Unidad 4: Configuración multiusuario centralizada

Administración de Sistemas Operativos

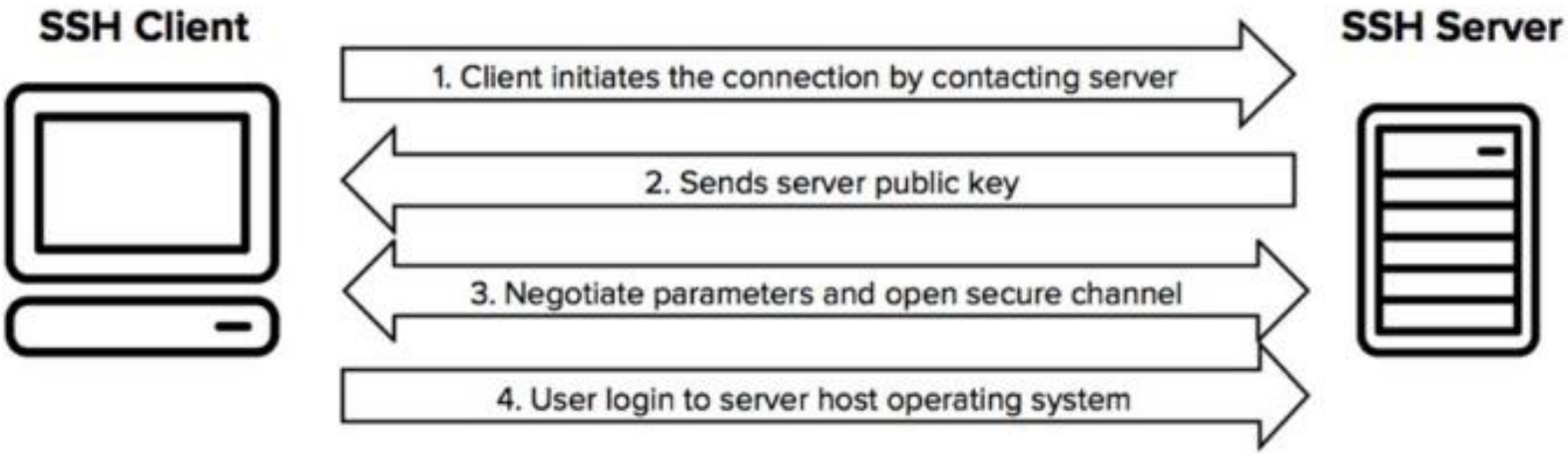
Índice

1. OpenSSH.
2. PAM.

1.1. Presentación

OpenSSH es un protocolo de Shell con prestaciones de seguridad, un mecanismo que permite la autenticación segura, la ejecución remota y la conexión a distancia. Permite también el transporte seguro del protocolo X Window.

1.1. Presentación



1.2. Configuración

```
root@ricardo-VirtualBox:/etc/ssh# pwd
/etc/ssh
root@ricardo-VirtualBox:/etc/ssh# ls -lart
total 584
drwxr-xr-x   2 root root   4096 may 29  2020 ssh_config.d
-rw-r--r--   1 root root   1603 may 29  2020 ssh_config
drwxr-xr-x   2 root root   4096 mar 30  2022 sshd_config.d
-rw-r--r--   1 root root   3289 mar 30  2022 sshd_config
-rw-r--r--   1 root root 535195 mar 30  2022 moduli
-rw-r--r--   1 root root    577 sep 25 12:03 ssh_host_rsa_key.pub
-rw-------   1 root root   2610 sep 25 12:03 ssh_host_rsa_key
-rw-r--r--   1 root root    185 sep 25 12:03 ssh_host_ecdsa_key.pub
-rw-------   1 root root    513 sep 25 12:03 ssh_host_ecdsa_key
-rw-r--r--   1 root root    105 sep 25 12:03 ssh_host_ed25519_key.pub
-rw-------   1 root root    419 sep 25 12:03 ssh_host_ed25519_key
-rw-r--r--   1 root root    342 sep 25 12:03 ssh_import_id
drwxr-xr-x   4 root root   4096 sep 25 12:03 .
drwxr-xr-x 138 root root  12288 nov 29 11:57 ..
root@ricardo-VirtualBox:/etc/ssh#
```

