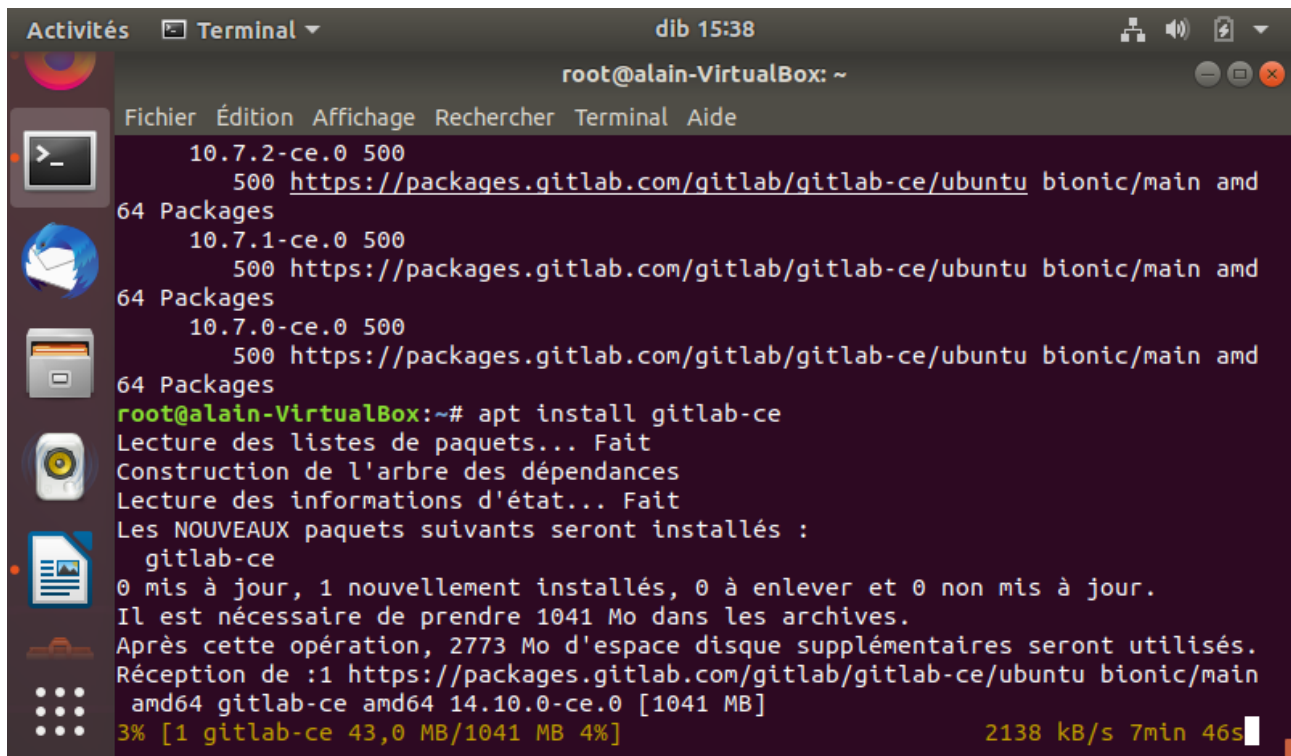


```
apt install curl openssh-server ca-certificates postfix
```

