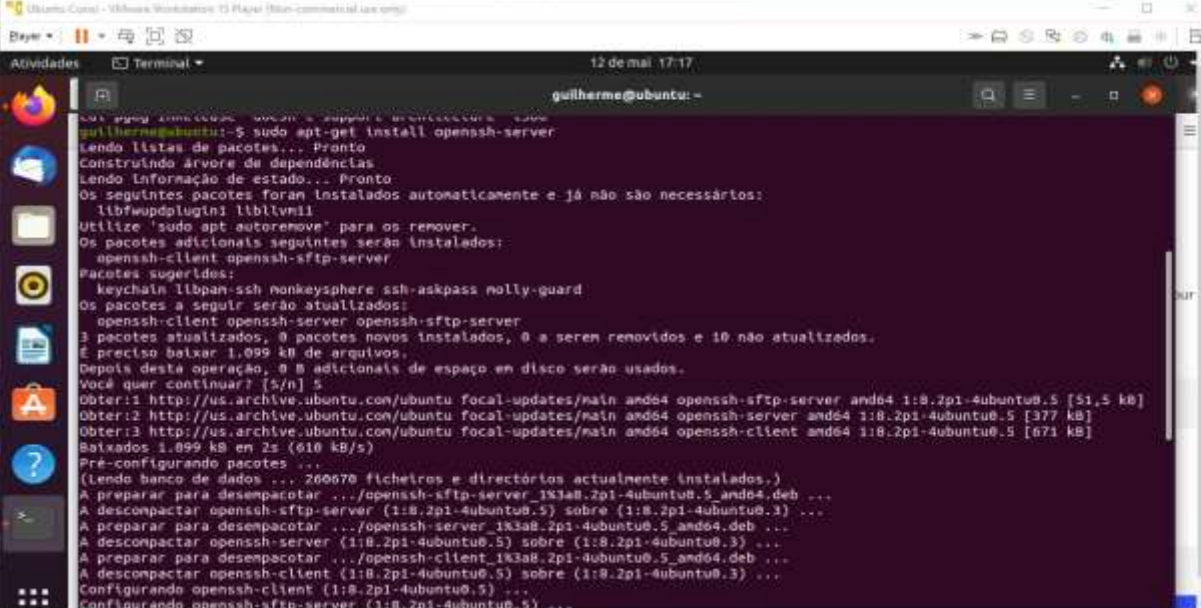


Sistemas Operacionais de Redes II

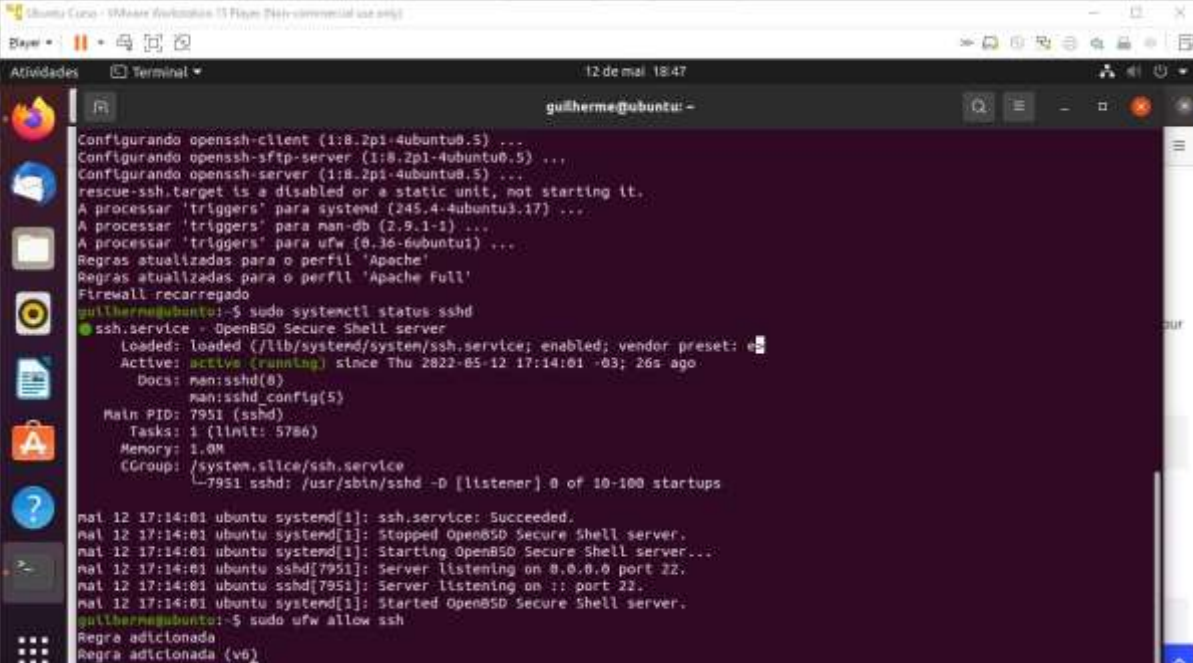
Guilherme Estevam de Castro e Rafael Alexandre Linhares