1.2. Configuración

```
Include /etc/ssh/sshd_config.d/*.conf

#Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::

#HostKey /etc/ssh/ssh_host_rsa_key
#HostKey /etc/ssh/ssh_host_ecdsa_key
#HostKey /etc/ssh/ssh_host_ed25519_key
```

1.2. Configuración

```
#LoginGraceTime 2m
#PermitRootLogin prohibit-password
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

prohibit-password: únicamente podremos loguearnos como root si tenemos una clave SSH instalada en el servidor, eliminando el ingreso de contraseña por teclado.
no: el usuario root no puede hacer login remoto.
without-password: root puede hacer login solamente con autenticacion de clave privada.
forced-commands-only: root puede hacer login solamente si ejecuta un comando simple y no pasa al shell.

1.2. Configuración

```
#PubkeyAuthentication yes
```

```
#PasswordAuthentication yes
#PermitEmptyPasswords no
```

1.3. Conexión manual

```
ricardo@ricardo-VirtualBox:~$ ssh ricardo@192.168.0.24
ricardo@192.168.0.24's password:
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-52-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

Se pueden aplicar 16 actualizaciones de forma inmediata.
Para ver estas actualizaciones adicionales, ejecute: apt list --upgradable


The list of available updates is more than a week old.
To check for new updates run: sudo apt update
New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Tue Nov 29 10:16:11 2022 from 192.168.0.23
ricardo@ricardo-VirtualBox:~$
```

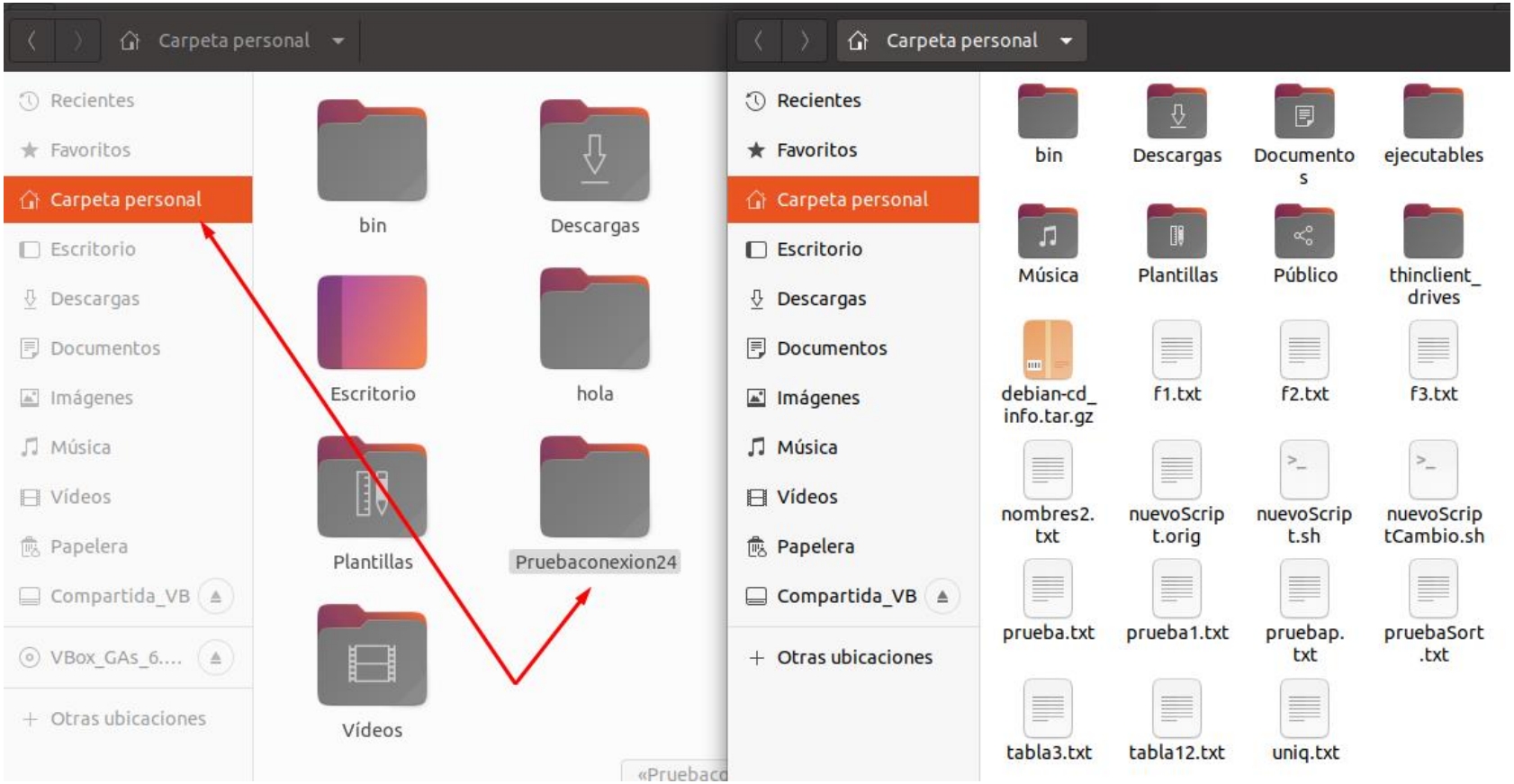
1.3. Conexión manual

