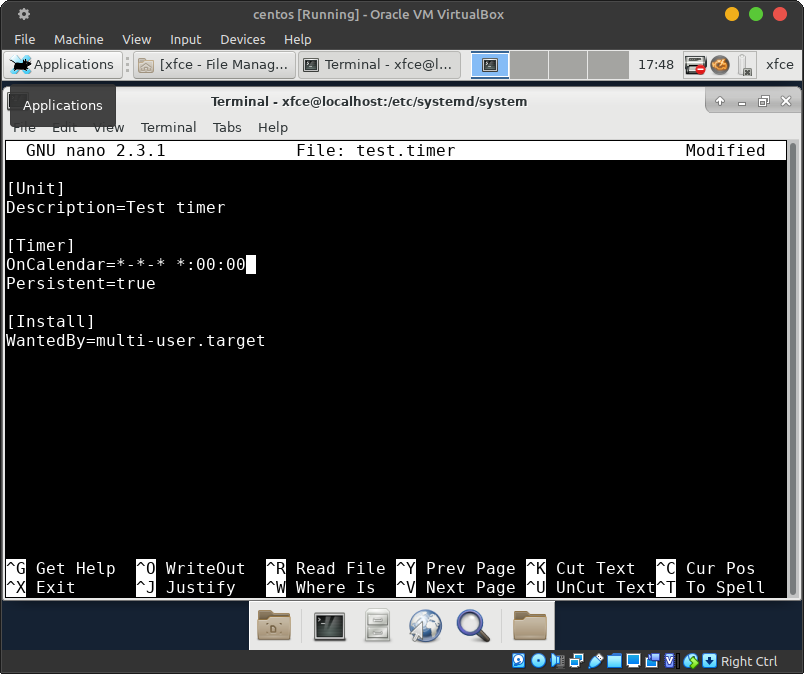


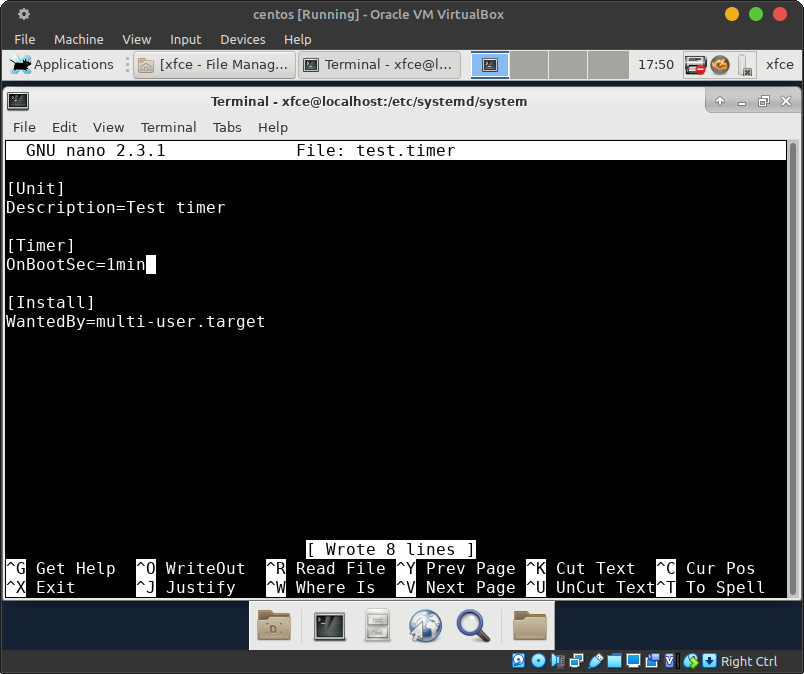
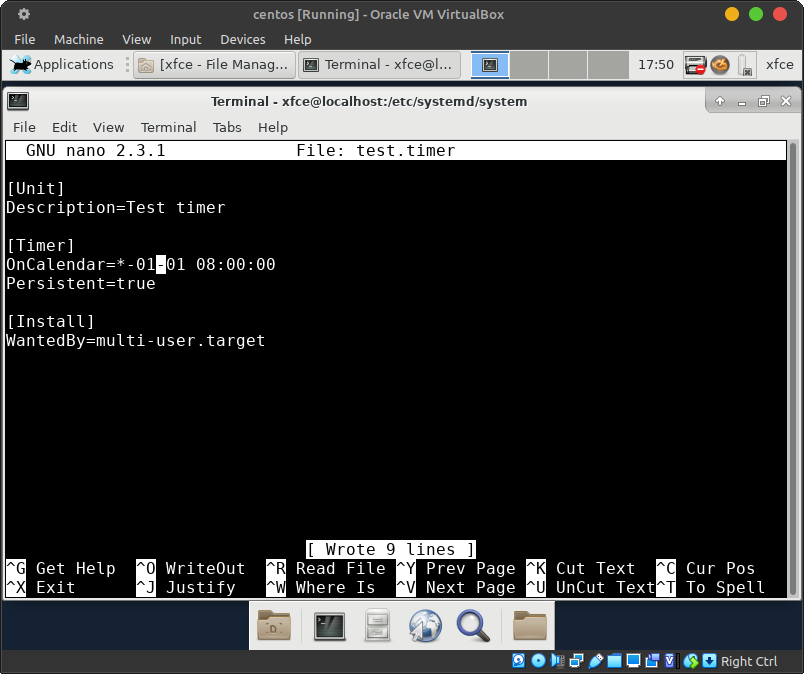
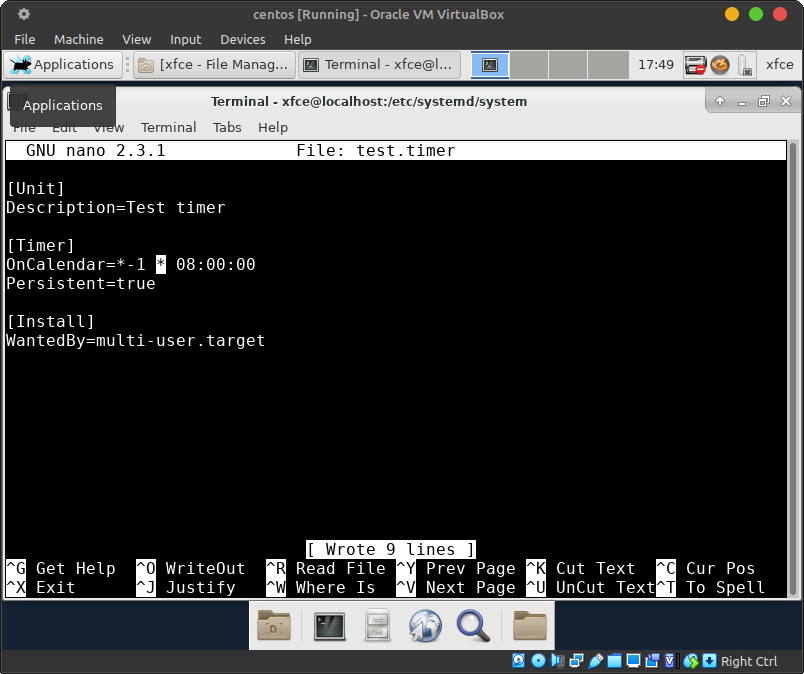
**Встановіть альтернативний Cron’у планувальник задач (на Ваш вибір). Виконані у завданні 2 дії продемонструйте через нього.**

In my case, I will set the system timer. To use this scheduler, you need to go to the directory - /etc/systemd/system and create 2 scheduler control files (name at your discretion). The first one with the .service extension and the second one with the .timer extension. You can see examples of editing them below.









**Conclusions**

***The material was prepared by a student Storozhuk***

In this article, we learned how to use the task scheduler in different operating systems and compared them, and then applied our knowledge to work with the Cron scheduler. No problems were encountered during the work.