

Laboratorio 7

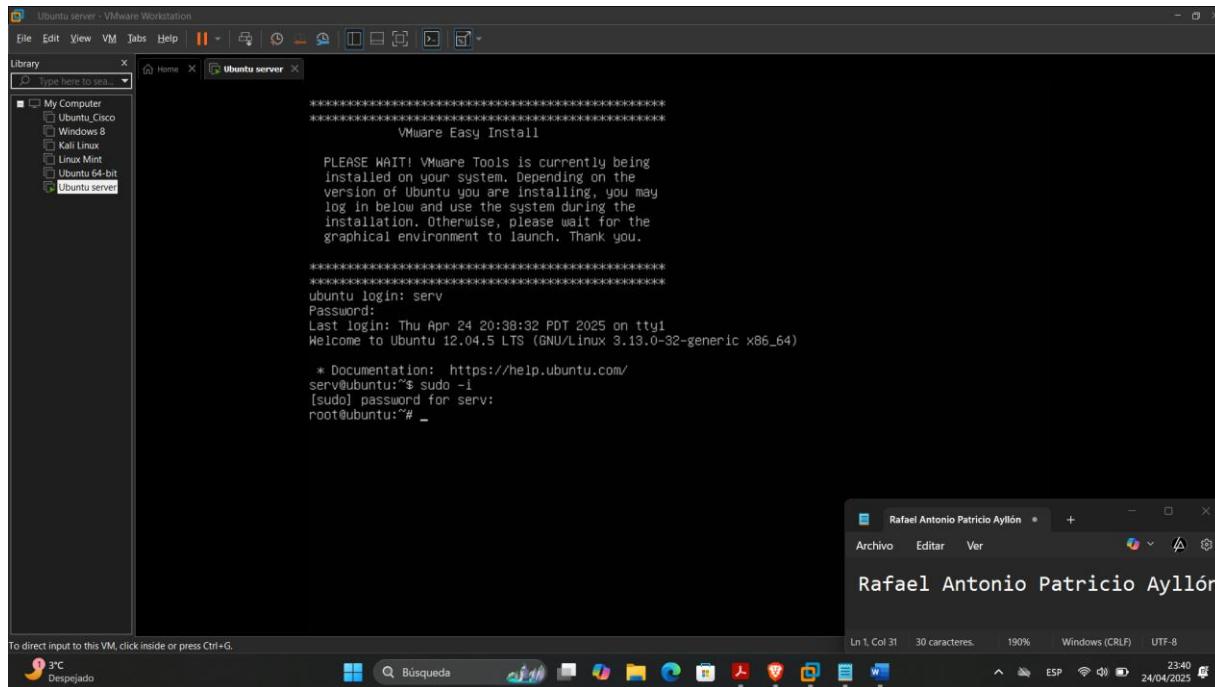
Nombre: Rafael Antonio Patricio Ayllón

CI: 10473854

RU: 108771

Entramos en nuestro Ubuntu Server 12.04 y nos ponemos en modo super-usuario con sudo -i

Nos vamos al /tmp y creamos un directorio llamado original con un fichero hola.txt

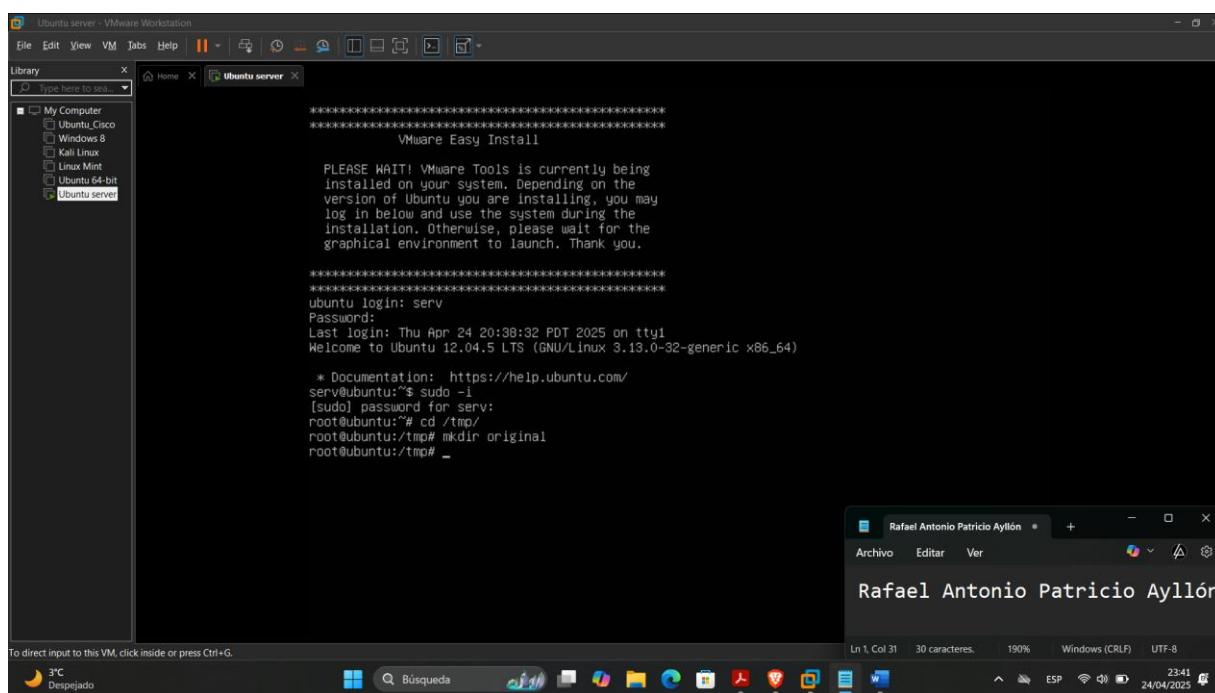


```
*****  
***** VMware Easy Install *****  
*****  
PLEASE WAIT! VMware Tools is currently being  
installed on your system. Depending on the  
version of Ubuntu you are installing, you may  
log in below and use the system during the  
installation. Otherwise, please wait for the  
graphical environment to launch. Thank you.  
*****  
*****  
ubuntu login: serv  
Password:  
Last login: Thu Apr 24 20:38:32 PDT 2025 on ttym1  
Welcome to Ubuntu 12.04.5 LTS (GNU/Linux 3.13.0-32-generic x86_64)  
 * Documentation: https://help.ubuntu.com/  
serv@ubuntu:~$ sudo -i  
[sudo] password for serv:  
root@ubuntu:~# _  
  
To direct input to this VM, click inside or press Ctrl+G.
```

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

23:40 24/04/2025



```
*****  
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serv@ubuntu:~$ sudo -i  
[sudo] password for serv:  
root@ubuntu:~# cd /tmp/  
root@ubuntu:/tmp# mkdir original  
root@ubuntu:/tmp# _  
  
To direct input to this VM, click inside or press Ctrl+G.
```

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

23:41 24/04/2025

```
*****  
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serv@ubuntu:~$ sudo -i  
[sudo] password for serv:  
root@ubuntu:~# cd /tmp/  
root@ubuntu:/tmp# mkdir original  
root@ubuntu:/tmp# cd original/  
root@ubuntu:/tmp/original# echo texto en documento > hola.txt  
root@ubuntu:/tmp/original# _
```

Rafael Antonio Patricio Ayllón

```
*****  
***** VMware Easy Install *****  
*****  
PLEASE WAIT! VMware Tools is currently being  
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serv@ubuntu:~$ sudo -i  
[sudo] password for serv:  
root@ubuntu:~# cd /tmp/  
root@ubuntu:/tmp# mkdir original  
root@ubuntu:/tmp# cd original/  
root@ubuntu:/tmp/original# echo texto en documento > hola.txt  
root@ubuntu:/tmp/original# ls -l  
total 4  
-rw-r--r-- 1 root root 19 Apr 24 20:42 hola.txt  
root@ubuntu:/tmp/original# _
```

Rafael Antonio Patricio Ayllón

Ahora creamos una copia de original mediante el comando: # rsync –av /tmp/original /tmp/copia

```
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***** version of Ubuntu you are installing, you may  
***** log in below and use the system during the  
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Last login: Thu Apr 24 20:38:32 PDT 2025 on ttym1  
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 * Documentation: https://help.ubuntu.com/  
serv@ubuntu:~$ sudo -i  
[sudo] password for serv:  
root@ubuntu:/tmp# cd /tmp/  
root@ubuntu:/tmp# mkdir original  
root@ubuntu:/tmp# cd original/  
root@ubuntu:/tmp/original# echo texto en documento > hola.txt  
root@ubuntu:/tmp/original# ls -l  
total 4  
-rw-r--r-- 1 root root 19 Apr 24 20:42 hola.txt  
root@ubuntu:/tmp/original# rsync -av /tmp/original /tmp/copia  
sending incremental file list  
created directory /tmp/copia  
original/  
original/hola.txt  
sent 125 bytes received 35 bytes 320.00 bytes/sec  
total size is 19 speedup is 0.12  
root@ubuntu:/tmp/original#
```

To direct input to this VM, click inside or press Ctrl+G.

Como se ve en la figura, la herramienta nos avisa de que va a crear el directorio /tmp/copia (no lo habíamos creado) y muestra los ficheros que ha traspasado y un resumen de bytes transferidos.

```
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***** version of Ubuntu you are installing, you may  
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Welcome to Ubuntu 12.04.5 LTS (GNU/Linux 3.13.0-32-generic x86_64)  
 * Documentation: https://help.ubuntu.com/  
serv@ubuntu:~$ sudo -i  
[sudo] password for serv:  
root@ubuntu:/tmp# cd /tmp/  
root@ubuntu:/tmp# mkdir original  
root@ubuntu:/tmp# cd original/  
root@ubuntu:/tmp/original# echo texto en documento > hola.txt  
root@ubuntu:/tmp/original# ls -l  
total 4  
-rw-r--r-- 1 root root 19 Apr 24 20:42 hola.txt  
root@ubuntu:/tmp/original# rsync -av /tmp/original /tmp/copia  
sending incremental file list  
created directory /tmp/copia  
original/  
original/hola.txt  
root@ubuntu:/tmp#  
sent 125 bytes received 35 bytes 320.00 bytes/sec  
total size is 19 speedup is 0.12  
root@ubuntu:/tmp/original# find original  
find: 'original': No such file or directory  
root@ubuntu:/tmp/original# cd ..  
root@ubuntu:/tmp# find original  
original  
original/hola.txt  
root@ubuntu:/tmp#
```

To direct input to this VM, click inside or press Ctrl+G.

```
*****  
ubuntu login: serv  
Password:  
Last login: Thu Apr 24 20:38:32 PDT 2025 on ttym1  
Welcome to Ubuntu 12.04.5 LTS (GNU/Linux 3.13.0-32-generic x86_64)  
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[sudo] password for serv:  
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root@ubuntu:/tmp# mkdir original  
root@ubuntu:/tmp# cd original/  
root@ubuntu:/tmp/original# echo texto en documento > hola.txt  
root@ubuntu:/tmp/original# ls -l  
total 4  
-rw-r--r-- 1 root root 19 Apr 24 20:42 hola.txt  
root@ubuntu:/tmp/original# rsync -av /tmp/original /tmp/copia  
sent 125 bytes received 35 bytes 320.00 bytes/sec  
total size is 19 speedup is 0.12  
root@ubuntu:/tmp/original# find original  
find: 'original': No such file or directory  
root@ubuntu:/tmp/original# cd ..  
root@ubuntu:/tmp# find original  
original  
original/hola.txt  
root@ubuntu:/tmp# find copia  
copia  
copia/original  
copia/original/hola.txt  
root@ubuntu:/tmp#
```

El directorio copia reproduce la estructura de carpetas de original, no solo los ficheros.

¿En qué se diferencia de hacer una copia normal mediante cp? Pues en que rsync no copia todo, sino solo los ficheros nuevos o los que han cambiado. Por ejemplo, creamos un fichero nuevo llamado "adios" y sincronizamos. Solo se traspasa ese fichero

Usamos find para visualizar el contenido

```
* Documentation: https://help.ubuntu.com/
serv@ubuntu:~$ sudo -i
[sudo] password for serv:
root@ubuntu:~# cd /tmp/
root@ubuntu:/tmp# mkdir original
root@ubuntu:/tmp# cd original/
root@ubuntu:/tmp/original# echo texto en documento > hola.txt
root@ubuntu:/tmp/original# ls -l
total 4
-rw-r--r-- 1 root root 19 Apr 24 20:42 hola.txt
root@ubuntu:/tmp/original# rsync -av /tmp/original /tmp/copia
sending incremental file list
created directory /tmp/copia
original/
original/hola.txt
root@ubuntu:/tmp# find copia
copia
copia/original
copia/original/hola.txt
root@ubuntu:/tmp# date > original/adios.txt
root@ubuntu:/tmp# rsync -av /tmp/original /tmp/copia
sending incremental file list
original/
original/adios.txt

sent 125 bytes received 35 bytes 320.00 bytes/sec
total size is 19 speedup is 0.12
root@ubuntu:/tmp/original# find original
find: 'original': No such file or directory
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# find original
original
original/hola.txt
root@ubuntu:/tmp# find copia
copia
copia/original
copia/original/hola.txt
root@ubuntu:/tmp# date > original/adios.txt
root@ubuntu:/tmp# rsync -av /tmp/original /tmp/copia
sending incremental file list
original/
original/adios.txt

sent 154 bytes received 35 bytes 378.00 bytes/sec
total size is 48 speedup is 0.25
root@ubuntu:/tmp#
```

```
root@ubuntu:/tmp# cd original/
root@ubuntu:/tmp/original# echo texto en documento > hola.txt
root@ubuntu:/tmp/original# ls -l
total 4
-rw-r--r-- 1 root root 19 Apr 24 20:42 hola.txt
root@ubuntu:/tmp/original# rsync -av /tmp/original /tmp/copia
sending incremental file list
created directory /tmp/copia
original/
original/hola.txt
root@ubuntu:/tmp# find copia
copia
copia/original
copia/original/hola.txt
root@ubuntu:/tmp# date > original/adios.txt
root@ubuntu:/tmp# rsync -av /tmp/original /tmp/copia
sending incremental file list
original/
original/adios.txt

sent 125 bytes received 35 bytes 320.00 bytes/sec
total size is 19 speedup is 0.12
root@ubuntu:/tmp/original# find original
find: 'original': No such file or directory
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# find original
original
original/hola.txt
root@ubuntu:/tmp# find copia
copia
copia/original
copia/original/hola.txt
root@ubuntu:/tmp# date > original/adios.txt
root@ubuntu:/tmp# rsync -av /tmp/original /tmp/copia
sending incremental file list
original/
original/adios.txt

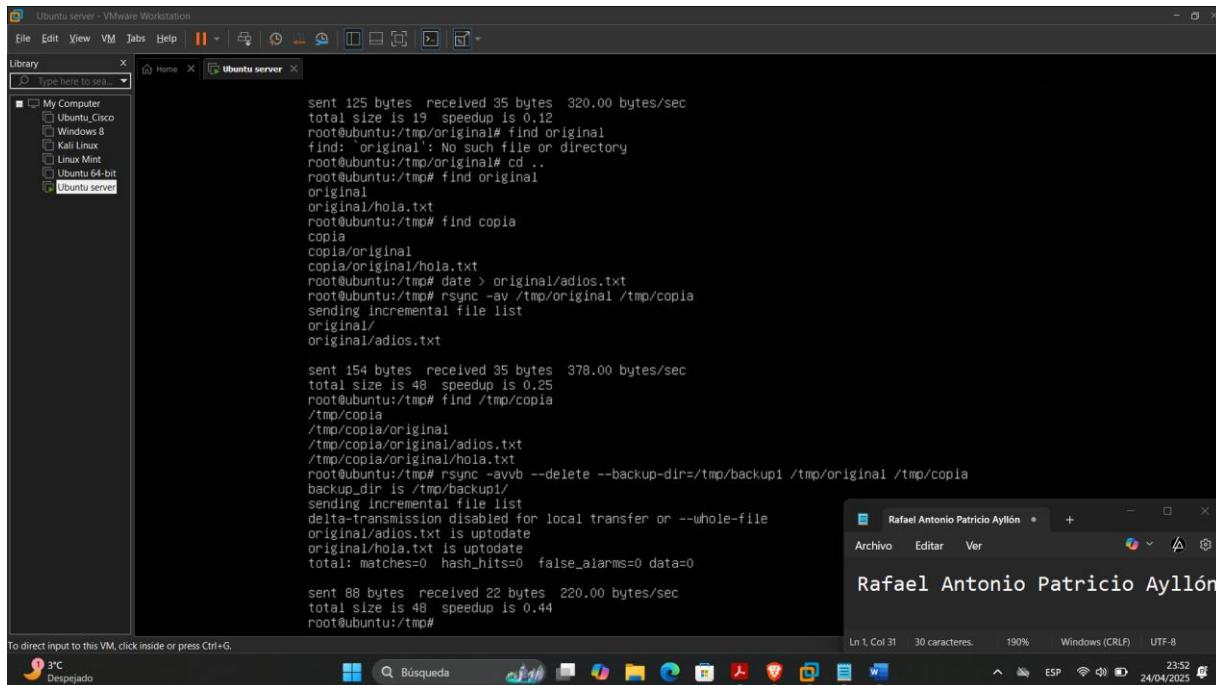
sent 154 bytes received 35 bytes 378.00 bytes/sec
total size is 48 speedup is 0.25
root@ubuntu:/tmp# find /tmp/copia
/tmp/copia
/tmp/copia/original
/tmp/copia/original/adios.txt
/tmp/copia/original/hola.txt
root@ubuntu:/tmp#
```