```
ricardo@ricardo-VirtualBox:~$ ssh -l ricardo 192.168.0.24
ricardo@192.168.0.24's password:
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-52-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

Se pueden aplicar 16 actualizaciones de forma inmediata.
Para ver estas actualizaciones adicionales, ejecute: apt list --upgradable


The list of available updates is more than a week old.
To check for new updates run: sudo apt update
New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Tue Nov 29 10:16:20 2022 from 192.168.0.23
ricardo@ricardo-VirtualBox:~$
```

1.3. Conexión manual

```
ricardo@ricardo-VirtualBox:~$ ssh -X ricardo@192.168.0.24
ricardo@192.168.0.24's password:
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-52-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

Se pueden aplicar 16 actualizaciones de forma inmediata.
Para ver estas actualizaciones adicionales, ejecute: apt list --upgradable


The list of available updates is more than a week old.
To check for new updates run: sudo apt update
New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Tue Nov 29 10:23:38 2022 from 192.168.0.23
ricardo@ricardo-VirtualBox:~$
ricardo@ricardo-VirtualBox:~$ nautilus &
[1] 4721
```

1.3. Conexión manual

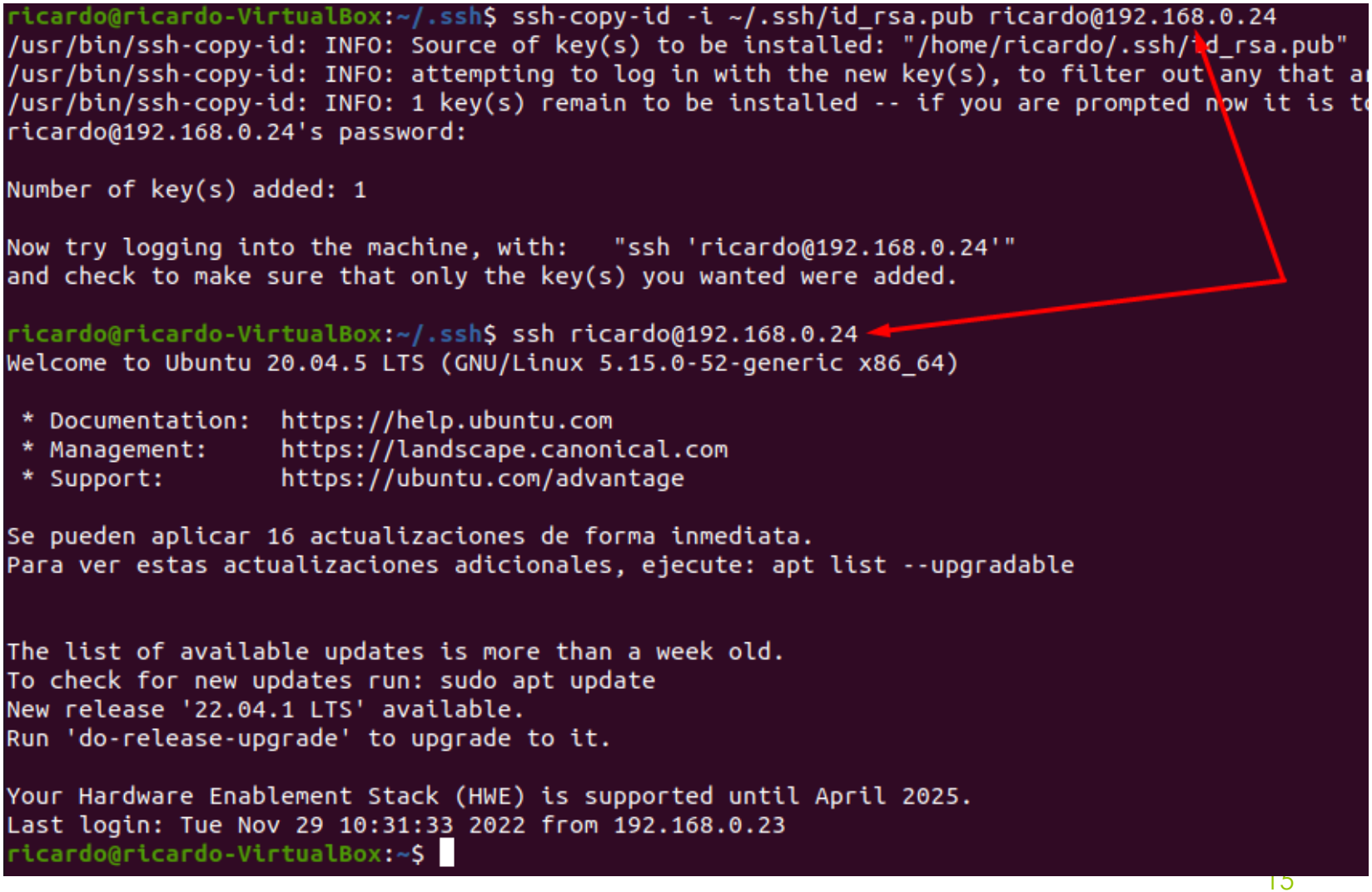


1.4. Conexión automática