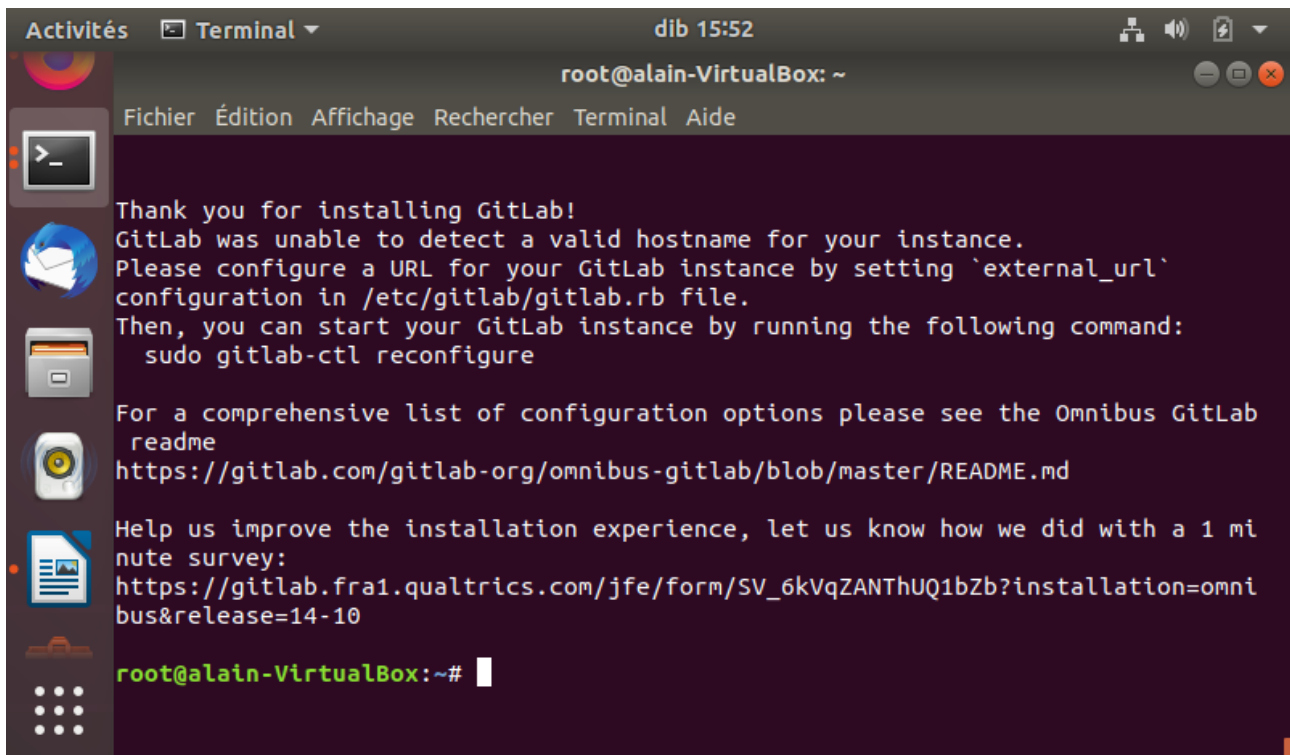
```
root@alain-VirtualBox:~# curl -sS https://packages.gitlab.com/install/repositories/gitlab/gitlab-ce/  
script.deb.sh | sudo bash
```

```
apt install gitlab-ce
```



```
root@alain-VirtualBox: ~  
Fichier Édition Affichage Rechercher Terminal Aide  
10.7.2-ce.0 500  
500 https://packages.gitlab.com/gitlab/gitlab-ce/ubuntu bionic/main amd  
64 Packages  
10.7.1-ce.0 500  
500 https://packages.gitlab.com/gitlab/gitlab-ce/ubuntu bionic/main amd  
64 Packages  
10.7.0-ce.0 500  
500 https://packages.gitlab.com/gitlab/gitlab-ce/ubuntu bionic/main amd  
64 Packages  
root@alain-VirtualBox:~# apt install gitlab-ce  
Lecture des listes de paquets... Fait  
Construction de l'arbre des dépendances  
Lecture des informations d'état... Fait  
Les NOUVEAUX paquets suivants seront installés :  
gitlab-ce  
0 mis à jour, 1 nouvellement installés, 0 à enlever et 0 non mis à jour.  
Il est nécessaire de prendre 1041 Mo dans les archives.  
Après cette opération, 2773 Mo d'espace disque supplémentaires seront utilisés.  
Réception de :1 https://packages.gitlab.com/gitlab/gitlab-ce/ubuntu bionic/main  
amd64 gitlab-ce amd64 14.10.0-ce.0 [1041 MB]  
3% [1 gitlab-ce 43,0 MB/1041 MB 4%] 2138 kB/s 7min 46s
```