Si hemos borrado un fichero en el original y queremos que se actualice la copia, hay que incluir el parámetro `--delete`

Parte 2

Con lo que hemos visto hasta ahora solo podemos hacer backups completos. El directorio copia lo podemos llevar a cualquier dispositivo extraíble o podría ser un disco en red. Para hacer backups incrementales ejecutaremos los siguientes comandos:

```
# rsync --avvb --delete --backup dir=/tmp/ backup1 /tmp/original /tmp/copia
```



The screenshot shows a terminal window titled "Ubuntu server - VMware Workstation". The terminal displays the following command and its output:

```
sent 125 bytes received 35 bytes 320.00 bytes/sec
total size is 19 speedup is 0.12
root@ubuntu:/tmp/original# find original
find: 'original': No such file or directory
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# find original
original
original/hola.txt
root@ubuntu:/tmp# find copia
copia
copia/original
copia/original/hola.txt
root@ubuntu:/tmp# date > original/adios.txt
root@ubuntu:/tmp# rsync -av /tmp/original /tmp/copia
sending incremental file list
original/
original/adios.txt

sent 154 bytes received 35 bytes 378.00 bytes/sec
total size is 48 speedup is 0.25
root@ubuntu:/tmp# find /tmp/copia
/tmp/copia
/tmp/copia/original
/tmp/copia/original/adios.txt
/tmp/copia/original/hola.txt
root@ubuntu:/tmp# rsync -avvb --delete --backup-dir=/tmp/backup1 /tmp/original /tmp/copia
backup_dir is /tmp/backup1/
sending incremental file list
delta-transmission disabled for local transfer on --whole-file
original/adios.txt is uptodate
original/hola.txt is uptodate
total: matches=0 hash_hits=0 false_alarms=0 date=0

sent 88 bytes received 22 bytes 220.00 bytes/sec
total size is 48 speedup is 0.44
root@ubuntu:/tmp#
```

To direct input to this VM, click inside or press Ctrl+G.

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

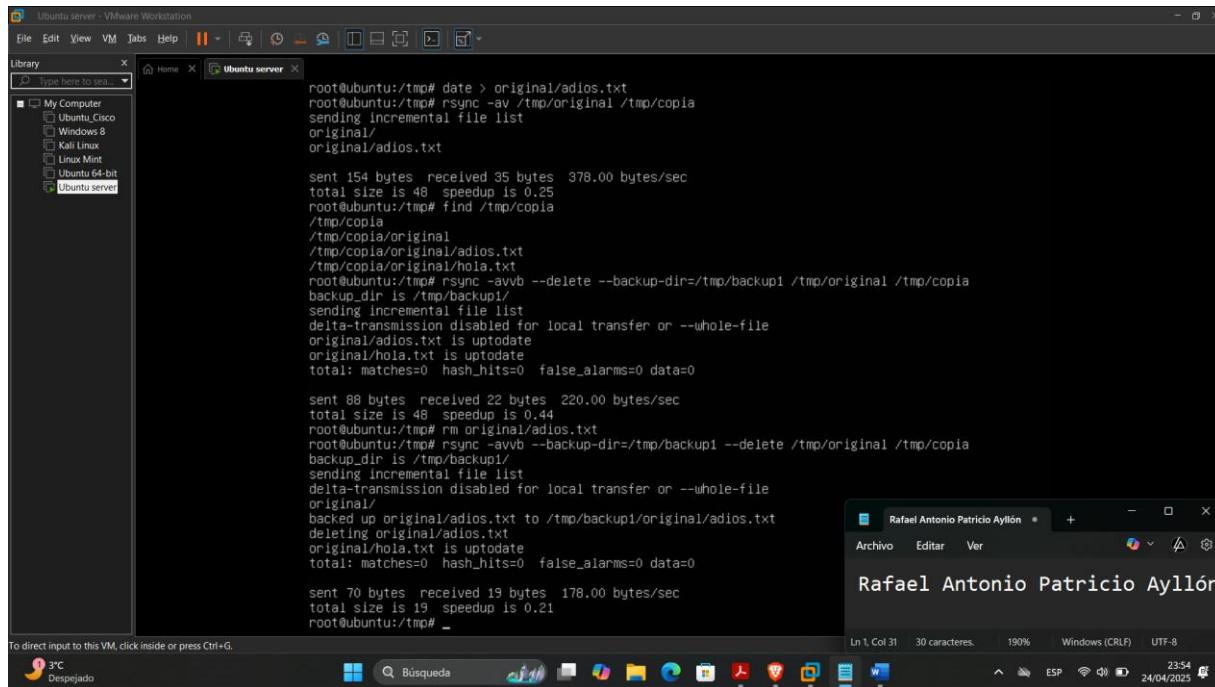
Rafael Antonio Patricio Ayllón

Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

3'C Despejado Búsqueda

ESP 23:52 24/04/2025

Esta vez la sincronización deja en el directorio /tmp/ backup1 los ficheros que resultan modificados o eliminados; en /tmp/copia siempre está la versión actual. En nuestro ejemplo vamos a borrar el fichero adios.txt y al sincronizar vemos que ya no está en original ni en copia, pero sí en backup1



```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help ||| Type here to search
Library Home Ubuntu server
My Computer
  □ Ubuntu_Cisco
  □ Windows 8
  □ Kali Linux
  □ Linux Mint
  □ Ubuntu 64-bit
  □ Ubuntu server

root@ubuntu:/tmp# date > original/adios.txt
root@ubuntu:/tmp# rsync -av /tmp/original /tmp/copia
sending incremental file list
original/
original/adios.txt

sent 154 bytes received 35 bytes 378.00 bytes/sec
total size is 48 speedup is 0.25
root@ubuntu:/tmp# find /tmp/copia
/tmpp/copia
/tmpp/copia/original
/tmpp/copia/original/adios.txt
/tmpp/copia/original/hola.txt
root@ubuntu:/tmp# rsync -avb --delete --backup-dir=/tmp/backup1 /tmp/original /tmp/copia
backup_dir is /tmp/backup1/
sending incremental file list
delta-transmission disabled for local transfer or --whole-file
original/adios.txt is uptodate
original/hola.txt is uptodate
total: matches=0 hash_hits=0 false_alarms=0 data=0

sent 88 bytes received 22 bytes 220.00 bytes/sec
total size is 48 speedup is 0.44
root@ubuntu:/tmp# rm original/adios.txt
root@ubuntu:/tmp# rsync -avb --backup-dir=/tmp/backup1 --delete /tmp/original /tmp/copia
backup_dir is /tmp/backup1/
sending incremental file list
delta-transmission disabled for local transfer or --whole-file
original/
backed up original/adios.txt to /tmp/backup1/original/adios.txt
deleting original/adios.txt
original/hola.txt is uptodate
total: matches=0 hash_hits=0 false_alarms=0 data=0

sent 70 bytes received 19 bytes 178.00 bytes/sec
total size is 19 speedup is 0.21
root@ubuntu:/tmp# _
```

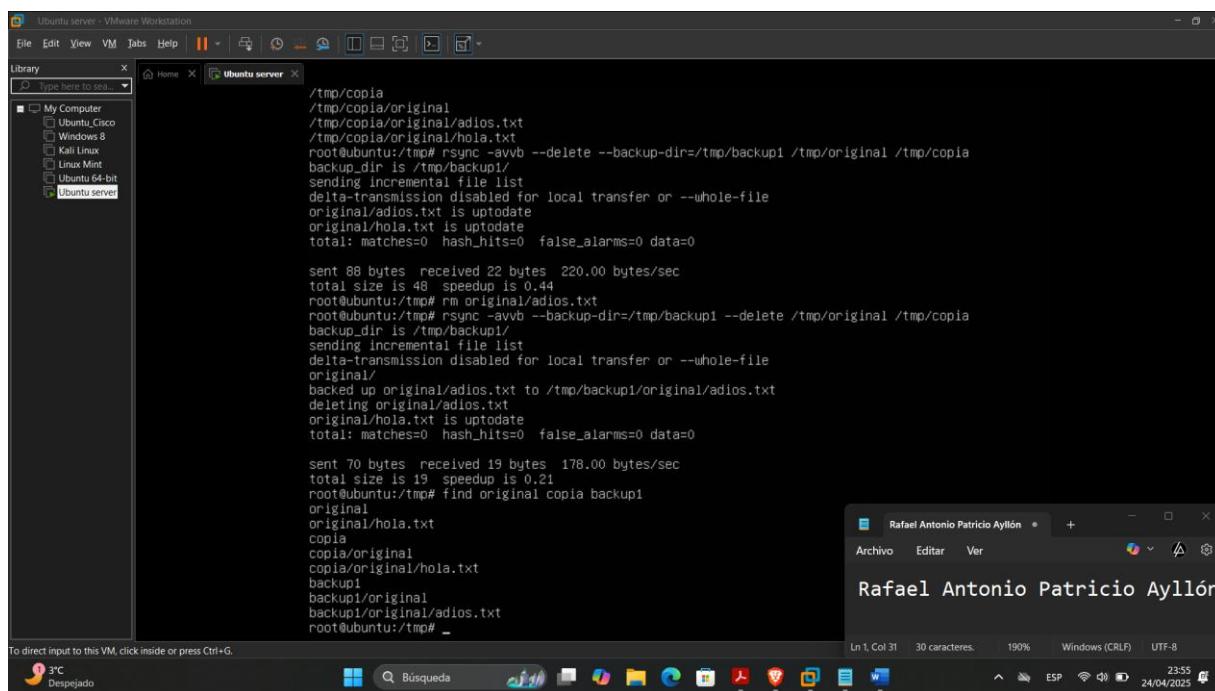
To direct input to this VM, click inside or press Ctrl+G.

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

3C Despejado



```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help ||| Type here to search
Library Home Ubuntu server
My Computer
  □ Ubuntu_Cisco
  □ Windows 8
  □ Kali Linux
  □ Linux Mint
  □ Ubuntu 64-bit
  □ Ubuntu server

/tmpp/copia
/tmpp/copia/original
/tmpp/copia/original/adios.txt
/tmpp/copia/original/hola.txt
root@ubuntu:/tmp# rsync -avb --delete --backup-dir=/tmp/backup1 /tmp/original /tmp/copia
backup_dir is /tmp/backup1/
sending incremental file list
delta-transmission disabled for local transfer or --whole-file
original/adios.txt is uptodate
original/hola.txt is uptodate
total: matches=0 hash_hits=0 false_alarms=0 data=0

sent 88 bytes received 22 bytes 220.00 bytes/sec
total size is 48 speedup is 0.44
root@ubuntu:/tmp# rm original/adios.txt
root@ubuntu:/tmp# rsync -avb --backup-dir=/tmp/backup1 --delete /tmp/original /tmp/copia
backup_dir is /tmp/backup1/
sending incremental file list
delta-transmission disabled for local transfer or --whole-file
original/
backed up original/adios.txt to /tmp/backup1/original/adios.txt
deleting original/adios.txt
original/hola.txt is uptodate
total: matches=0 hash_hits=0 false_alarms=0 data=0

sent 70 bytes received 19 bytes 178.00 bytes/sec
total size is 19 speedup is 0.21
root@ubuntu:/tmp# find original copia backup1
original
original/hola.txt
copia
copia/original
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp# _
```

To direct input to this VM, click inside or press Ctrl+G.

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

3C Despejado

Finalmente, como es imprescindible que el backup se ejecute con regularidad, vamos a probar a meterlo en cron. Le pondremos que se ejecute cada minuto (lo normal sería una vez al día), y en ese tiempo faremos cambios para comprobar el funcionamiento.

Crearemos un script llamado mibackup.sh (darle permisos de lectura escritura y ejecución) que invocaremos desde el cron. Para distinguir las distintas copias incrementales, el script utiliza la fecha en que se ejecuta, además que dejaremos un log para comprobar las copias.

El script deberá contener el siguiente código (no olvide guardar):

The screenshot shows a Linux desktop environment with a terminal window and a file editor window. The terminal window displays the output of an rsync command, showing the transfer of files from a source directory to a backup directory. The file editor window shows the contents of a file named mibackup.sh, which contains a shell script for creating backups.

```
/tmp/copia
/tmpp/copia/original
/tmpp/copia/original/adios.txt
/tmpp/copia/original/hola.txt
root@ubuntu:/tmp# rsync -avvb --delete --backup-dir=/tmp/backup1 /tmp/original /tmp/copia
backup_dir is /tmp/backup1/
sending incremental file list
delta-transmission disabled for local transfer or --whole-file
original/adios.txt is uptodate
original/hola.txt is uptodate
total: matches=0 hash_hits=0 false_alarms=0 data=0
sent 88 bytes received 22 bytes 220.00 bytes/sec
total size is 48 speedup is 0.44
root@ubuntu:/tmp# rm original/adios.txt
root@ubuntu:/tmp# rsync -avvb --delete /tmp/original /tmp/copia
backup_dir is /tmp/backup1/
sending incremental file list
delta-transmission disabled for local transfer or --whole-file
original/
backed up original/adios.txt to /tmp/backup1/original/adios.txt
deleting original/adios.txt
original/hola.txt is uptodate
total: matches=0 hash_hits=0 false_alarms=0 data=0
sent 70 bytes received 19 bytes 178.00 bytes/sec
total size is 19 speedup is 0.21
root@ubuntu:/tmp# find original copia backup1
original
original/hola.txt
copia
copia/original
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp# nano mibackup.sh
```

Rafael Antonio Patricio Ayllón

The screenshot shows a Linux desktop environment with a terminal window and a file editor window. The terminal window displays the command used to create a backup script named mibackup.sh. The file editor window shows the contents of the mibackup.sh file, which is a shell script that uses the date command to append the current date to the log file name.

```
#!/bin/sh
FECHA=$(date +\%Y\%m\%d\%H\%M)
rsync -avvb --delete --backup-dir=/tmp/backup1 /tmp/original /tmp/copia >> /tmp/log_\$FECHA_.log
```

Rafael Antonio Patricio Ayllón

```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Type here to search
Library Home Ubuntu server
root@ubuntu:/tmp# chmod +x mibackup.sh
root@ubuntu:/tmp# ls -l
total 20
drwxr-xr-x 3 root root 4096 Apr 24 20:54 Backup1
drwxr-xr-x 3 root root 4096 Apr 24 20:44 copia
-rwxr-xr-x 1 root root 127 Apr 24 21:12 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 24 20:53 original
drwx----- 2 root root 4096 Apr 24 16:36 vmware-root_1410-2696942911
root@ubuntu:/tmp# _
```

To direct input to this VM, click inside or press Ctrl+G.

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

Rafael Antonio Patricio Ayllón

Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

0:19 ESP 25/04/2025

```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Type here to search
Library Home Ubuntu server
root@ubuntu:/tmp# cat mibackup.sh
#!/bin/sh
FECHA=$(date +%Y%m%d%H%M)
rsync -avv --backup-dir=/tmp/backup1 --delete /tmp/original /tmp/copia >> /tmp/log_${FECHA}
root@ubuntu:/tmp# _
```

To direct input to this VM, click inside or press Ctrl+G.