```
ricardo@ricardo-VirtualBox:~$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ricardo/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ricardo/.ssh/id_rsa
Your public key has been saved in /home/ricardo/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:EWeIlSPCDECPPXcfYzFBkonMtD2yb1j7oht9RDp+wlM ricardo@ricardo-VirtualBox
The key's randomart image is:
+---[RSA 3072]----+
|oo.++..+*B+      |
|  + ++=o=+o      |
| . + = =.*       |
|    o + *.o      |
|     . +SE       |
|      B =        |
|     o X o       |
|      o.*        |
|     oo ..       |
+----[SHA256]-----+
ricardo@ricardo-VirtualBox:~$
```

1.4. Conexión automática

```
ricardo@ricardo-VirtualBox:~$ cd .ssh/
ricardo@ricardo-VirtualBox:~/.ssh$
ricardo@ricardo-VirtualBox:~/.ssh$ ls -lart
total 24
-rw-rw-r--  1 ricardo ricardo    0 sep 25 12:12 config
-rw-r--r--  1 ricardo ricardo 4884 nov 29 10:16 known_hosts
drwxr-xr-x 21 ricardo ricardo 4096 nov 29 10:37 ..
-rw-r--r--  1 ricardo ricardo  580 nov 29 10:38 id_rsa.pub
-rw-------  1 ricardo ricardo 2610 nov 29 10:38 id_rsa
drwx------  2 ricardo ricardo 4096 nov 29 10:38 .
ricardo@ricardo-VirtualBox:~/.ssh$
ricardo@ricardo-VirtualBox:~/.ssh$ cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQCddIQ/mcjeX/HwUA6dIWWWi5oGHe0yrVAAiWmsXdPB4z
1ypJvIQZvqcJM3Y7/IDv1u1U958yhc/X1NmFuJnCj5cJ4iMn1mgET/nY+jIMWs1DDOFI7NlH3f7Vb/oH5R
i7+KOaFX+TvLaRcyz8bsabZoC6Eu63X/oDQbyH04MopBVe9Zq5hrG/vYeOwprCm7bvl5wy3nA4qOub9YFe
Qv2VKjBQ3K4XhyxP2rY1UmHjGMYLpqWuMVJbiODOXerccg+Qi6RbkvWNycHHlBOayHdF7YTLmp94eNw3ta
ricardo@ricardo-VirtualBox:~/.ssh$
```


ricardo@ricardo-VirtualBox:~/.ssh$ ssh-copy-id -i ~/.ssh/id_rsa.pub ricardo@192.168.0.24
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ricardo/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that a
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is t
ricardo@192.168.0.24's password:
Number of key(s) added: 1
Now try logging into the machine, with: "ssh 'ricardo@192.168.0.24'"
and check to make sure that only the key(s) you wanted were added.
ricardo@ricardo-VirtualBox:~/.ssh$ ssh ricardo@192.168.0.24
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-52-generic x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
Se pueden aplicar 16 actualizaciones de forma inmediata.
Para ver estas actualizaciones adicionales, ejecute: apt list --upgradable
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Tue Nov 29 10:31:33 2022 from 192.168.0.23
ricardo@ricardo-VirtualBox:~$

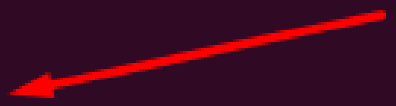
1.4. Conexión automática