1) Instalar o OpenSSH server em uma máquina virtual Linux Instalando o OpenSSH



```
guilherme@ubuntu: ~$ sudo apt-get install openssh-server
Lendo listas de pacotes... Pronto
Construindo árvore de dependências
Lendo informação de estado... Pronto
Os seguintes pacotes foram instalados automaticamente e já não são necessários:
  libfwupdplugin1 libltn1
Utilize 'sudo apt autoremove' para os remover.
Os pacotes adicionais seguintes serão instalados:
  openssh-client openssh-sftp-server
Pacotes sugeridos:
  keychain libpam-ssh nonkeysphere ssh-askpass molly-guard
Os pacotes a seguir serão atualizados:
  openssh-client openssh-server openssh-sftp-server
3 pacotes atualizados, 0 pacotes novos instalados, 0 a serem renovados e 10 não atualizados.
É preciso baixar 1.099 kB de arquivos.
Depois desta operação, 0 B adicionais de espaço em disco serão usados.
Você quer continuar? [Y/n] Y
Obter:1 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-sftp-server amd64 1:8.2p1-4ubuntu0.5 [51,5 kB]
Obter:2 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-server amd64 1:8.2p1-4ubuntu0.5 [377 kB]
Obter:3 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-client amd64 1:8.2p1-4ubuntu0.5 [671 kB]
Baixados 1.099 kB em 2s (610 kB/s)
Pré-configurando pacotes ...
(Lendo banco de dados ... 260670 ficheiros e directórios actualmente instalados.)
A preparar para desempacotar .../openssh-sftp-server_1:8.2p1-4ubuntu0.5_amd64.deb ...
A descompactar openssh-sftp-server (1:8.2p1-4ubuntu0.5) sobre (1:8.2p1-4ubuntu0.3) ...
A preparar para desempacotar .../openssh-server_1:8.2p1-4ubuntu0.5_amd64.deb ...
A descompactar openssh-server (1:8.2p1-4ubuntu0.5) sobre (1:8.2p1-4ubuntu0.3) ...
A preparar para desempacotar .../openssh-client_1:8.2p1-4ubuntu0.5_amd64.deb ...
A descompactar openssh-client (1:8.2p1-4ubuntu0.5) sobre (1:8.2p1-4ubuntu0.3) ...
Configurando openssh-client (1:8.2p1-4ubuntu0.5) ...
Configurando openssh-sftp-server (1:8.2p1-4ubuntu0.5) ...
```

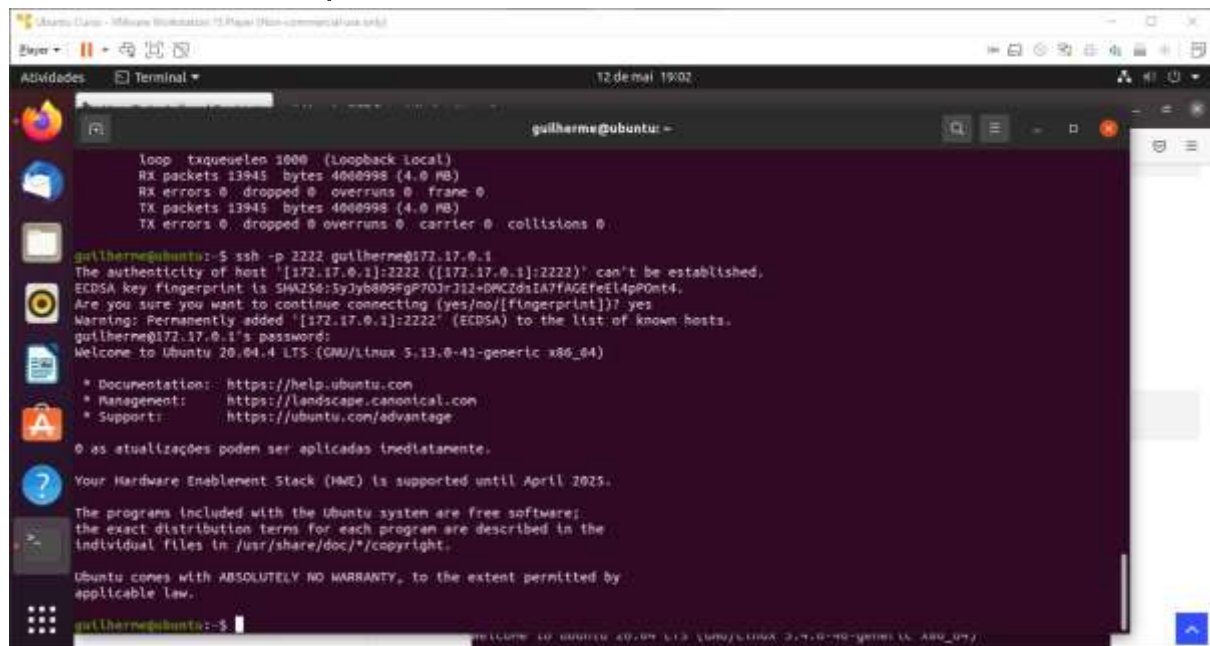
OpenSSH ativo e ativando firewall



```
guilherme@ubuntu: ~$ sudo systemctl status sshd
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enable)
   Active: active (running) since Thu 2022-05-12 17:14:01 -03; 26s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 7951 (sshd)
      Tasks: 1 (limit: 5786)
     Memory: 1.0M
    CGroup: /system.slice/ssh.service
            └─7951 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups

mai 12 17:14:01 ubuntu systemd[1]: ssh.service: Succeeded.
mai 12 17:14:01 ubuntu systemd[1]: Stopped OpenBSD Secure Shell server.
mai 12 17:14:01 ubuntu systemd[1]: Starting OpenBSD Secure Shell server:
mai 12 17:14:01 ubuntu sshd[7951]: Server listening on 0.0.0.0 port 22.
mai 12 17:14:01 ubuntu sshd[7951]: Server listening on :: port 22.
mai 12 17:14:01 ubuntu systemd[1]: Started OpenBSD Secure Shell server.
guilherme@ubuntu: ~$ sudo ufw allow ssh
Regra adicionada
Regra adicionada (v6)
guilherme@ubuntu: ~$
```