Rafael Antonio Patricio Ayllón

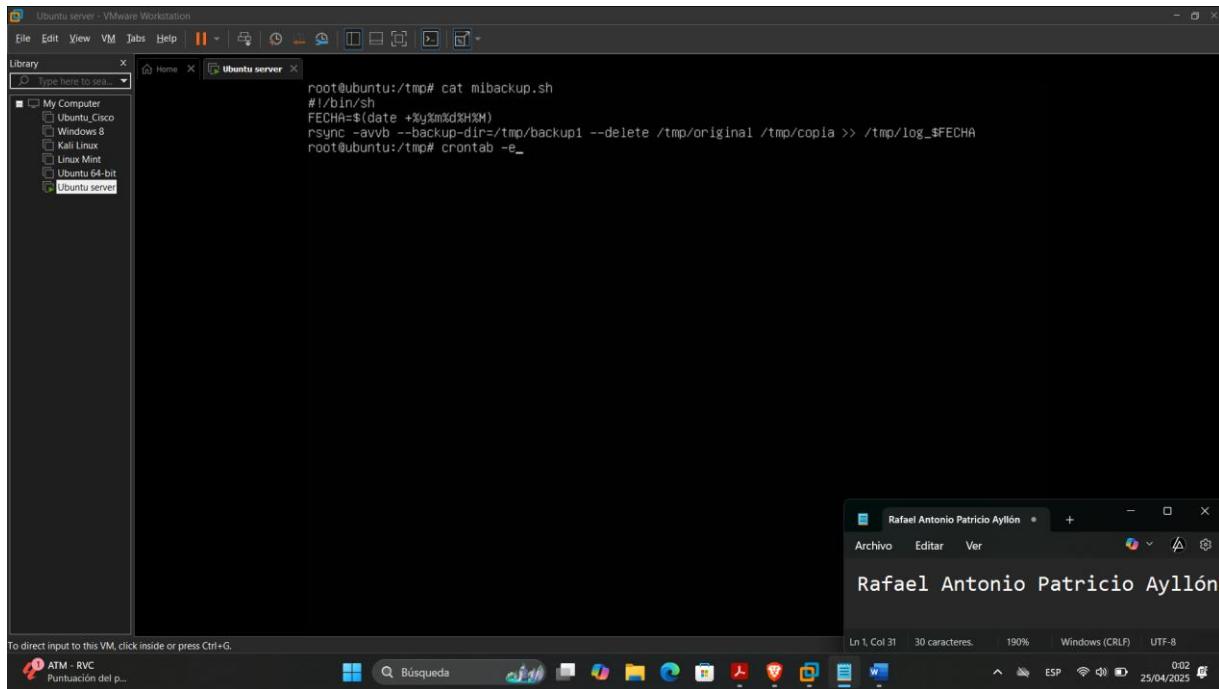
Archivo Editar Ver

Rafael Antonio Patricio Ayllón

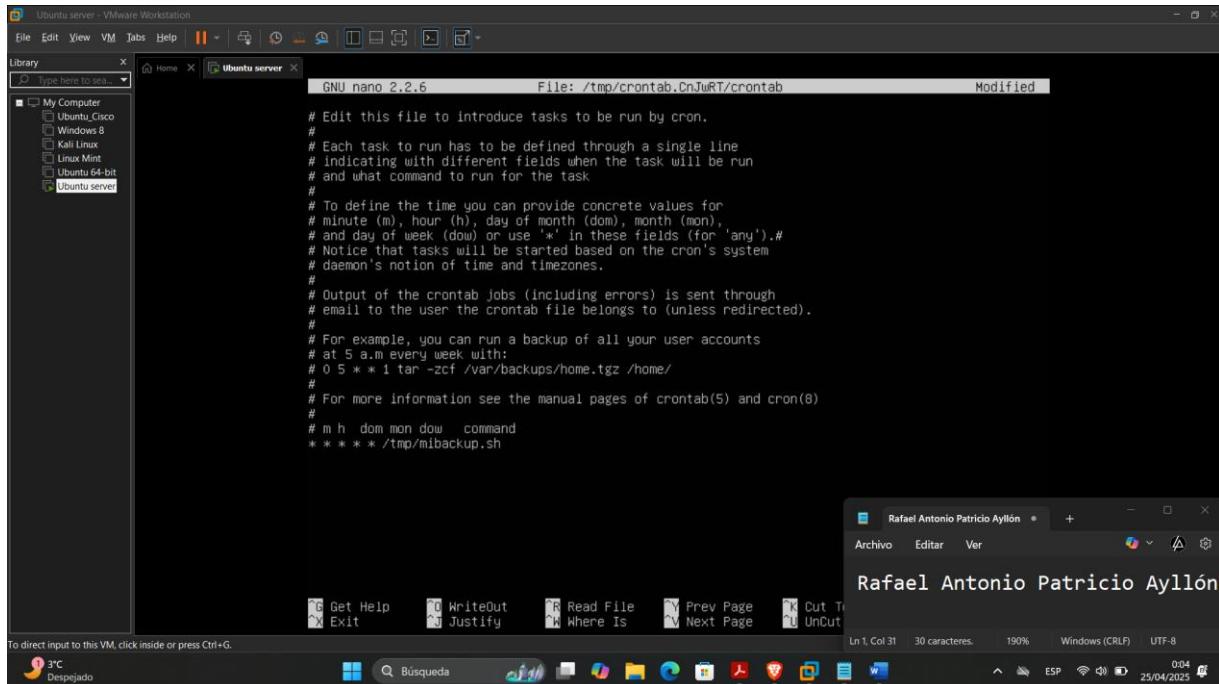
Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

0:01 ESP 25/04/2025

Procedemos a editar el cron ingresando el comando: crontab -e



Ingresando el comando: crontab -e, para hacer referencia a nuestro script para que lo ejecute (no olvide guardar) el archivo debe quedar de la siguiente forma.



Si queremos ver el contenido de crontab utilizamos: crontab -l

The screenshot shows a VMware Workstation interface with two windows. The foreground window is a terminal session on an 'Ubuntu server' VM, displaying the contents of the root crontab file. The background window is a browser on a host machine, showing a profile for 'Rafael Antonio Patricio Ayllón'.

```
root@ubuntu:/tmp# crontab -l
#
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow   command
* * * * * ./tmp/mibackup.sh
root@ubuntu:/tmp#
```

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

Rafael Antonio Patricio Ayllón

Ln 1, Col 31 30 caracteres. 190% Windows (CR/LF) UTF-8

A continuación, inicializamos el servicio:

To direct input to this VM, click inside or press Ctrl+G.

```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Library Home Ubuntu server
root@ubuntu:/tmp# crontab -l
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minutes (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow command
* * * * * /tmp/nibuscript.sh
root@ubuntu:/tmp# sudo /etc/init.d/cron start
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron start

Since the script you are attempting to invoke has been converted to an
Upstart job, you may also use the start(8) utility, e.g. start cron
root@ubuntu:/tmp# _
```

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Archivo Editar Ver

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3°C Despejado

Si listamos después de cada minuto un nuevo log aparecerá, indicando que la copia se realizó, en este caso cada minuto.

```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Type here to search
Library Home Ubuntu server
Type here to search
My Computer
Ubuntu,Cisco
Windows 8
Kali Linux
Linux Mint
Ubuntu 64-bit
Ubuntu server

root@ubuntu:/tmp# sudo /etc/init.d/cron start
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron start
root@ubuntu:/tmp# ls -l
total 24
drwxr-xr-x 3 root root 4096 Apr 24 20:54 backup1
drwxr-xr-x 3 root root 4096 Apr 24 20:44 copia1
-rw-r--r-- 1 root root 290 Apr 24 21:19 log_2504242119
-rw-r--r-- 1 root root 127 Apr 24 21:12 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 24 20:53 original1
drwx----- 2 root root 4096 Apr 24 16:36 vmware-root_1410-2696942911
root@ubuntu:/tmp# ls -l
total 28
drwxr-xr-x 3 root root 4096 Apr 24 20:54 backup1
drwxr-xr-x 3 root root 4096 Apr 24 20:44 copia1
-rw-r--r-- 1 root root 290 Apr 24 21:19 log_2504242119
-rw-r--r-- 1 root root 290 Apr 24 21:20 log_2504242120
-rw-r--r-- 1 root root 127 Apr 24 21:12 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 24 20:53 original1
drwx----- 2 root root 4096 Apr 24 16:36 vmware-root_1410-2696942911
root@ubuntu:/tmp#
```

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To direct input to this VM, click inside or press Ctrl+G.

2°C Despejado

Para detener el servicio utilizamos cron stop, caso contrario se llenará el disco de respaldos.

```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Type here to search
Library Home Ubuntu server
Type here to search
My Computer
Ubuntu,Cisco
Windows 8
Kali Linux
Linux Mint
Ubuntu 64-bit
Ubuntu server

Since the script you are attempting to invoke has been converted to an
Upstart job, you may also use the start(8) utility, e.g. start cron
root@ubuntu:/tmp# ls -l
total 24
drwxr-xr-x 3 root root 4096 Apr 24 20:54 backup1
drwxr-xr-x 3 root root 4096 Apr 24 20:44 copia1
-rw-r--r-- 1 root root 290 Apr 24 21:19 log_2504242119
-rw-r--r-- 1 root root 127 Apr 24 21:12 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 24 20:53 original1
drwx----- 2 root root 4096 Apr 24 16:36 vmware-root_1410-2696942911
root@ubuntu:/tmp# ls -l
total 28
drwxr-xr-x 3 root root 4096 Apr 24 20:54 backup1
drwxr-xr-x 3 root root 4096 Apr 24 20:44 copia1
-rw-r--r-- 1 root root 290 Apr 24 21:19 log_2504242119
-rw-r--r-- 1 root root 290 Apr 24 21:20 log_2504242120
-rw-r--r-- 1 root root 127 Apr 24 21:12 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 24 20:53 original1
drwx----- 2 root root 4096 Apr 24 16:36 vmware-root_1410-2696942911
root@ubuntu:/tmp# sudo /etc/init.d/cron stop
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron stop
root@ubuntu:/tmp# ls -l
total 28
drwxr-xr-x 3 root root 4096 Apr 24 20:54 backup1
drwxr-xr-x 3 root root 4096 Apr 24 20:44 copia1
-rw-r--r-- 1 root root 290 Apr 24 21:19 log_2504242119
-rw-r--r-- 1 root root 290 Apr 24 21:20 log_2504242120
-rw-r--r-- 1 root root 127 Apr 24 21:12 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 24 20:53 original1
drwx----- 2 root root 4096 Apr 24 16:36 vmware-root_1410-2696942911
root@ubuntu:/tmp#
```

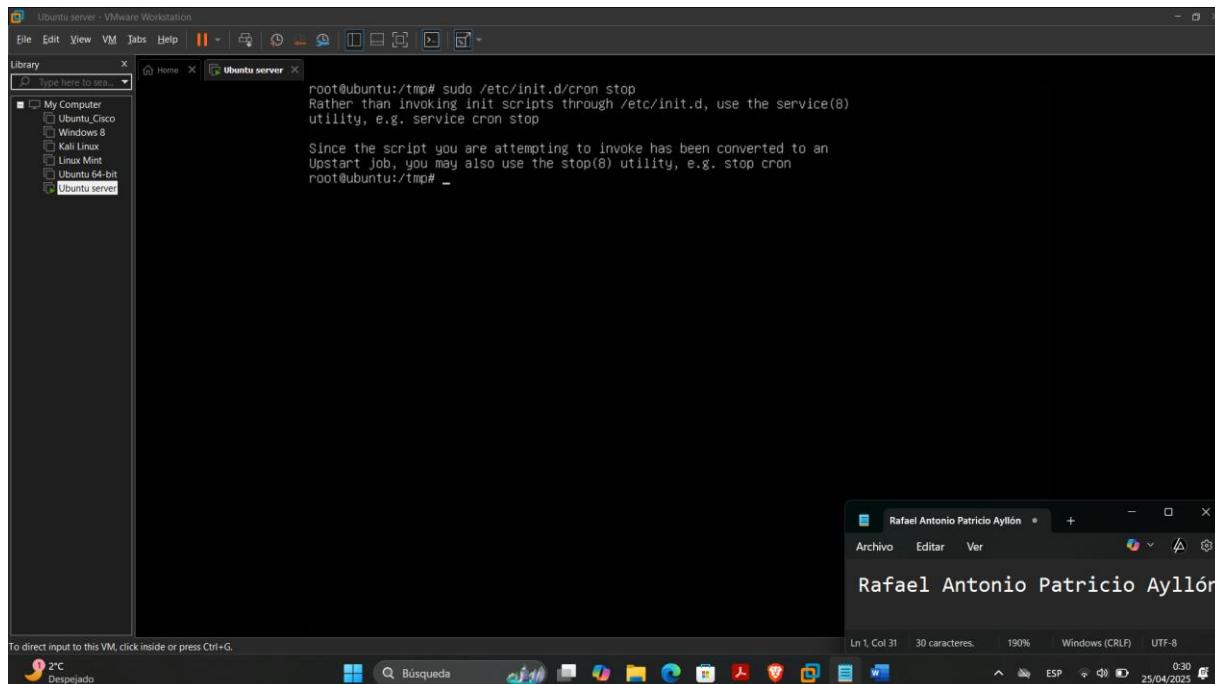
Rafael Antonio Patricio Ayllón

To direct input to this VM, click inside or press Ctrl+G.

2°C Despejado

Evaluación

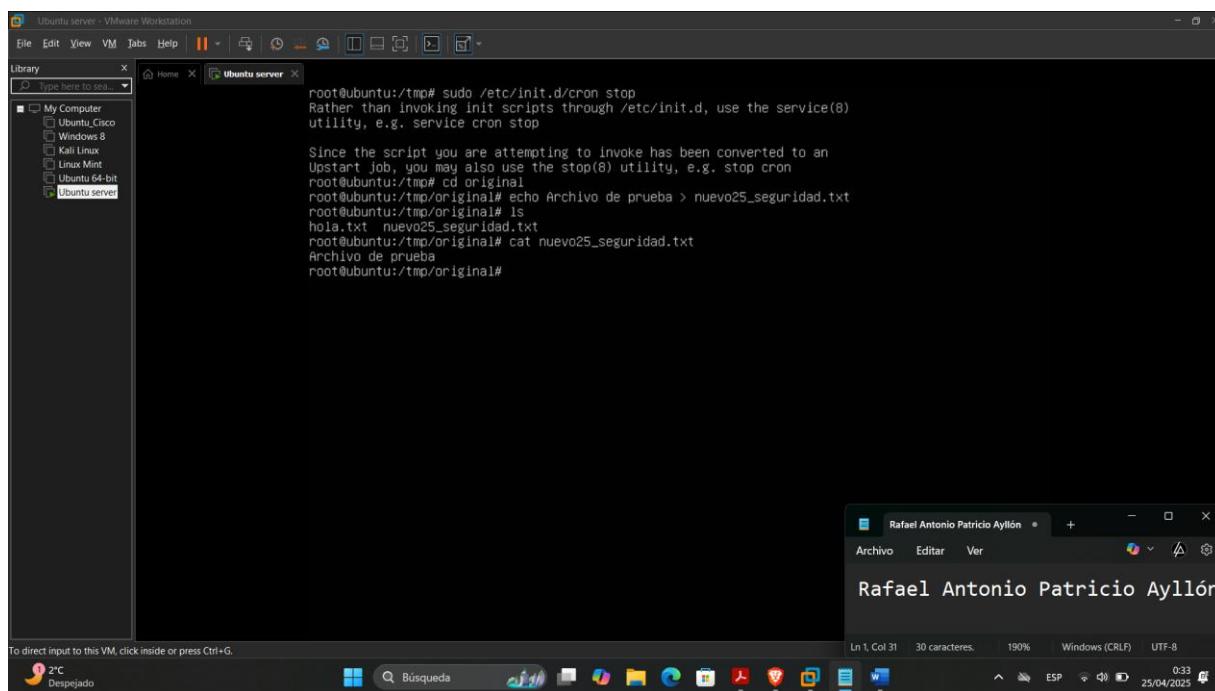
1.- Primeramente, detenga el servicio de cron. Ahora cree un nuevo archivo de texto en la carpeta original con el nombre nuevo25_seguridad.txt, y ayudado por el comando find que utilizó en la primera parte, observe el comportamiento de las 3 carpetas.



```
root@ubuntu:/tmp# sudo /etc/init.d/cron stop
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron stop

Since the script you are attempting to invoke has been converted to an
Upstart Job, you may also use the stop(8) utility, e.g. stop cron
root@ubuntu:/tmp#
```