```
ricardo@ricardo-VirtualBox:~$ cd .ssh/
ricardo@ricardo-VirtualBox:~/.ssh$ ls -lart
total 20
-rw-rw-r--  1 ricardo ricardo    0 sep 25 12:12 config
-rw-r--r--  1 ricardo ricardo 4662 nov 21 08:38 known_hosts
drwxr-xr-x 22 ricardo ricardo 4096 nov 29 10:37 ..
-rw-------  1 ricardo ricardo  580 nov 29 10:43 authorized_keys
drwx------  2 ricardo ricardo 4096 nov 29 10:43 .
ricardo@ricardo-VirtualBox:~/.ssh$
ricardo@ricardo-VirtualBox:~/.ssh$ cat authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQCddIQ/mcjeX/HwUA6dIWWWi5oGHe0y
1ypJvIQZvqcJM3Y7/IDv1u1U958yhc/X1NmFuJnCj5cJ4iMn1mgET/nY+jIMWs1DDOFI
i7+KOaFX+TvLaRcyz8bsabZoC6Eu63X/oDQbyH04MopBVe9Zq5hrG/vYeOwprCm7bvl5
Qv2VKjBQ3K4Xhyxp2rY1UmHjGMYLpqWuMVJbiODOXerccg+Qi6RbkvWNycHHlBOayHdF
ricardo@ricardo-VirtualBox:~/.ssh$
```

1.5. Lanzando comandos remotos

```
ricardo@ricardo-VirtualBox:~$
ricardo@ricardo-VirtualBox:~$ sudo vim /etc/sudoers
ricardo@ricardo-VirtualBox:~$
```

```
# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL

ricardo ALL=(ALL:ALL) NOPASSWD: ALL
```



1.5. Lanzando comandos remotos

```
ricardo@ricardo-VirtualBox:~$ sudo ls /root
snap
ricardo@ricardo-VirtualBox:~$
ricardo@ricardo-VirtualBox:~$ exit
logout
Connection to 192.168.0.24 closed.
ricardo@ricardo-VirtualBox:~/pruebassh$
ricardo@ricardo-VirtualBox:~/pruebassh$ ssh 192.168.0.24 'sudo ls /root'
snap
ricardo@ricardo-VirtualBox:~/pruebassh$
```

1.5. Lanzando comandos remotos

```
ricardo@ricardo-VirtualBox:~/pruebassh$ ssh 192.168.0.24 'sudo systemctl status sshd'
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
     Active: active (running) since Tue 2022-11-29 10:14:27 CET; 1h 36min ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 828 (sshd)
      Tasks: 1 (limit: 3963)
     Memory: 3.9M
     CGroup: /system.slice/ssh.service
             └─828 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups

nov 29 11:45:28 ricardo-VirtualBox sshd[9492]: Accepted publickey for ricardo from 192.
port 39726 ssh2: RSA SHA256:EWeIlSPCDECPPXcfYzFBkonMtD2yb1j7oht9RDp+wlM
nov 29 11:45:28 ricardo-VirtualBox sshd[9492]: pam_unix(sshd:session): session opened f
icardo by (uid=0)
nov 29 11:45:37 ricardo-VirtualBox sshd[9566]: Accepted publickey for ricardo from 192.
port 41692 ssh2: RSA SHA256:EWeIlSPCDECPPXcfYzFBkonMtD2yb1j7oht9RDp+wlM
nov 29 11:45:37 ricardo-VirtualBox sshd[9566]: pam_unix(sshd:session): session opened f
icardo by (uid=0)
```

1.5. Lanzando comandos remotos