fig 1



A terminal window titled 'Terminal' with a dark background. The prompt is 'root@alain-VirtualBox: ~'. The output text reads: 'Thank you for installing GitLab! GitLab was unable to detect a valid hostname for your instance. Please configure a URL for your GitLab instance by setting `external_url` configuration in /etc/gitlab/gitlab.rb file. Then, you can start your GitLab instance by running the following command: sudo gitlab-ctl reconfigure'. It then provides a link to the Omnibus GitLab README and a survey link. The prompt returns to 'root@alain-VirtualBox:~#'.

```
root@alain-VirtualBox: ~
Fichier  Édition  Affichage  Rechercher  Terminal  Aide

Thank you for installing GitLab!
GitLab was unable to detect a valid hostname for your instance.
Please configure a URL for your GitLab instance by setting `external_url`
configuration in /etc/gitlab/gitlab.rb file.
Then, you can start your GitLab instance by running the following command:
  sudo gitlab-ctl reconfigure

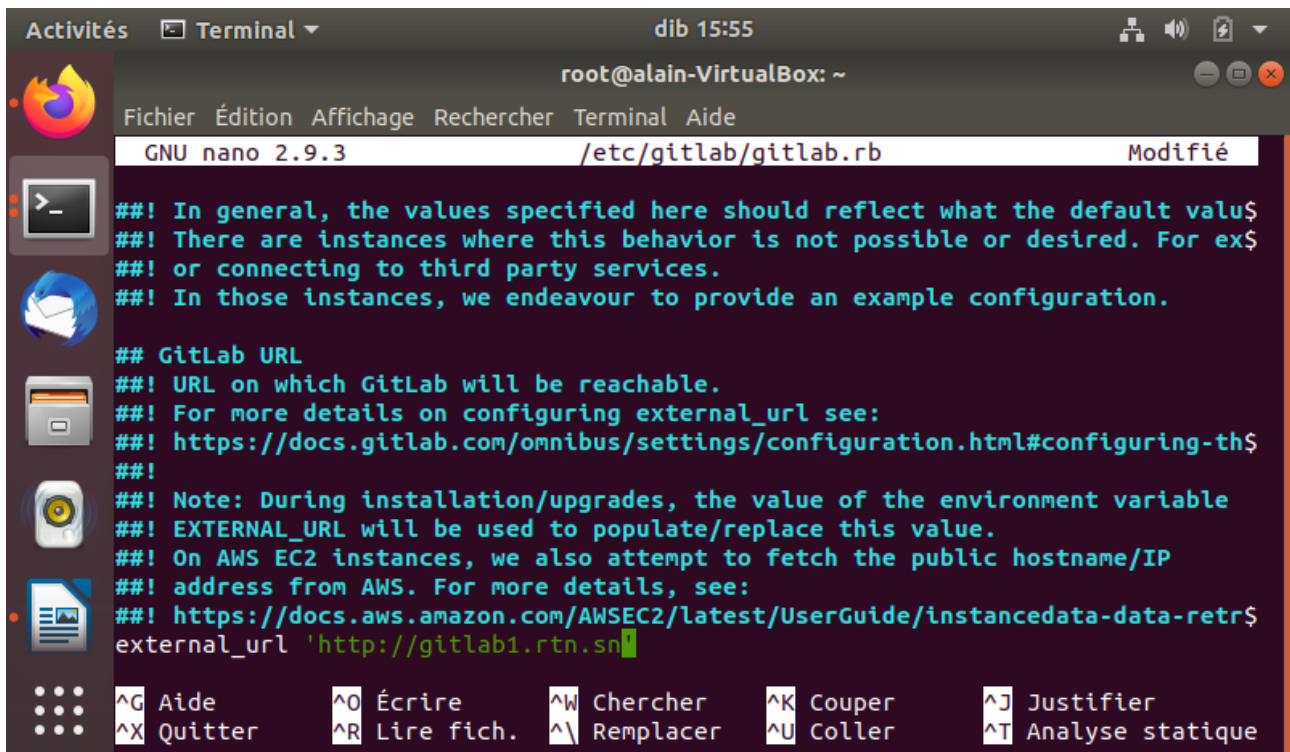
For a comprehensive list of configuration options please see the Omnibus GitLab
readme
https://gitlab.com/gitlab-org/omnibus-gitlab/blob/master/README.md

Help us improve the installation experience, let us know how we did with a 1 mi
nute survey:
https://gitlab.fra1.qualtrics.com/jfe/form/SV_6kVqZANThUQ1bZb?installation=omni
bus&release=14-10

root@alain-VirtualBox:~#
```

fig :

on edite le fichier pour preciser l'url



A terminal window titled 'Terminal' showing the nano editor editing the file '/etc/gitlab/gitlab.rb'. The editor header shows 'GNU nano 2.9.3' and 'Modifié'. The content includes comments about default values and a configuration for 'external_url' set to 'http://gitlab1.rtn.sn'. The bottom of the screen shows nano editor shortcuts.