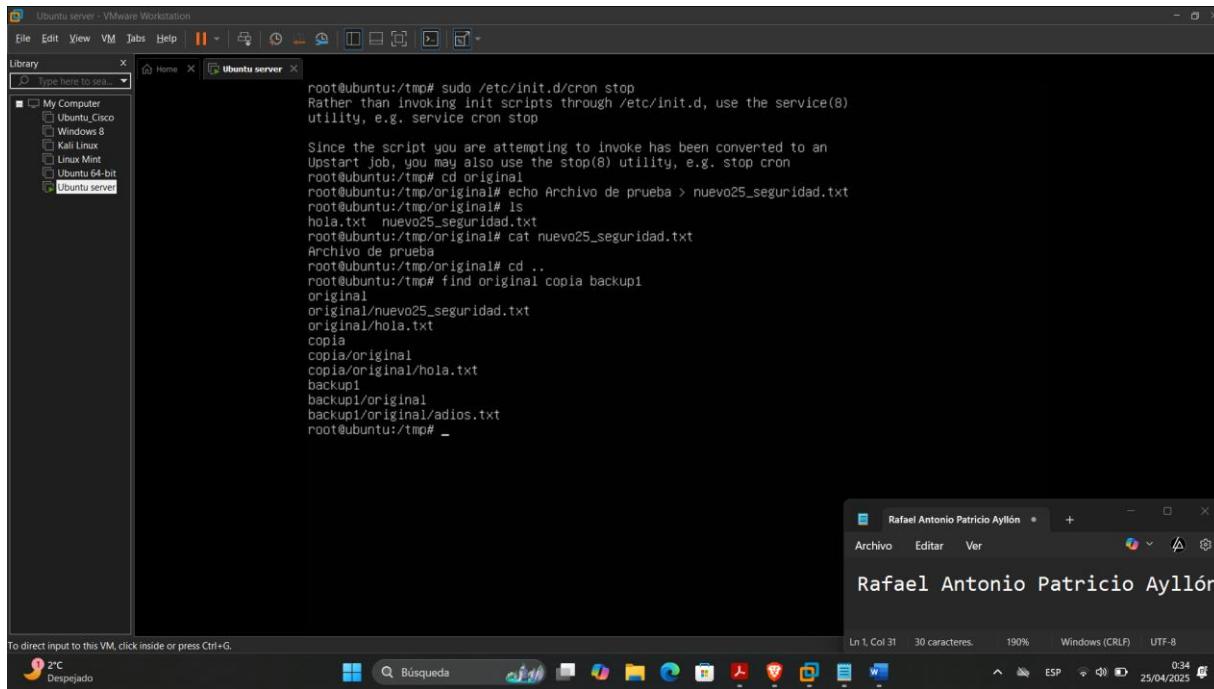
Rafael Antonio Patricio Ayllón



```
root@ubuntu:/tmp# sudo /etc/init.d/cron stop
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron stop

Since the script you are attempting to invoke has been converted to an
Upstart Job, you may also use the stop(8) utility, e.g. stop cron
root@ubuntu:/tmp/original# cd original
root@ubuntu:/tmp/original# echo Archivo de prueba > nuevo25_seguridad.txt
root@ubuntu:/tmp/original# ls
hola.txt  nuevo25_seguridad.txt
root@ubuntu:/tmp/original# cat nuevo25_seguridad.txt
Archivo de prueba
root@ubuntu:/tmp/original#
```

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```
root@ubuntu:/tmp# sudo /etc/init.d/cron stop
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron stop

Since the script you are attempting to invoke has been converted to an
Upstart job, you may also use the stop(8) utility, e.g. stop cron
root@ubuntu:/tmp# cd original
root@ubuntu:/tmp/original# echo Archivo de prueba > nuevo25_seguridad.txt
root@ubuntu:/tmp/original# ls
hola.txt  nuevo25_seguridad.txt
root@ubuntu:/tmp/original# cat nuevo25_seguridad.txt
Archivo de prueba
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# find original copia backup1
original
original/nuevo25_seguridad.txt
original/hola.txt
copia
copia/original
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp# _
```

To direct input to this VM, click inside or press Ctrl+G.

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Archivo Editar Ver

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0:34 ESP 25/04/2025

Comando find que utilizó:

find original copia backup1

¿Qué archivos están inicialmente en original, copia y backup1?

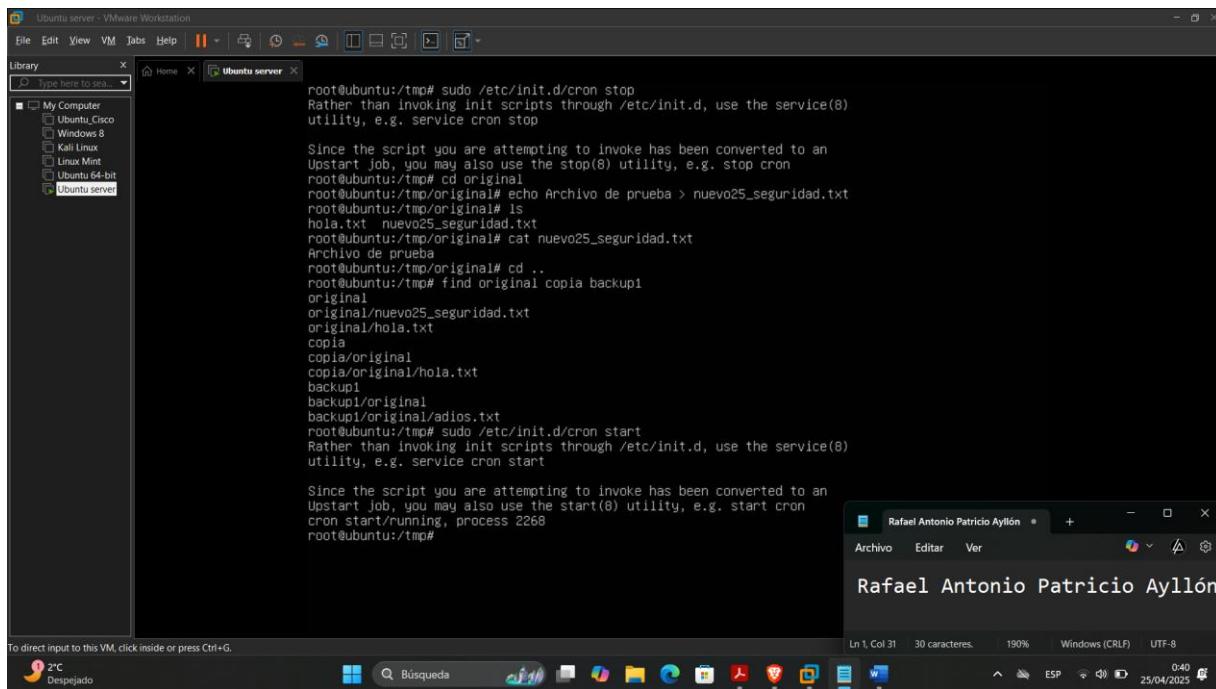
```
root@ubuntu:/tmp# find original copia backup1
original
original/nuevo25_seguridad.txt
original/hola.txt
copia
copia/original
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
```

/tmp/original debe contener: hola.txt y nuevo25_seguridad.txt

/tmp/copia contiene: hola.txt

/tmp/backup1 contiene: adios.txt

2.- Vuelva a iniciar el servicio de cron, Pasado 1 minuto vuelva a ver las mismas carpetas mediante find ¿Qué cambios ocurrieron?



```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help ||| Home Ubuntu server
Library Type here to search...
My Computer
  □ Ubuntu_Cisco
  □ Windows 8
  □ Kali Linux
  □ Linux Mint
  □ Ubuntu 64-bit
  □ Ubuntu server

root@ubuntu:/tmp# sudo /etc/init.d/cron stop
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron stop

Since the script you are attempting to invoke has been converted to an
Upstart Job, you may also use the stop(8) utility, e.g. stop cron
root@ubuntu:/tmp# cd original
root@ubuntu:/tmp/original# echo Archivo de prueba > nuevo25_seguridad.txt
root@ubuntu:/tmp/original# ls
holo.txt nuevo25_seguridad.txt
root@ubuntu:/tmp/original# cat nuevo25_seguridad.txt
Archivo de prueba
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# find original copia backup1
original
original/nuevo25_seguridad.txt
original/hola.txt
copia
copia/original
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp# sudo /etc/init.d/cron start
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron start

Since the script you are attempting to invoke has been converted to an
Upstart Job, you may also use the start(8) utility, e.g. start cron
cron start/running, process 2268
root@ubuntu:/tmp#
```

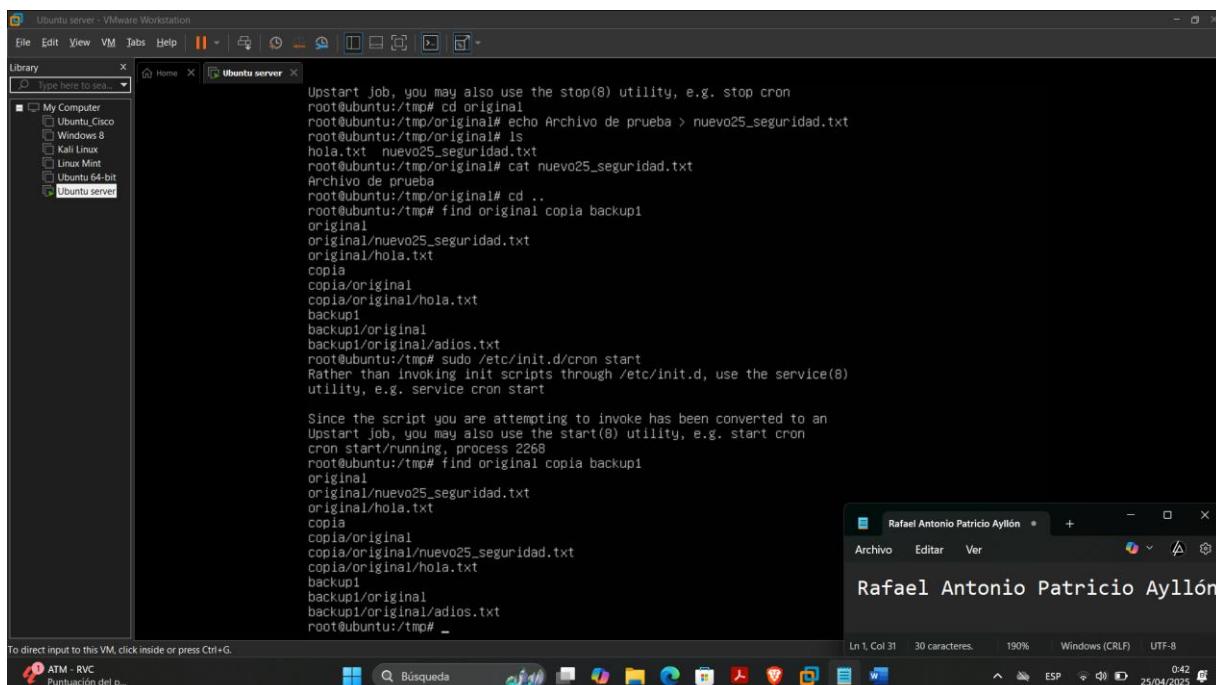
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Archivo Editar Ver

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Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

ESP 0:40 25/04/2025



```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help ||| Home Ubuntu server
Library Type here to search...
My Computer
  □ Ubuntu_Cisco
  □ Windows 8
  □ Kali Linux
  □ Linux Mint
  □ Ubuntu 64-bit
  □ Ubuntu server

root@ubuntu:/tmp# cd original
Upstart job, you may also use the stop(8) utility, e.g. stop cron
root@ubuntu:/tmp# echo Archivo de prueba > nuevo25_seguridad.txt
root@ubuntu:/tmp# ls
holo.txt nuevo25_seguridad.txt
root@ubuntu:/tmp# cat nuevo25_seguridad.txt
Archivo de prueba
root@ubuntu:/tmp# cd ..
root@ubuntu:/tmp# find original copia backup1
original
original/nuevo25_seguridad.txt
original/hola.txt
copia
copia/original
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp# sudo /etc/init.d/cron start
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron start

Since the script you are attempting to invoke has been converted to an
Upstart Job, you may also use the start(8) utility, e.g. start cron
cron start/running, process 2268
root@ubuntu:/tmp# find original copia backup1
original
original/nuevo25_seguridad.txt
original/hola.txt
copia
copia/original
copia/original/nuevo25_seguridad.txt
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp#
```

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Archivo Editar Ver

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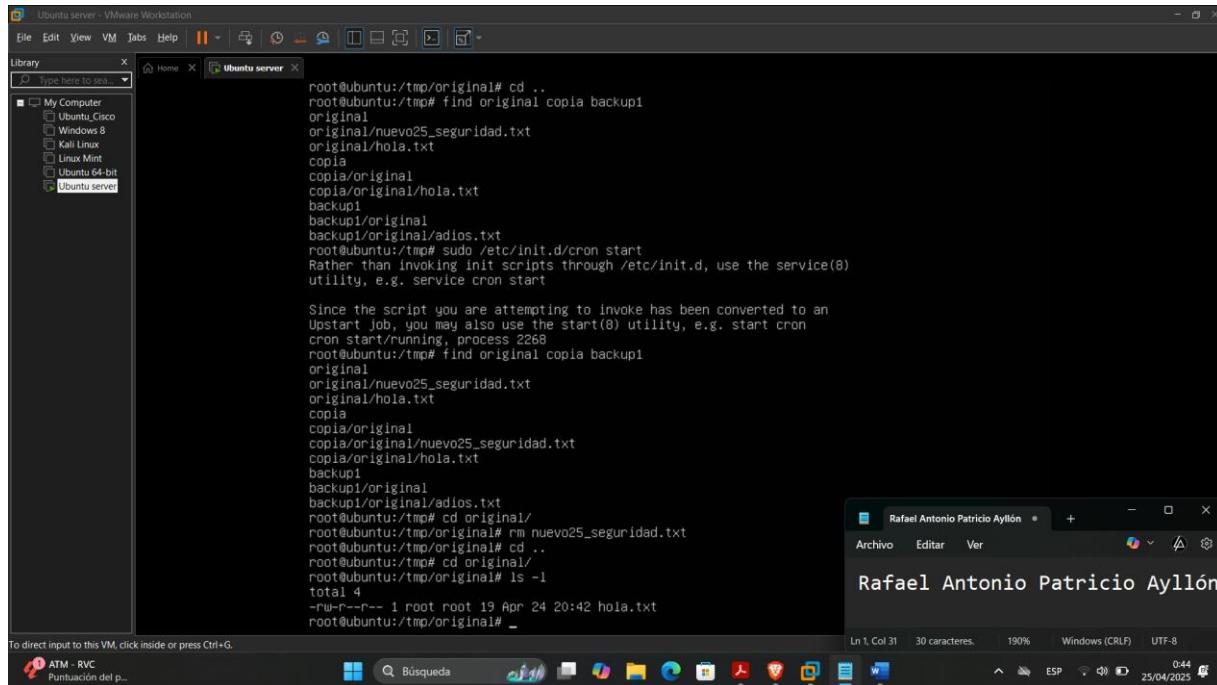
ESP 0:42 25/04/2025

El archivo nuevo25_seguridad.txt ahora aparece también en /tmp/copia

/tmp/original y /tmp/copia estan sincronizados.

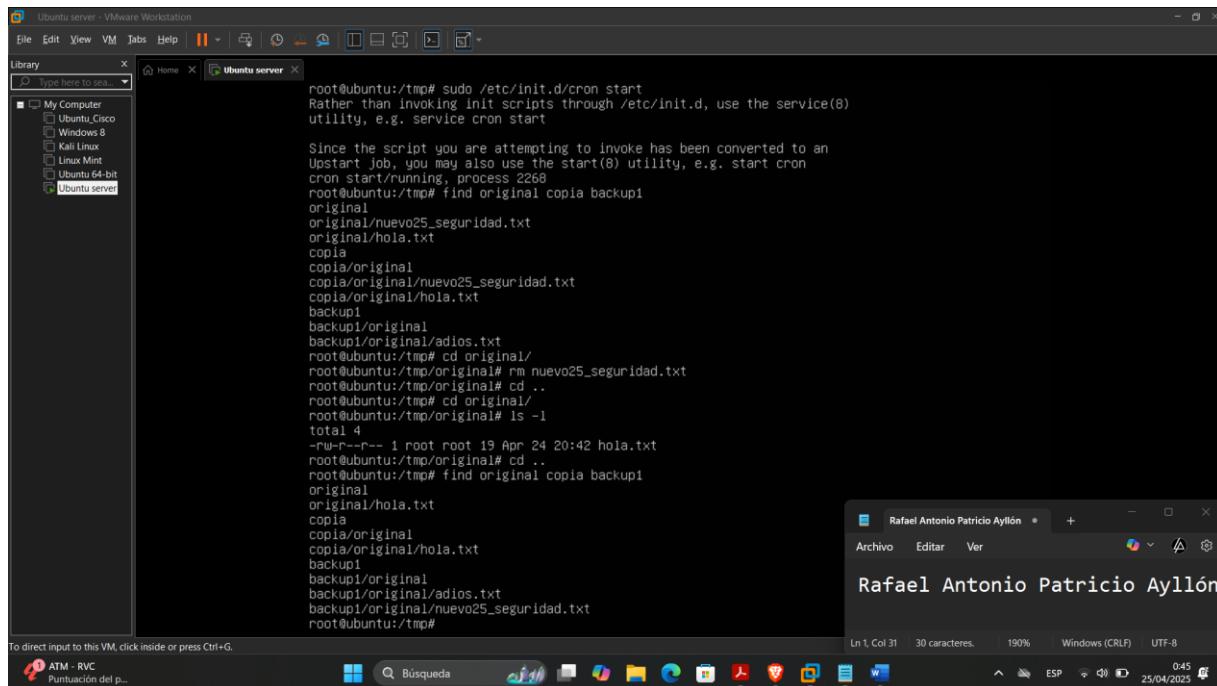
/tmp/backup1 no tiene nuevos archivos.

3.- Borre el archivo nuevo25_seguridad.txt, pasado 1 minuto ;Qué ocurrió? utilice find