```
#!/bin/bash

sudo date

exit 0
```

```
ricardo@ricardo-VirtualBox:~/pruebassh$ ./time.sh
[sudo] contraseña para ricardo:
mar 29 nov 2022 11:55:19 CET
ricardo@ricardo-VirtualBox:~/pruebassh$
ricardo@ricardo-VirtualBox:~/pruebassh$ ssh 192.168.0.24 'bash -s' < time.sh
mar 29 nov 2022 11:55:30 CET
ricardo@ricardo-VirtualBox:~/pruebassh$
```

1.6. Autenticación del servidor

```
ricardo@ricardo-VirtualBox:~/.ssh$ cat known_hosts
|1|W+kf3UXGm0T8idS/Vj4v9iSIiq0=|D5kVqV4mWrKljx9ue14WTkZgw4Q= ecdsa-sha2
-nistp256 AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBHfILeG2X
aIGPnv1j0wQl/jODBoup4d6DBq0uouljts/5SIB3qYy9ljNvRQVaVTnHnwDXFp3gkXSCaC7
aR82vMA=
ricardo@ricardo-VirtualBox:~/.ssh$
```

```
root@ricardo-VirtualBox:/etc/ssh# ls -lart
total 584
drwxr-xr-x   2 root root   4096 may 29  2020 ssh_config.d
-rw-r--r--   1 root root   1603 may 29  2020 ssh_config
drwxr-xr-x   2 root root   4096 mar 30  2022 sshd_config.d
-rw-r--r--   1 root root   3289 mar 30  2022 sshd_config
-rw-r--r--   1 root root 535195 mar 30  2022 moduli
-rw-r--r--   1 root root    577 sep 25 12:03 ssh_host_rsa_key.pub
-rw-------   1 root root   2610 sep 25 12:03 ssh_host_rsa_key
-rw-r--r--   1 root root    185 sep 25 12:03 ssh_host_ecdsa_key.pub
-rw-------   1 root root    513 sep 25 12:03 ssh_host_ecdsa_key
-rw-r--r--   1 root root    105 sep 25 12:03 ssh_host_ed25519_key.pub
-rw-------   1 root root    419 sep 25 12:03 ssh_host_ed25519_key
-rw-r--r--   1 root root    342 sep 25 12:03 ssh_import_id
drwxr-xr-x   4 root root   4096 sep 25 12:03 .
drwxr-xr-x 138 root root  12288 nov 29 11:57 ..
root@ricardo-VirtualBox:/etc/ssh#
root@ricardo-VirtualBox:/etc/ssh# cat ssh_host_ecdsa_key.pub
ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBHfILeG2XaI
GPnv1j0wQl/jODBoup4d6DBq0uouljts/5SIB3qYy9ljNvRQVaVTnHnwDXFp3gkXSCaC7aR82vMA= root@
ricardo-VirtualBox
```

2.1. PAM

Pluggable Authentication Modules (PAM) es un mecanismo de autenticación flexible que permite abstraer las aplicaciones y otro software del proceso de identificación.

Se implementa mediante una biblioteca de enlace dinámico.

2.1. PAM

Para averiguar si un programa emplea PAM, se puede usar el comando "ldd". Por ejemplo:

2.1. PAM

La biblioteca PAM está integrada por:

- El fichero /lib/x86_64-linux-gnu/libpam.so.0
- Multitud de ficheros “pam*.so”, correspondientes a módulos "apilables“ o "conectables", y ubicados en /lib/x86_64-linux-gnu/security

Ejemplos de módulos: pam_unix.so, pam_ldap.so, pam_winbind.so, ...

2.1. PAM