Conectando ao OpenSSH Server na Porta 2222



```
loop txqueuelen 1000 (Loopback local)
RX packets 13945 bytes 4000998 (4.0 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 13945 bytes 4000998 (4.0 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

guilhermegubuntu:~$ ssh -p 2222 guilherme@172.17.0.1
The authenticity of host '[172.17.0.1]:2222 ([172.17.0.1]:2222)' can't be established.
ECDSA key fingerprint is SHA256:5y7yb8099fP703r312+DMCZdsIA7FAGEfeE14p0mt4.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '[172.17.0.1]:2222' (ECDSA) to the list of known hosts.
guilherme@172.17.0.1's password:
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.13.0-41-generic x86_64)

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

0 as atualizações podem ser aplicadas imediatamente.

Your Hardware Enablement Stack (HWE) is supported until April 2025.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

guilhermegubuntu:~$
```

2) Criar um Par de Chaves (Pública/Privada) Gerando Chave SSH no Windows



```
Generating public/private rsa key pair.
Enter file in which to save the key (C:\Users\guilherme\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\...):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\guilherme\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\...
Your public key has been saved in C:\Users\guilherme\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\...
The key fingerprint is:
SHA256:dcmmCjG5VZKN008Fa9TFShFHakOwwDbIkh0...
The key's randomart image is:
+---[RSA 3072]---+
|      +==Bo+oo+*+      |
|    o+++B+++o+.      |
|  .*.+.o+o.          |
|   *  .+=o.          |
|  o Soo.              |
|   o =.               |
|    E                 |
|_____+            |
+-----[SHA256]-----+
```

Gerando Chave SSH no Ubuntu

```
guilherme@ubuntu:~$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/guilherme/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/guilherme/.ssh/id_rsa
Your public key has been saved in /home/guilherme/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:4z/RoeK8gf3567tsK0AMz8qbBe0FWlyU0feI860Mr9I guilherme@ubuntu
The key's randomart image is:
+---[RSA 3072]---+
|      . o++      |
|      . + . . .  |
|      0 .   o o   |
|      o * . + . . |
|      . =S. o +   |
|      o+=.o . o   |
|      .*++ + . .  |
|      o ++Eo+     |
|      .o=0X=      |
+-----[SHA256]-----+
```

3) Copiar a Chave Pública em uma Máquina Virtual que está executando o OpenSSH Server

```
C:\Users\Guii>scp C:/Users/Guii/.ssh/id_rsa.pub guilherme@192.168.31.128:~/.ssh/authorized_keys
guilherme@192.168.31.128's password:
id_rsa.pub                                     100% 569   278.0KB/s   00:00
```

4) Testar a conexão entre a máquina Cliente e a Servidora

```
C:\Users\Guii>ssh guilherme@192.168.31.128
guilherme@192.168.31.128's password:
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.13.0-41-generic x86_64)

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

6 as atualizações podem ser aplicadas imediatamente.
Para ver as actualizações adicionais corre o comando: apt list --upgradable

Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Thu May 12 19:01:53 2022 from 192.168.31.128
```