```
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# find original copia backup1
original
original/nuevo25_seguridad.txt
original/hola.txt
copia
copia/original
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp# sudo /etc/init.d/cron start
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron start

Since the script you are attempting to invoke has been converted to an
Upstart job, you may also use the start(8) utility, e.g. start cron
cron start/running, process 2268
root@ubuntu:/tmp# find original copia backup1
original
original/nuevo25_seguridad.txt
original/hola.txt
copia
copia/original
copia/original/nuevo25_seguridad.txt
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp# cd original/
root@ubuntu:/tmp/original# rm nuevo25_seguridad.txt
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# cd original/
root@ubuntu:/tmp/original# ls -l
total 4
-rw-r--r-- 1 root root 19 Apr 24 20:42 hola.txt
root@ubuntu:/tmp/original#
```



```
root@ubuntu:/tmp# sudo /etc/init.d/cron start
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service cron start

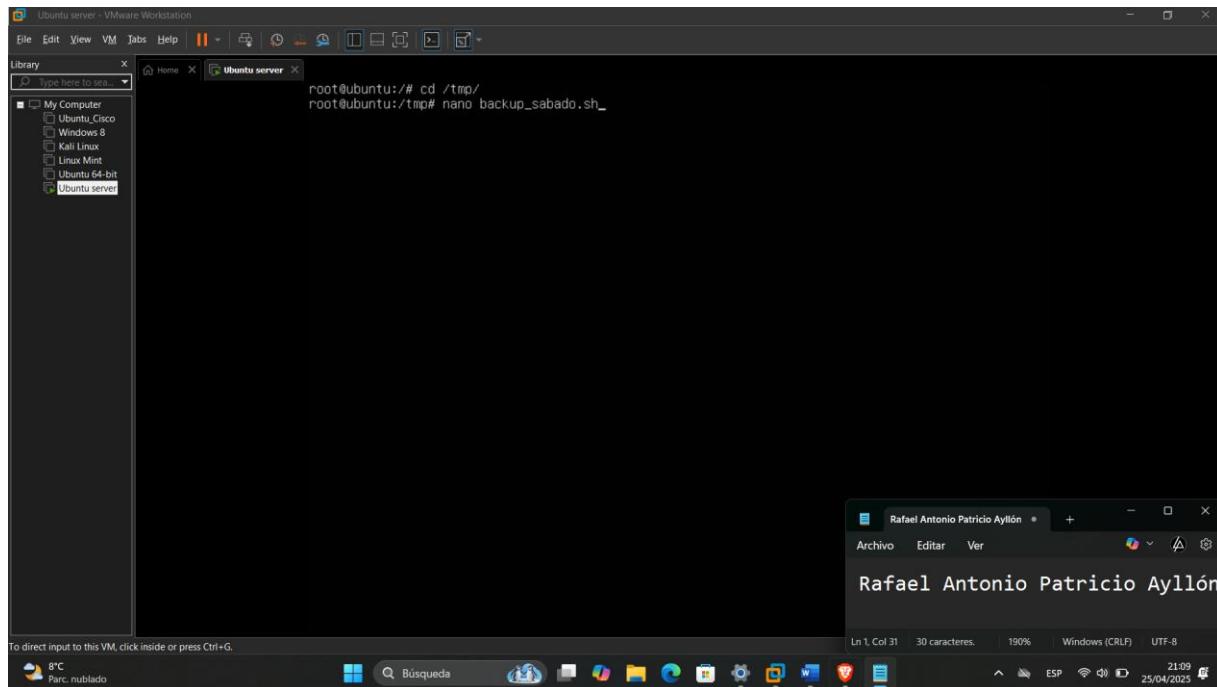
Since the script you are attempting to invoke has been converted to an
Upstart job, you may also use the start(8) utility, e.g. start cron
cron start/running, process 2268
root@ubuntu:/tmp# find original copia backup1
original
original/nuevo25_seguridad.txt
original/hola.txt
copia
copia/original
copia/original/nuevo25_seguridad.txt
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
root@ubuntu:/tmp# cd original/
root@ubuntu:/tmp/original# rm nuevo25_seguridad.txt
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# cd original/
root@ubuntu:/tmp/original# ls -l
total 4
-rw-r--r-- 1 root root 19 Apr 24 20:42 hola.txt
root@ubuntu:/tmp/original# cd ..
root@ubuntu:/tmp# find original copia backup1
original
original/hola.txt
copia
copia/original
copia/original/hola.txt
backup1
backup1/original
backup1/original/adios.txt
backup1/original/nuevo25_seguridad.txt
root@ubuntu:/tmp#
```

El archivo ya no esta en /tmp/original ni en /tmp/copia.

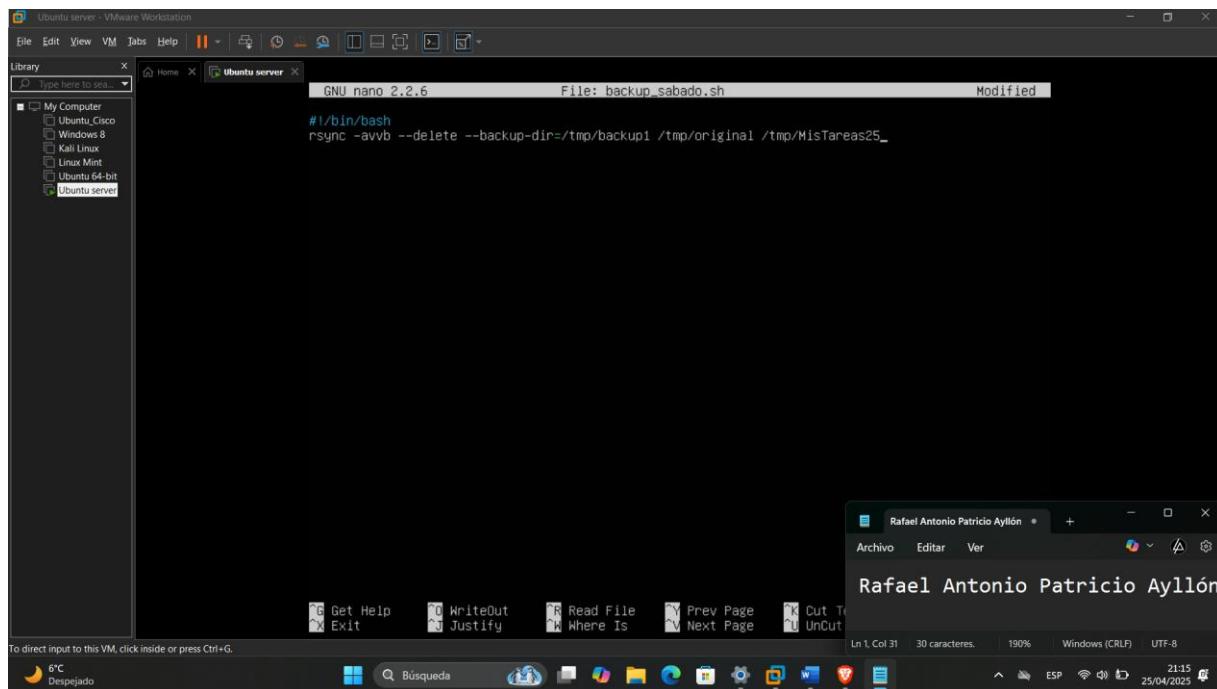
Pero sí aparece en /tmp/backup1, como parte de la copia de seguridad incremental.

4.- Realice las tareas necesarias para realizar una copia de seguridad incremental a un directorio llamado MisTareas25, para que se realicen automáticamente cada día sábado a las 19:30.

Creamos el script



```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Library Type here to search
Ubuntu server
root@ubuntu:~# cd /tmp/
root@ubuntu:/tmp# nano backup_sabado.sh
```



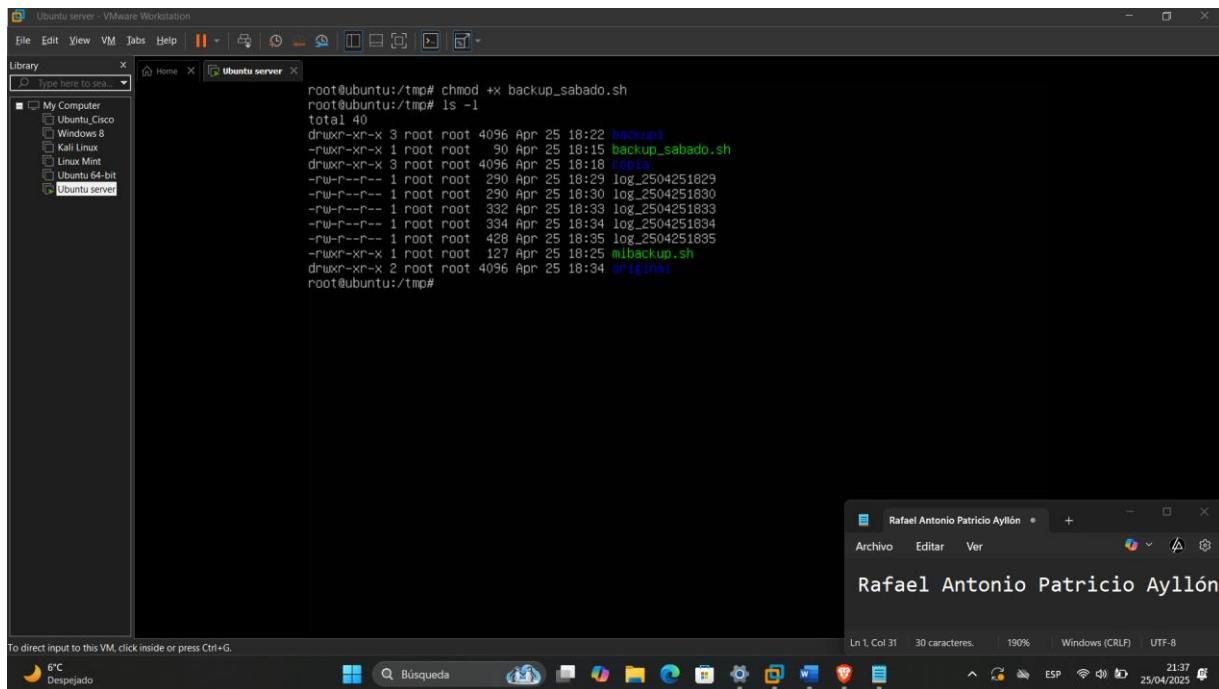
```
Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Library Type here to search
Ubuntu server
GNU nano 2.2.6 File: backup_sabado.sh Modified
#!/bin/bash
rsync -avv --delete --backup-dir=/tmp/backup1 /tmp/original /tmp/MisTareas25
```

rsync sincroniza el contenido de /tmp/original con /tmp/MisTareas25.

Solo copia archivos nuevos o modificados.

Si algún archivo fue eliminado en original, también se elimina en MisTareas25, pero una copia previa se guarda en /tmp/backup1.

Damos permisos



```
root@ubuntu:/tmp# chmod +x backup_sabado.sh
root@ubuntu:/tmp# ls -l
total 40
drwxr-xr-x 3 root root 4096 Apr 25 18:22 backup1
-rw-r--r-- 1 root root 90 Apr 25 18:15 backup_sabado.sh
drwxr-xr-x 3 root root 4096 Apr 25 18:18 tmp1
-rw-r--r-- 1 root root 250 Apr 25 18:29 log_2504251829
-rw-r--r-- 1 root root 250 Apr 25 18:30 log_2504251830
-rw-r--r-- 1 root root 332 Apr 25 18:33 log_2504251833
-rw-r--r-- 1 root root 334 Apr 25 18:34 log_2504251834
-rw-r--r-- 1 root root 428 Apr 25 18:35 log_2504251835
-rwxr-xr-x 1 root root 127 Apr 25 18:25 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 25 18:34 original
root@ubuntu:/tmp#
```

Rafael Antonio Patricio Ayllón

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Programamos en cron

```
# Edit this file to introduce tasks to be run by cron.  
#  
# Each task to run has to be defined through a single line  
# indicating with different fields when the task will be run  
# and what command to run for the task  
#  
# To define the time you can provide concrete values for  
# minute (m), hour (h), day of month (dom), month (mon)  
# and day of week (dow) or use '*' in these fields (for 'any').#  
# Notice that tasks will be started based on the cron's system  
# daemon's notion of time and timezones.  
#  
# Output of the crontab jobs (including errors) is sent through  
# email to the user the crontab file belongs to (unless redirected).  
#  
# For example, you can run a backup of all your user accounts  
# at 5 a.m every week with:  
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/  
#  
# For more information see the manual pages of crontab(5) and cron(8)  
#  
# m h dom mon dow command  
* * * * * /tmp/nibackup.sh  
30 19 * * 6 /tmp/backup_sabado.sh
```

30 = minuto 30

19 = hora 19 (7:30 PM)

* = cualquier día del mes

* = cualquier mes

6 = sábado

El script se ejecutará todos los sábados a las 19:30 horas.