```
ricardo@ricardo-VirtualBox:~$ ls -lart /lib/x86_64-linux-gnu/security/
total 1612
-rw-r--r--  1 root root  18424 feb 17  2020 pam_cap.so
-rw-r--r--  1 root root  47168 mar 11  2020 pam_gnome_keyring.so
-rw-r--r--  1 root root  27544 feb 22  2021 pam_fprintd.so
-rw-r--r--  1 root root  14480 jul 12  2021 pam_gdm.so
-rw-r--r--  1 root root  27192 sep 17  2021 pam_xauth.so
-rw-r--r--  1 root root  14504 sep 17  2021 pam_wheel.so
-rw-r--r--  1 root root  14448 sep 17  2021 pam_warn.so
-rw-r--r--  1 root root  18704 sep 17  2021 pam_userdb.so
-rw-r--r--  1 root root  64504 sep 17  2021 pam_unix.so
-rw-r--r--  1 root root  14624 sep 17  2021 pam_umask.so
-rw-r--r--  1 root root  14576 sep 17  2021 pam_tty_audit.so
-rw-r--r--  1 root root  23032 sep 17  2021 pam_timestamp.so
-rw-r--r--  1 root root  18768 sep 17  2021 pam_time.so
-rw-r--r--  1 root root  18720 sep 17  2021 pam_tally.so
-rw-r--r--  1 root root  18760 sep 17  2021 pam_tally2.so
-rw-r--r--  1 root root  18680 sep 17  2021 pam_succeed_if.so
-rw-r--r--  1 root root  18632 sep 17  2021 pam_stress.so
-rw-r--r--  1 root root  14496 sep 17  2021 pam_shells.so
```

2.1. PAM

El manual dispone de páginas que documentan la utilidad y la configuración de cada uno de los módulos. Por ejemplo:

- man pam_unix
- man pam_ldap, ...

```
PAM_ENV(7)                          Linux-PAM Manual                          PAM_ENV(7)

NAME
       pam_env - PAM module to set/unset environment variables

SYNOPSIS
       pam_env.so [debug] [conffile=conf-file] [envfile=env-file] [readenv=0|1]
                  [user_envfile=env-file] [user_readenv=0|1]

DESCRIPTION
       The pam_env PAM module allows the (un)setting of environment variables. Supported is the
       use of previously set environment variables as well as PAM_ITEMs such as PAM_RHOST.

       By default rules for (un)setting of variables are taken from the config file
       /etc/security/pam_env.conf. An alternate file can be specified with the conffile option.
```

2.1. PAM

La mayor parte de los módulos se configuran mediante los parámetros que le serán pasados en el momento de ser invocados. Sin embargo, existen algunos módulos especiales, que disponen de ficheros de configuración en /etc/security (por ejemplo, el fichero de configuración del módulo pam_limits es /etc/security/pam_limits.conf)

2.1. PAM

```
ricardo@ricardo-VirtualBox:~$ ls -lart /etc/security/
total 72
-rw-r--r--   1 root root  1793 sep  8  2018 capability.conf
-rw-r--r--   1 root root  2179 dic 17  2019 time.conf
-rw-r--r--   1 root root   419 dic 17  2019 sepermit.conf
-rw-r--r--   1 root root  2972 dic 17  2019 pam_env.conf
-rwxr-xr-x   1 root root  1016 dic 17  2019 namespace.init
drwxr-xr-x   2 root root  4096 dic 17  2019 namespace.d
-rw-r--r--   1 root root  1440 dic 17  2019 namespace.conf
drwxr-xr-x   2 root root  4096 dic 17  2019 limits.d
-rw-r--r--   1 root root  2161 dic 17  2019 limits.conf
-rw-r--r--   1 root root  3635 dic 17  2019 group.conf
-rw-r--r--   1 root root  4564 dic 17  2019 access.conf
-rw-r--r--   1 root root  2505 ene 25  2020 pwquality.conf
-rw-------   1 root root     0 jul 31  2020 opasswd
-rw-r--r--   1 root root  2234 sep 17  2021 faillock.conf
drwxr-xr-x   4 root root  4096 sep 24 20:03 .
drwxr-xr-x 138 root root 12288 dic 12 10:02 ..
```

2.1. PAM

El fichero de configuración PAM por defecto es /etc/pam.conf, donde se definen los módulos PAM que debe emplear cada uno de los programas que use PAM (login, sshd, gdm, passwd, ...).

En las instalaciones actuales de PAM este fichero será ignorado caso de existir el directorio /etc/pam.d, en el que se almacenará un fichero que incluya la configuración de cada programa que use PAM:

- /etc/pam.d/login
- /etc/pam.d/sshd
- /etc/pam.d/lightdm
- /etc/pam.d/passwd

2.1. PAM

El fichero /etc/pam.d/other será usado como fichero de configuración de aquellos programas que, aún empleando PAM, no dispongan de un fichero propio de configuración.

```
ricardo@ricardo-VirtualBox:~$ cat /etc/pam.conf
# ------------------------------------------------------------------------#
# /etc/pam.conf                                                           #
# ------------------------------------------------------------------------#
#
# NOTE
# ----
#
# NOTE: Most program use a file under the /etc/pam.d/ directory to setup their
# PAM service modules. This file is used only if that directory does not exist.
# ------------------------------------------------------------------------#

# Format:
# serv. module     ctrl       module [path]     ...[args..]                #
# name  type       flag                                                    #
```

2.1. PAM

```
ricardo@ricardo-VirtualBox:~$ ls -lart /etc/pam.d/
total 136
-rw-r--r--   1 root root   168 feb  8  2019 ppp
-rw-r--r--   1 root root   138 jul 28  2019 runuser-l
-rw-r--r--   1 root root   143 jul 28  2019 runuser
-rw-r--r--   1 root root   137 jul 28  2019 su-l
-rw-r--r--   1 root root   270 ago 16  2019 polkit-1
-rw-r--r--   1 root root  1320 oct  7  2019 gdm-password
-rw-r--r--   1 root root   383 oct  7  2019 gdm-launch-environment
-rw-r--r--   1 root root  1342 oct  7  2019 gdm-fingerprint
-rw-r--r--   1 root root  1192 oct  7  2019 gdm-autologin
-rw-r--r--   1 root root   520 dic 17  2019 other
-rw-r--r--   1 root root   104 ene 11  2020 xrdp-sesman
-rw-r--r--   1 root root   239 feb  3  2020 sudo
-rw-r--r--   1 root root    92 feb  7  2020 passwd
-rw-r--r--   1 root root    92 feb  7  2020 newusers
-rw-r--r--   1 root root   581 feb  7  2020 chsh
-rw-r--r--   1 root root    92 feb  7  2020 chpasswd
```

```
ricardo@ricardo-VirtualBox:~$ cat /etc/pam.d/sshd
# PAM configuration for the Secure Shell service

# Standard Un*x authentication.
@include common-auth

# Disallow non-root logins when /etc/nologin exists.
account    required     pam_nologin.so

# Uncomment and edit /etc/security/access.conf if you need to set complex
# access limits that are hard to express in sshd_config.
# account  required     pam_access.so

# Standard Un*x authorization.
@include common-account

# SELinux needs to be the first session rule.  This ensures that any
# lingering context has been cleared.  Without this it is possible that a
# module could execute code in the wrong domain.
session [success=ok ignore=ignore module_unknown=ignore default=bad]        pam_selinux.so close

# Set the loginuid process attribute.
session    required     pam_loginuid.so

# Create a new session keyring.
session    optional     pam_keyinit.so force revoke

# Standard Un*x session setup and teardown.
@include common-session
```

```
ricardo@ricardo-VirtualBox:~$ cat /etc/pam.d/su
#
# The PAM configuration file for the Shadow `su' service
#

# This allows root to su without passwords (normal operation)
auth       sufficient pam_rootok.so

# Uncomment this to force users to be a member of group root
# before they can use `su'. You can also add "group=foo"
# to the end of this line if you want to use a group other
# than the default "root" (but this may have side effect of
# denying "root" user, unless she's a member of "foo" or explicitly
# permitted earlier by e.g. "sufficient pam_rootok.so").
# (Replaces the `SU_WHEEL_ONLY' option from login.defs)
# auth       required   pam_wheel.so

# Uncomment this if you want wheel members to be able to
# su without a password.
# auth       sufficient pam_wheel.so trust

# Uncomment this if you want members of a specific group to not
# be allowed to use su at all.
# auth       required   pam_wheel.so deny group=nosu

# Uncomment and edit /etc/security/time.conf if you need to set
# time restrainst on su usage.
# (Replaces the `PORTTIME_CHECKS_ENAB' option from login.defs
# as well as /etc/porttime)
# account    requisite  pam_time.so
```