```

Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Type here to search
Library My Computer
Ubuntu_Cisco
Windows 8
Kali Linux
Linux Mint
Ubuntu 64-bit
Ubuntu server
@ Home Ubuntu server
root@ubuntu:/tmp# ls -l
total 48
drwxr-xr-x 3 root root 290 Apr 25 18:30 log_2504251830
-rw-r--r-- 1 root root 332 Apr 25 18:33 log_2504251833
-rw-r--r-- 1 root root 334 Apr 25 18:34 log_2504251834
-rw-r--r-- 1 root root 428 Apr 25 18:35 log_2504251835
-rw-r--r-- 1 root root 127 Apr 25 18:25 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 25 18:34 original
root@ubuntu:/tmp# find original MisTareas25 backup1
original
original/hola.txt
find: 'MisTareas25': No such file or directory
backup1
backup1/original
backup1/original/adios.txt
backup1/original/nuevo25_seguridad.txt
root@ubuntu:/tmp# ls -l
total 48
drwxr-xr-x 3 root root 290 Apr 25 18:22 backup1
-rw-r--r-- 1 root root 90 Apr 25 18:15 backup_sabado.sh
drwxr-xr-x 3 root root 4096 Apr 25 18:18 copia
-rw-r--r-- 1 root root 290 Apr 25 18:29 log_2504251829
-rw-r--r-- 1 root root 290 Apr 25 18:30 log_2504251830
-rw-r--r-- 1 root root 332 Apr 25 18:33 log_2504251833
-rw-r--r-- 1 root root 334 Apr 25 18:34 log_2504251834
-rw-r--r-- 1 root root 428 Apr 25 18:35 log_2504251835
-rw-r--r-- 1 root root 290 Apr 25 18:49 log_2504251849
-rw-r--r-- 1 root root 290 Apr 25 18:50 log_2504251850
-rw-r--r-- 1 root root 127 Apr 25 18:25 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 25 18:34 original
root@ubuntu:/tmp# find original MisTareas25 backup1
original
original/hola.txt
find: 'MisTareas25': No such file or directory
backup1
backup1/original
backup1/original/adios.txt
backup1/original/nuevo25_seguridad.txt
root@ubuntu:/tmp#

```

To direct input to this VM, click inside or press Ctrl+G.

4°C Despejado

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

Rafael Antonio Patricio Ayllón

Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

21:50 ESP 25/04/2025

5.- Realice las tareas necesarias para realizar una copia de seguridad incremental a un directorio llamado TusTareas25, para que se realicen automáticamente todos los días lunes, miércoles y viernes a las 00:55am.

Creamos el script

```

Ubuntu server - VMware Workstation
File Edit View VM Tabs Help || Type here to search
Library My Computer
Ubuntu_Cisco
Windows 8
Kali Linux
Linux Mint
Ubuntu 64-bit
Ubuntu server
@ Home Ubuntu server
root@ubuntu:/tmp# nano backup_lmv.sh

```

To direct input to this VM, click inside or press Ctrl+G.

5°C Despejado

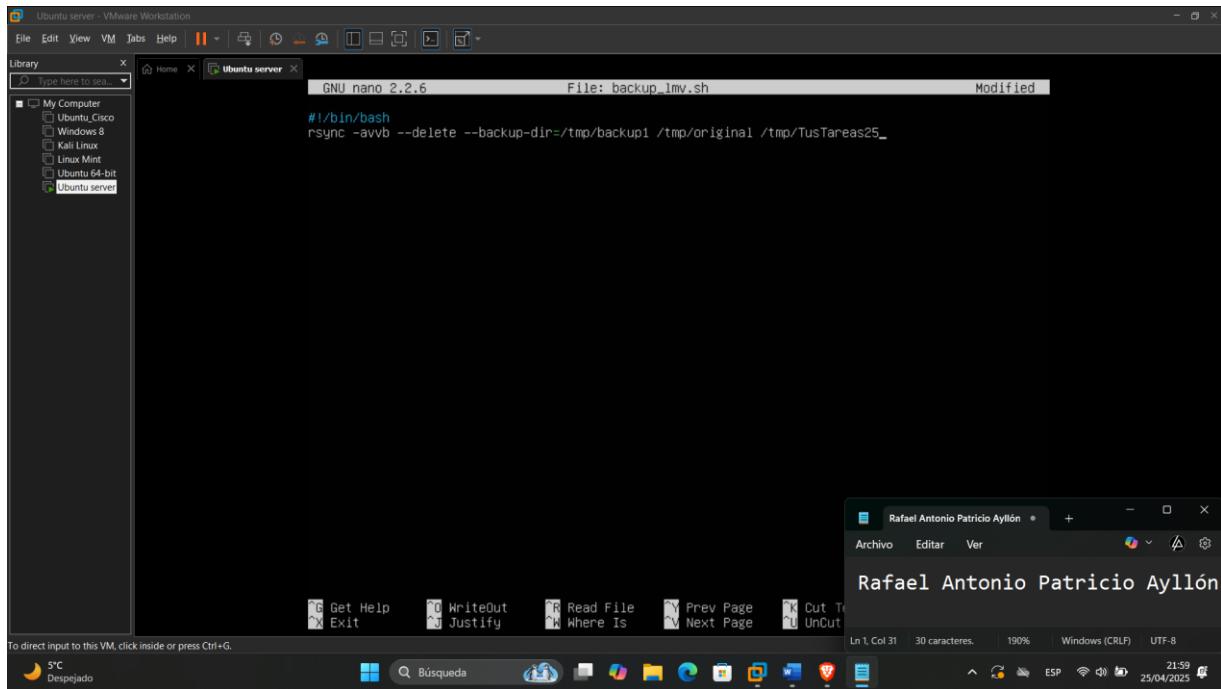
Rafael Antonio Patricio Ayllón

Archivo Editar Ver

Rafael Antonio Patricio Ayllón

Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

21:57 ESP 25/04/2025



rsync sincroniza el contenido de /tmp/original con /tmp/TusTareas25.

Solo copia archivos nuevos o modificados.

Si algún archivo fue eliminado en original, también se elimina en TusTareas25, pero una copia previa se guarda en /tmp/backup1.

Damos permisos

```

Ubuntu server - VMware Workstation
File Edit View VM Tabs Help ||| Library Type here to sea...
Ubuntu server
root@ubuntu:/tmp# chmod +x backup_imv.sh
root@ubuntu:/tmp# ls -l
total 52
drwxr-xr-x 3 root root 4096 Apr 25 18:22 backup1
-rw-r--r-- 1 root root 90 Apr 25 19:00 backup_imv.sh
-rw-r--r-- 1 root root 90 Apr 25 18:15 backup_sabado.sh
drwxr-xr-x 3 root root 4096 Apr 25 18:18 copia
-rw-r--r-- 1 root root 290 Apr 25 18:29 log_2504251829
-rw-r--r-- 1 root root 290 Apr 25 18:30 log_2504251830
-rw-r--r-- 1 root root 332 Apr 25 18:33 log_2504251833
-rw-r--r-- 1 root root 334 Apr 25 18:34 log_2504251834
-rw-r--r-- 1 root root 428 Apr 25 18:35 log_2504251835
-rw-r--r-- 1 root root 290 Apr 25 18:49 log_2504251849
-rw-r--r-- 1 root root 290 Apr 25 18:50 log_2504251850
-rw-r--r-- 1 root root 127 Apr 25 18:25 mbackup.sh
drwxr-xr-x 2 root root 4096 Apr 25 18:34 origenes
root@ubuntu:/tmp#

```

To direct input to this VM, click inside or press Ctrl+G.

5°C Despejado

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

22:01 25/04/2025

Programamos en cron

```

Ubuntu server - VMware Workstation
File Edit View VM Tabs Help ||| Library Type here to sea...
Ubuntu server
GNU nano 2.2.6 File: /tmp/crontab.fpqhCS/crontab Modified
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time the you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow   command
* * * * * /tmp/mbackup.sh
30 19 * * 6 /tmp/backup_sabado.sh
55 0 * * 1,3,5 /tmp/backup_imv.sh

```

To direct input to this VM, click inside or press Ctrl+G.

5°C Despejado

Rafael Antonio Patricio Ayllón

Archivo Editar Ver

Ln 1, Col 31 30 caracteres. 190% Windows (CRLF) UTF-8

22:02 25/04/2025

55 = minuto 55

0 = hora 00 (medianoche)

1,3,5 = lunes (1), miércoles (3), viernes (5)

El script se ejecuta lunes, miércoles y viernes a las 00:55am.

```
root@ubuntu:/tmp# ls -l
total 52
drwxr-xr-x 3 root root 4096 Apr 25 18:22 backup1
-rw-r--r-- 1 root root 90 Apr 25 19:00 backup_lmv.sh
-rw-r--r-- 1 root root 90 Apr 25 18:15 backup_sabado.sh
drwxr-xr-x 3 root root 4096 Apr 25 18:18 tmp1
-rw-r--r-- 1 root root 290 Apr 25 18:29 log_2504251829
-rw-r--r-- 1 root root 290 Apr 25 18:30 log_2504251830
-rw-r--r-- 1 root root 392 Apr 25 18:33 log_2504251833
-rw-r--r-- 1 root root 334 Apr 25 18:34 log_2504251834
-rw-r--r-- 1 root root 428 Apr 25 18:35 log_2504251835
-rw-r--r-- 1 root root 290 Apr 25 18:49 log_2504251849
-rw-r--r-- 1 root root 290 Apr 25 18:50 log_2504251850
-rw-r--r-- 1 root root 127 Apr 25 18:25 mibackup.sh
drwxr-xr-x 2 root root 4096 Apr 25 18:34 original
root@ubuntu:/tmp# find original TusTareas25 backup1
original
original/hola.txt
find: 'TusTareas25': No such file or directory
backup1
backup1/original
backup1/original/adios.txt
backup1/original/nuevo25_seguridad.txt
root@ubuntu:/tmp# _
```

6.- Usando como destino otra máquina virtual, realice una copia programada desde Ubuntu server a la máquina destino mediante red para un día domingo a las 05:20am.

Usaremos dos máquinas virtuales la primera es Ubuntu 24 y la otra es Ubuntu cisco

Generamos las claves con ssh

```
rafael@ubuntu:/tmp$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/rafael/.ssh/id_rsa):
/home/rafael/.ssh/id_rsa already exists.
Overwrite (y/n)? y
rafael@ubuntu:/tmp$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/rafael/.ssh/id_rsa):
/home/rafael/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/rafael/.ssh/id_rsa
Your public key has been saved in /home/rafael/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:S48reDltz2A3WeSOzoZYRfxAjBEophrQXmbJfkqQLV8 rafael@ubuntu
The key's randomart image is:
+---[RSA 3072]---+
| . + =0+
| . B X E=oo
| .+ % = o .
| o o = =o
| . . . +o S
| . . o =
| . *...
| o.+oo
| .=.o..
+---[SHA256]---+
rafael@ubuntu:/tmp$
```

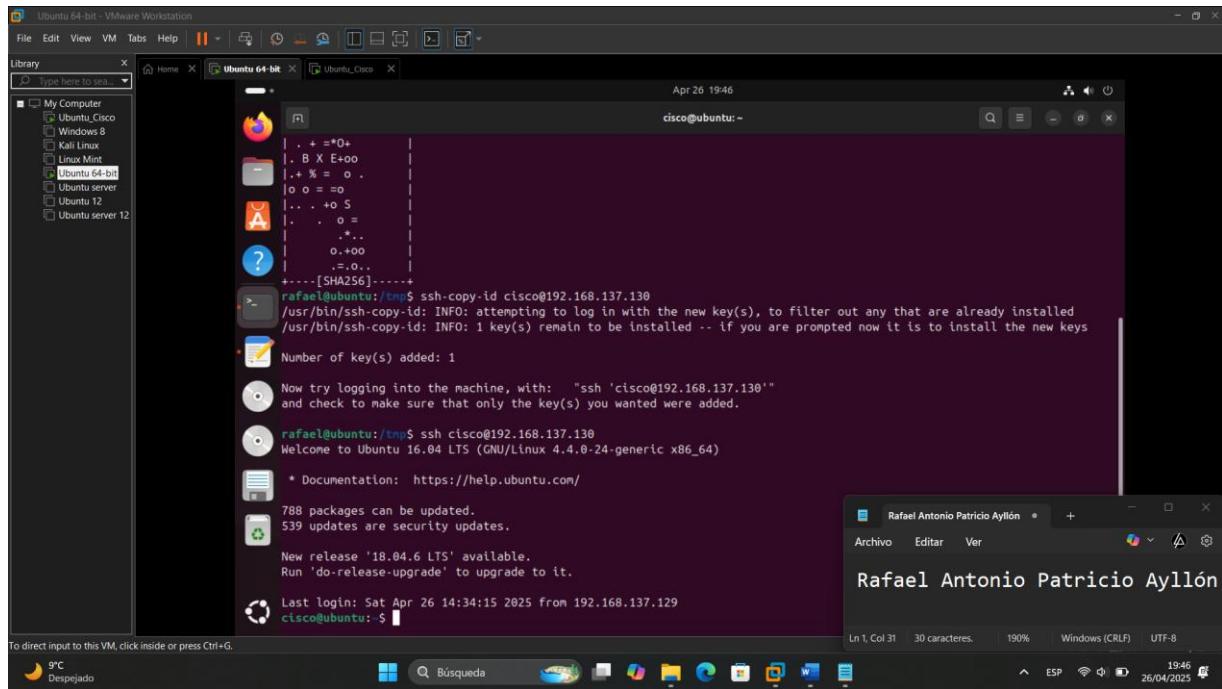
```
Rafael Antonio Patricio Ayllón
```

Enviamos la clave publica a la otra máquina virtual Ubuntu cisco

```
rafael@ubuntu:/tmp$ Generating public/private rsa key pair.
rafael@ubuntu:/tmp$ Enter file in which to save the key (/home/rafael/.ssh/id_rsa):
rafael@ubuntu:/tmp$ /home/rafael/.ssh/id_rsa already exists.
rafael@ubuntu:/tmp$ Overwrite (y/n)? y
rafael@ubuntu:/tmp$ Enter passphrase (empty for no passphrase):
rafael@ubuntu:/tmp$ Enter same passphrase again:
rafael@ubuntu:/tmp$ Your identification has been saved in /home/rafael/.ssh/id_rsa
rafael@ubuntu:/tmp$ Your public key has been saved in /home/rafael/.ssh/id_rsa.pub
rafael@ubuntu:/tmp$ The key fingerprint is:
rafael@ubuntu:/tmp$ SHA256:S48reDltz2A3WeSOzoZYRfxAjBEophrQXmbJfkqQLV8 rafael@ubuntu
rafael@ubuntu:/tmp$ The key's randomart image is:
rafael@ubuntu:/tmp$ +---[RSA 3072]---+
rafael@ubuntu:/tmp$ | . + =0+
rafael@ubuntu:/tmp$ | . B X E=oo
rafael@ubuntu:/tmp$ | .+ % = o .
rafael@ubuntu:/tmp$ | o o = =o
rafael@ubuntu:/tmp$ | . . . +o S
rafael@ubuntu:/tmp$ | . . o =
rafael@ubuntu:/tmp$ | . *...
rafael@ubuntu:/tmp$ | o.+oo
rafael@ubuntu:/tmp$ | .=.o..
rafael@ubuntu:/tmp$ +---[SHA256]---+
rafael@ubuntu:/tmp$ rafael@ubuntu:/tmp$ rafael@ubuntu:/tmp$ ssh-copy-id cisco@192.168.137.130
rafael@ubuntu:/tmp$ /usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
rafael@ubuntu:/tmp$ /usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted
rafael@ubuntu:/tmp$ Number of key(s) added: 1
rafael@ubuntu:/tmp$ Now try logging into the machine, with: "ssh 'cisco@192.168.137.130'"
rafael@ubuntu:/tmp$ and check to make sure that only the key(s) you wanted were added.
```

```
Rafael Antonio Patricio Ayllón
```

Verificamos que se une sin pedir contraseña



```
cisco@ubuntu:~$ ssh-copy-id cisco@192.168.137.130
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'cisco@192.168.137.130'"
and check to make sure that only the key(s) you wanted were added.

rafael@ubuntu:/tmp$ ssh cisco@192.168.137.130
Welcome to Ubuntu 16.04 LTS (GNU/Linux 4.4.0-24-generic x86_64)

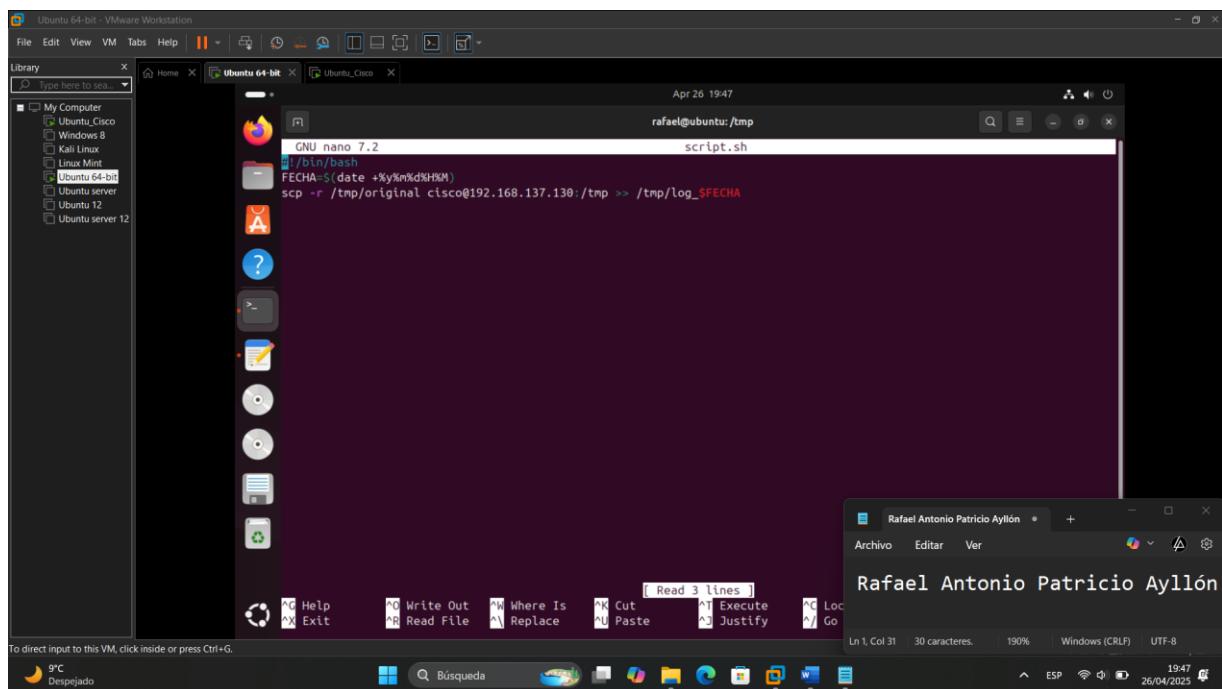
 * Documentation: https://help.ubuntu.com/
788 packages can be updated.
539 updates are security updates.

New release '18.04.6 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sat Apr 26 14:34:15 2025 from 192.168.137.129
cisco@ubuntu:~$
```

Crear

script:



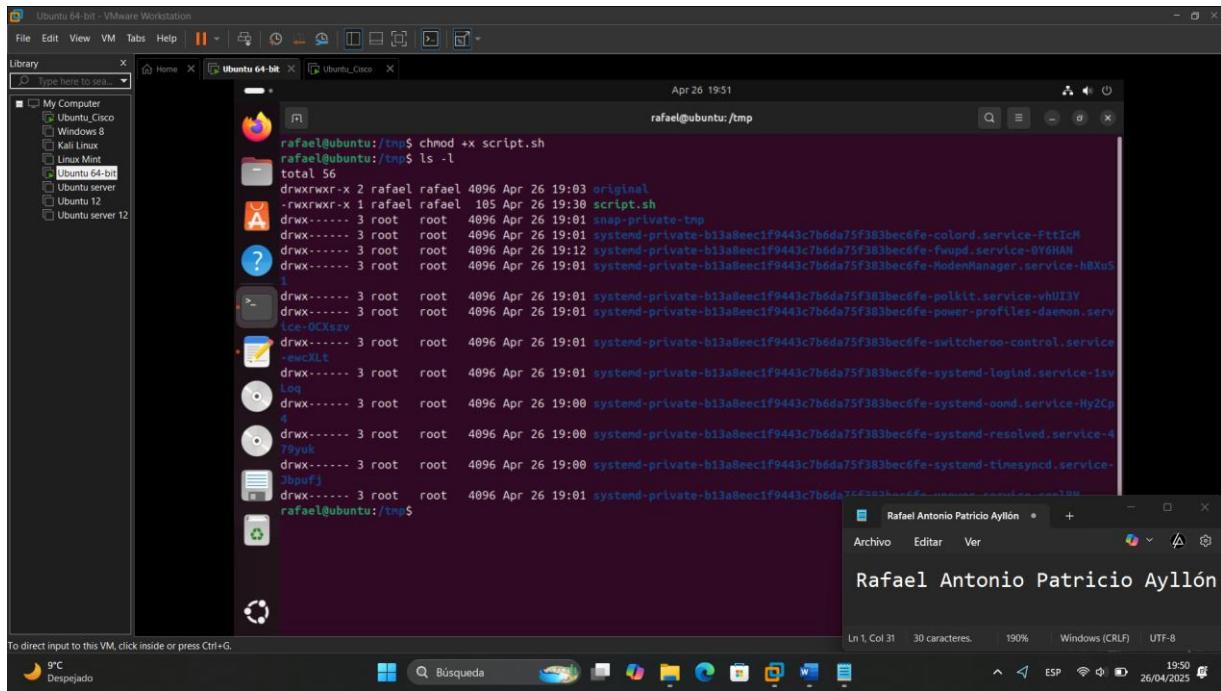
```
rafael@ubuntu:/tmp
GNU nano 7.2
#!/bin/bash
FECHA=$(date +%y%m%d%H%M)
scp -r /tmp/original cisco@192.168.137.130:/tmp >> /tmp/log_${FECHA}
```

Usa scp con ssh para enviar /tmp/original a otra máquina.

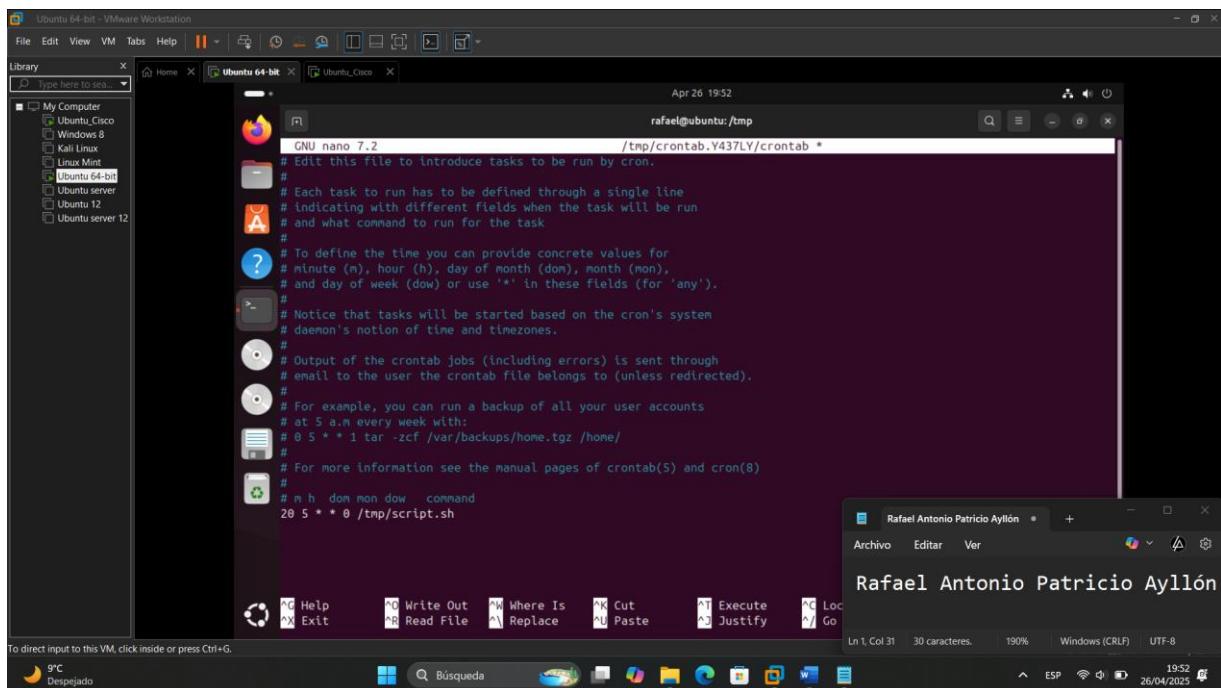
cisco@192.168.137.130:/tmp es el destino en la otra máquina.

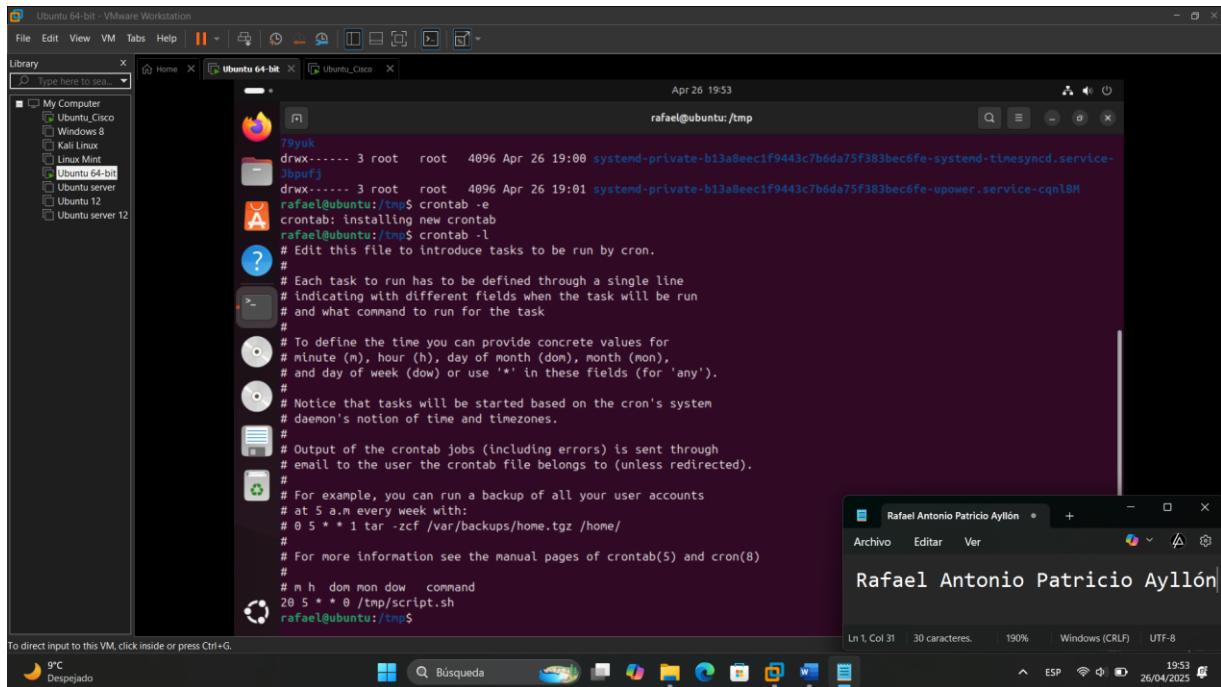
/tmp/log_\${FECHA} mostrara el log en tmp con la fecha actual.

Damos permisos al archivo script.sh:



Programar en cron:





20 = minuto 20

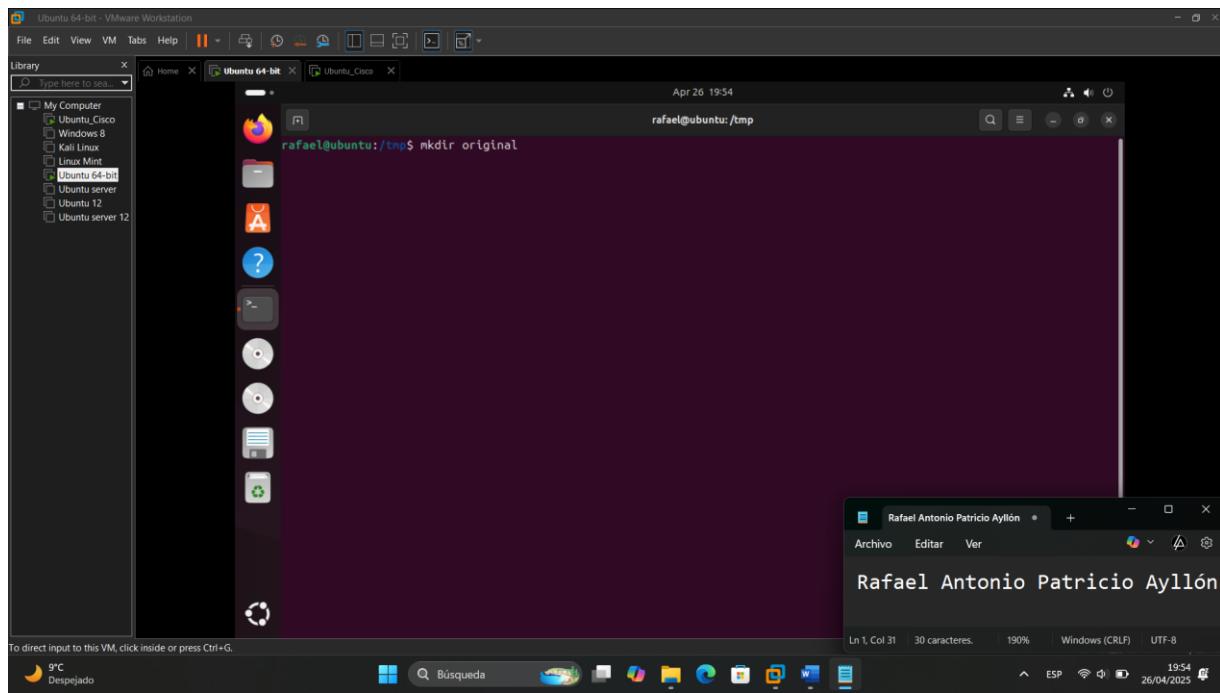
5 = hora 05

0 = domingo

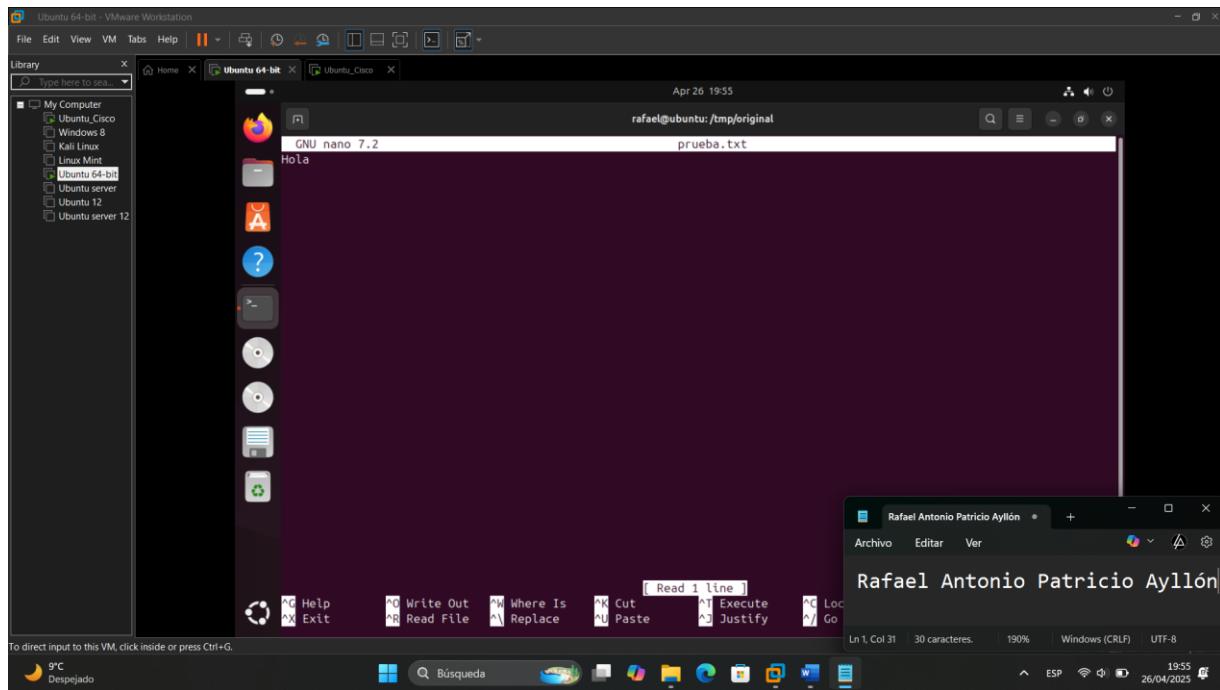
La copia se realiza todos los domingos a las 05:20am en la otra máquina vía red.

PRUEBA

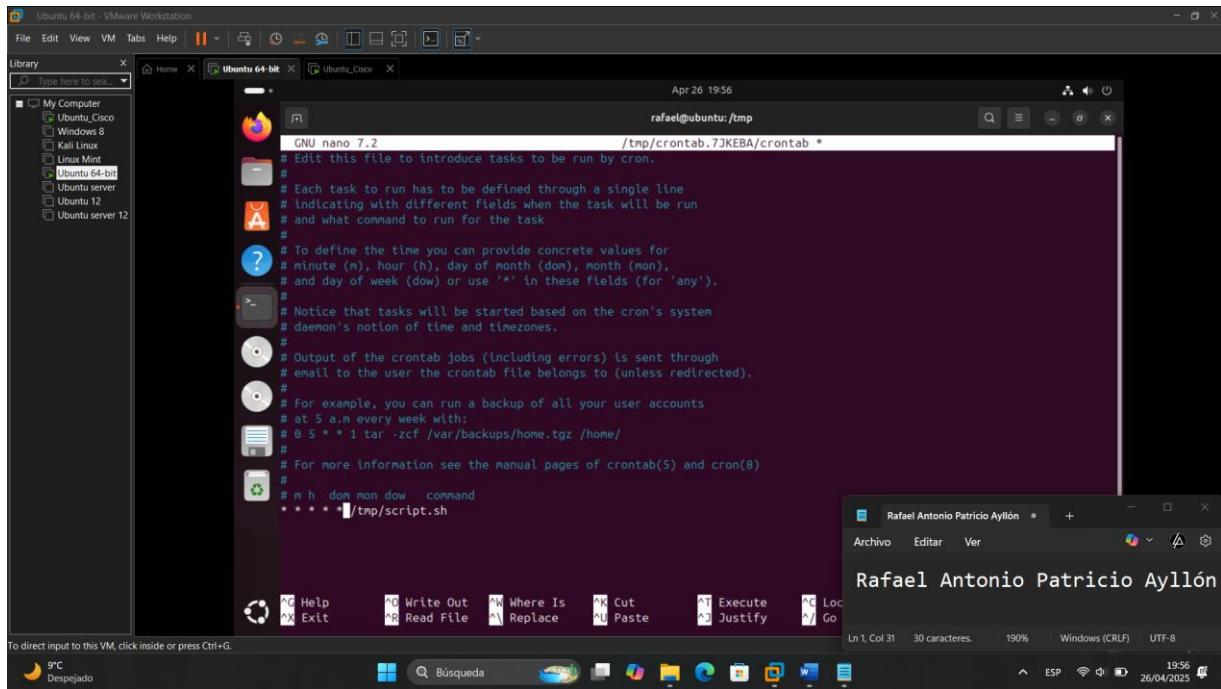
Creamos la carpeta original



Creamos un archivo de texto dentro de la carpeta original.

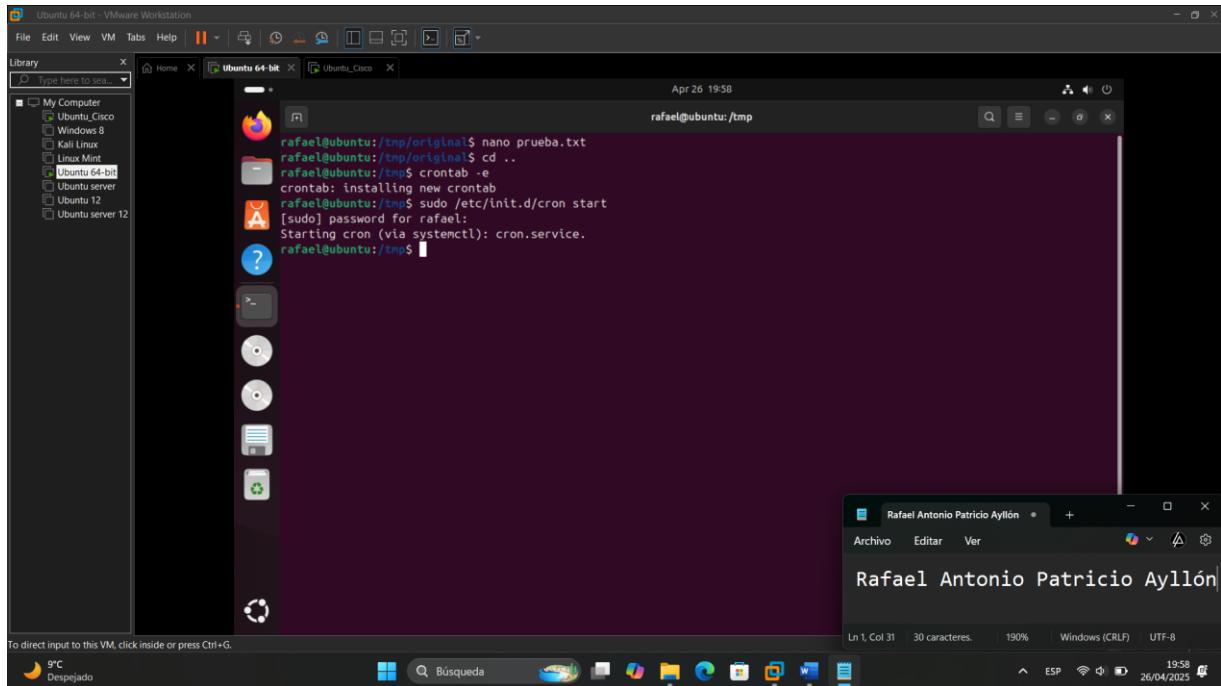


Editamos con crontab -e para que se realice cada minuto.



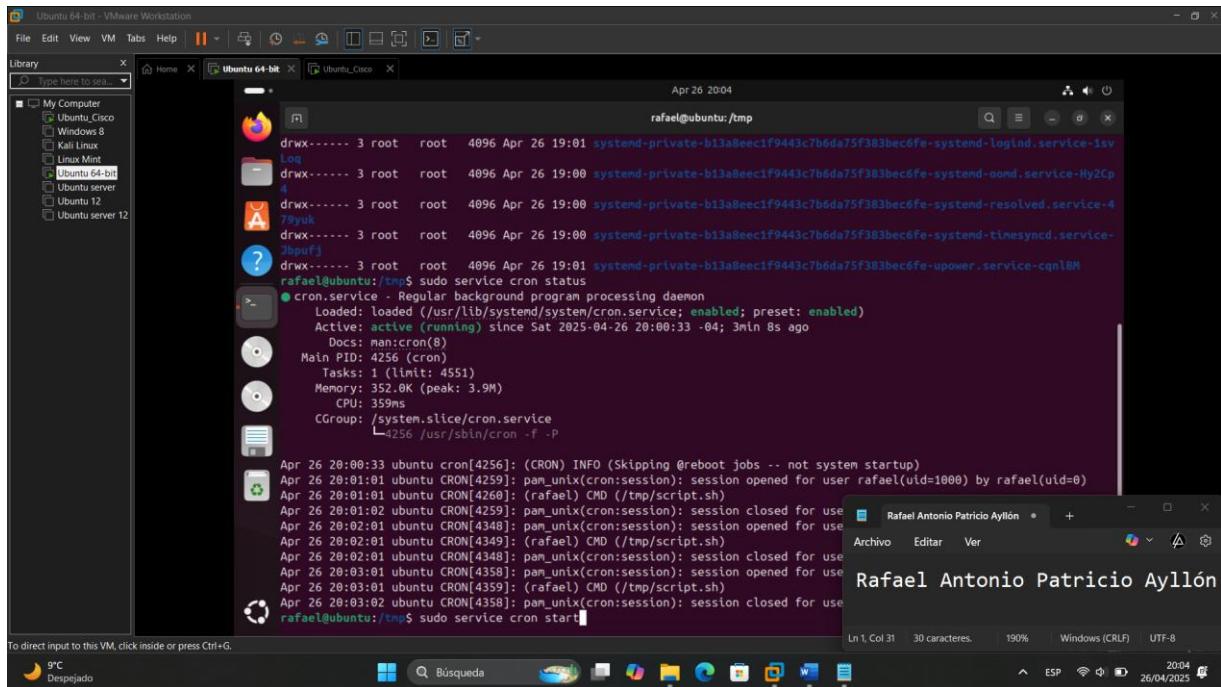
```
rafael@ubuntu:/tmp
GNU nano 7.2
/tmp/crontab.7JKEBA/crontab *
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezone.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m. every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
# m h dom mon dow   command
* * * * * /tmp/script.sh
```

Iniciamos cron.



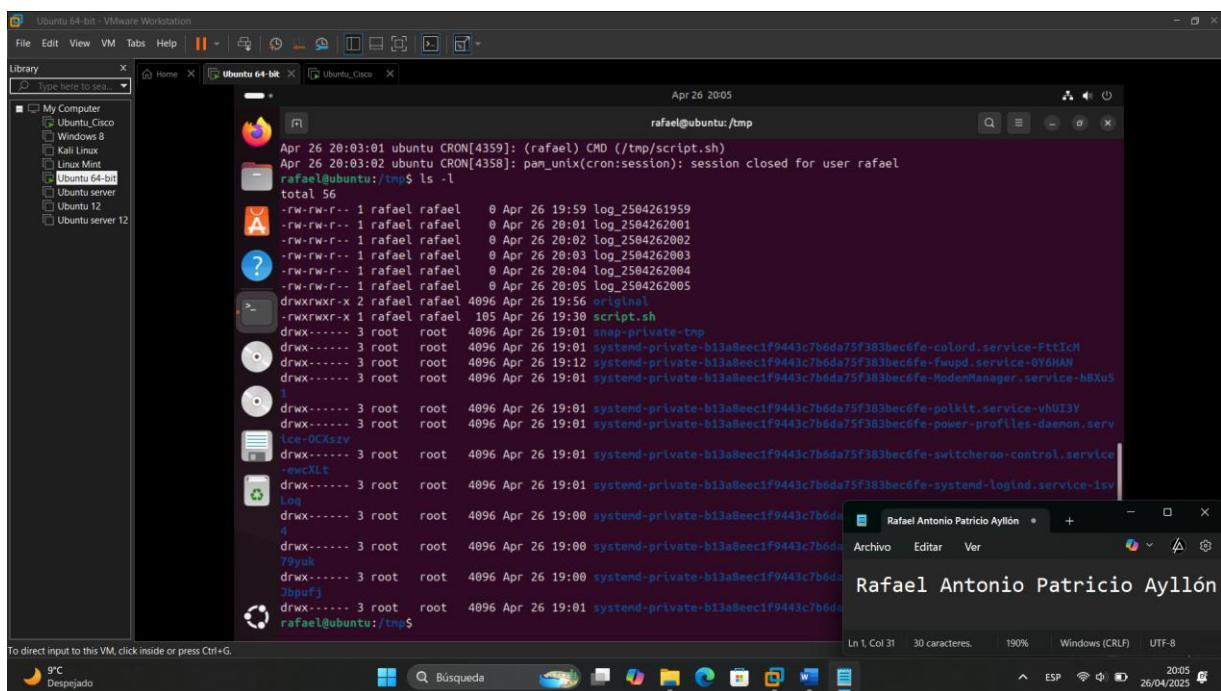
```
rafael@ubuntu:/tmp/original$ nano prueba.txt
rafael@ubuntu:/tmp/original$ cd ..
rafael@ubuntu:/tmp$ crontab -e
crontab: installing new crontab
rafael@ubuntu:/tmp$ sudo /etc/init.d/cron start
[sudo] password for rafael:
Starting cron (via systemctl): cron.service.
rafael@ubuntu:/tmp$
```

Verificamos que nos muestre el log y paramos cron.



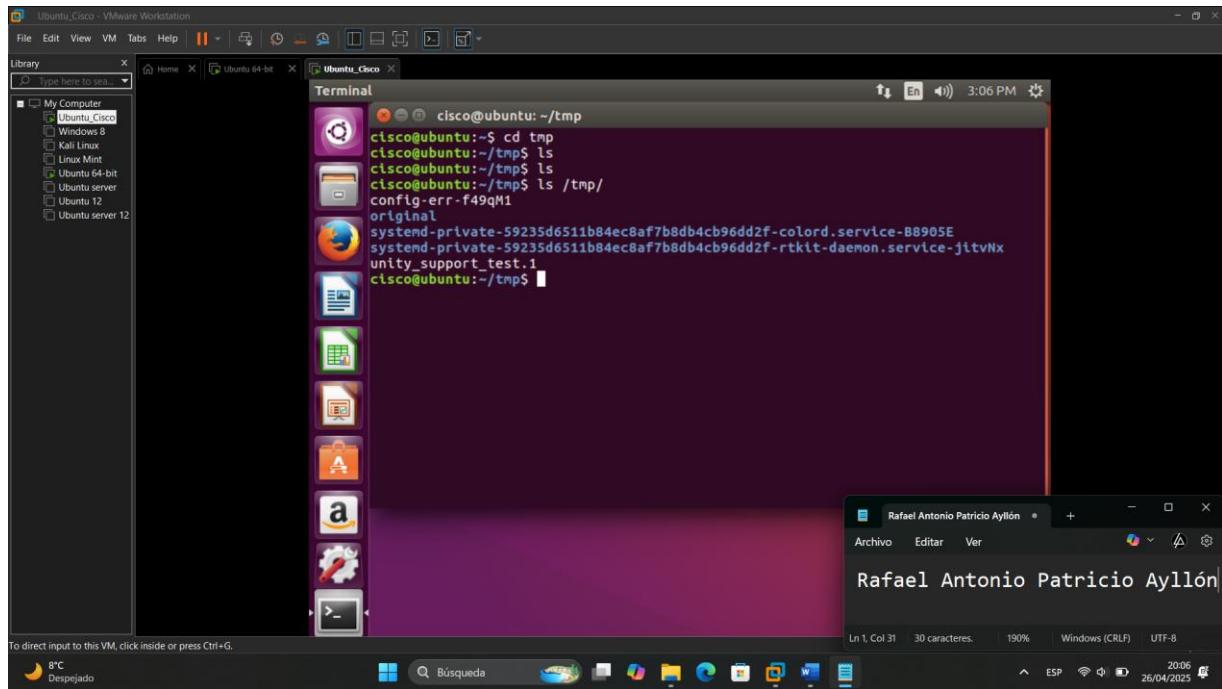
```
rafael@ubuntu:~$ sudo service cron status
  ● cron.service - Regular background program processing daemon
    Loaded: loaded (/usr/lib/systemd/system/cron.service; enabled; preset: enabled)
      Active: active (running) since Sat 2025-04-26 20:00:33 -04; 3min 8s ago
        Docs: man:cron(8)
        Main PID: 4256 (cron)
          Tasks: 1 (limit: 4551)
            Memory: 352.0K (peak: 3.9M)
              CPU: 359ms
            CGroup: /system.slice/cron.service
                    └─ 4256 /usr/sbin/cron -f -P

Apr 26 20:00:33 ubuntu cron[4256]: (CRON) INFO (Skipping @reboot jobs -- not system startup)
Apr 26 20:01:01 ubuntu CRON[4259]: pam_unix(cron:session): session opened for user rafael(uid=1000) by rafael(uid=0)
Apr 26 20:01:01 ubuntu CRON[4259]: (rafael) CMD (/tmp/script.sh)
Apr 26 20:01:02 ubuntu CRON[4259]: pam_unix(cron:session): session closed for use
Apr 26 20:02:01 ubuntu CRON[4348]: pam_unix(cron:session): session opened for use
Apr 26 20:02:01 ubuntu CRON[4349]: (rafael) CMD (/tmp/script.sh)
Apr 26 20:02:01 ubuntu CRON[4348]: pam_unix(cron:session): session closed for use
Apr 26 20:03:01 ubuntu CRON[4358]: pam_unix(cron:session): session opened for use
Apr 26 20:03:01 ubuntu CRON[4359]: (rafael) CMD (/tmp/script.sh)
Apr 26 20:03:02 ubuntu CRON[4358]: pam_unix(cron:session): session closed for use
Apr 26 20:03:02 ubuntu CRON[4359]: pam_unix(cron:session): session closed for use
rafael@ubuntu:~$ sudo service cron start
```



```
rafael@ubuntu:~$ ls -l
total 56
-rw-rw-r-- 1 rafael rafael 0 Apr 26 19:59 log_2504261959
-rw-rw-r-- 1 rafael rafael 0 Apr 26 20:01 log_2504262001
-rw-rw-r-- 1 rafael rafael 0 Apr 26 20:02 log_2504262002
-rw-rw-r-- 1 rafael rafael 0 Apr 26 20:03 log_2504262003
-rw-rw-r-- 1 rafael rafael 0 Apr 26 20:04 log_2504262004
-rw-rw-r-- 1 rafael rafael 0 Apr 26 20:05 log_2504262005
drwxrwxr-x 2 rafael rafael 4096 Apr 26 19:56 original
-rwxrwxr-x 1 rafael rafael 105 Apr 26 19:30 script.sh
drwx----- 3 root root 4096 Apr 26 19:01 snap-private-tmp
drwx----- 3 root root 4096 Apr 26 19:01 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-colord.service-FTtCm
drwx----- 3 root root 4096 Apr 26 19:12 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-fwupd.service-0Y6MAN
drwx----- 3 root root 4096 Apr 26 19:01 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-ModemManager.service-hBXuS
drwx----- 3 root root 4096 Apr 26 19:01 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-polkit.service-vHUI3Y
drwx----- 3 root root 4096 Apr 26 19:01 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-power-profiles-daemon.serv
drwx----- 3 root root 4096 Apr 26 19:01 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-switcheroo-control.service
drwx----- 3 root root 4096 Apr 26 19:01 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-systemd-logind.service-1sv
drwx----- 3 root root 4096 Apr 26 19:01 Log
drwx----- 3 root root 4096 Apr 26 19:00 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-systemd-resolved.service-4
drwx----- 3 root root 4096 Apr 26 19:00 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-timesyncd.service-3bpuFj
drwx----- 3 root root 4096 Apr 26 19:00 systemd-private-b13a8eec1f9443c7b6da75f383bec6fe-upower.service-cqplBM
rafael@ubuntu:~$
```

Se observa que ya se creo una carpeta original en Ubuntu Cisco.



Y que tiene todos los archivos dentro de la carpeta original.