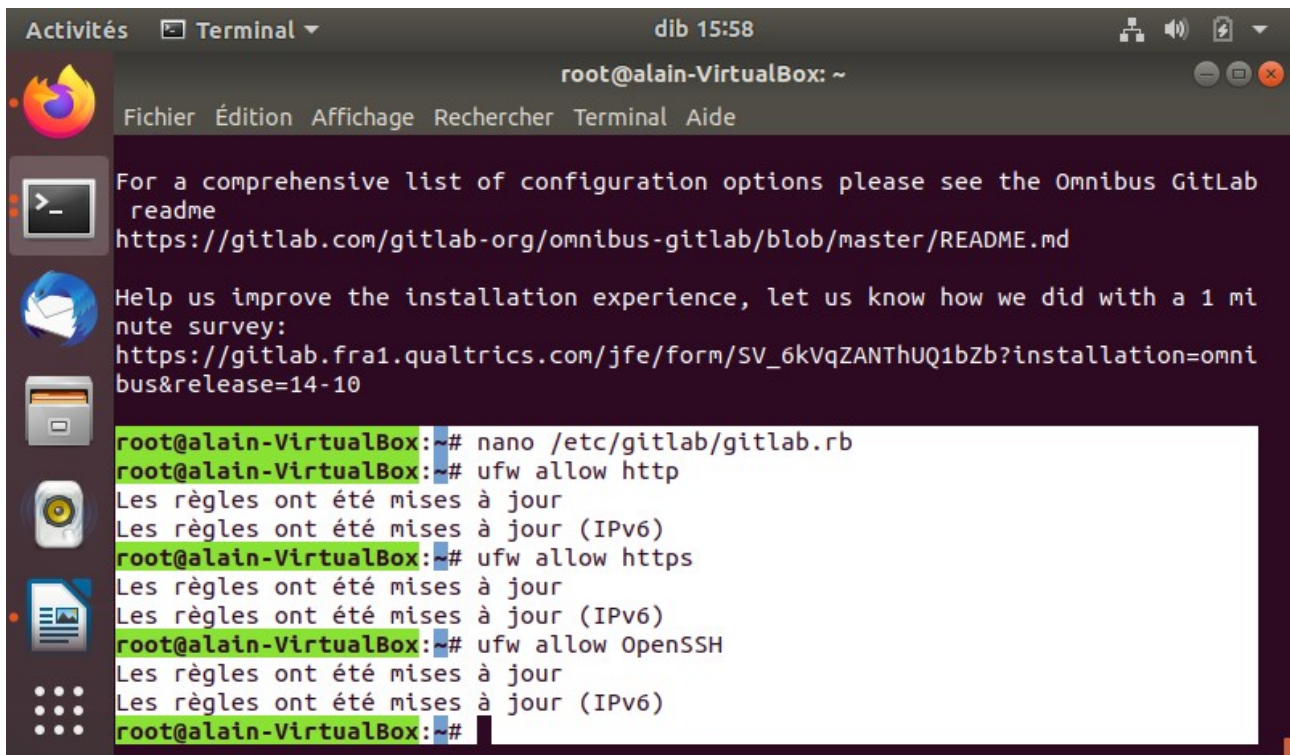
```
root@alain-VirtualBox: ~
Fichier  Édition  Affichage  Rechercher  Terminal  Aide
GNU nano 2.9.3 /etc/gitlab/gitlab.rb Modifié

##! In general, the values specified here should reflect what the default valu$
##! There are instances where this behavior is not possible or desired. For ex$
##! or connecting to third party services.
##! In those instances, we endeavour to provide an example configuration.

## GitLab URL
##! URL on which GitLab will be reachable.
##! For more details on configuring external_url see:
##! https://docs.gitlab.com/omnibus/settings/configuration.html#configuring-th$
##!
##! Note: During installation/upgrades, the value of the environment variable
##! EXTERNAL_URL will be used to populate/replace this value.
##! On AWS EC2 instances, we also attempt to fetch the public hostname/IP
##! address from AWS. For more details, see:
##! https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/instancedata-data-retr$
external_url 'http://gitlab1.rtn.sn'

^G Aide      ^O Écrire    ^W Chercher  ^K Couper    ^J Justifier
^X Quitter   ^R Lire fich.^_ Remplacer  ^U Coller    ^T Analyse statique
```

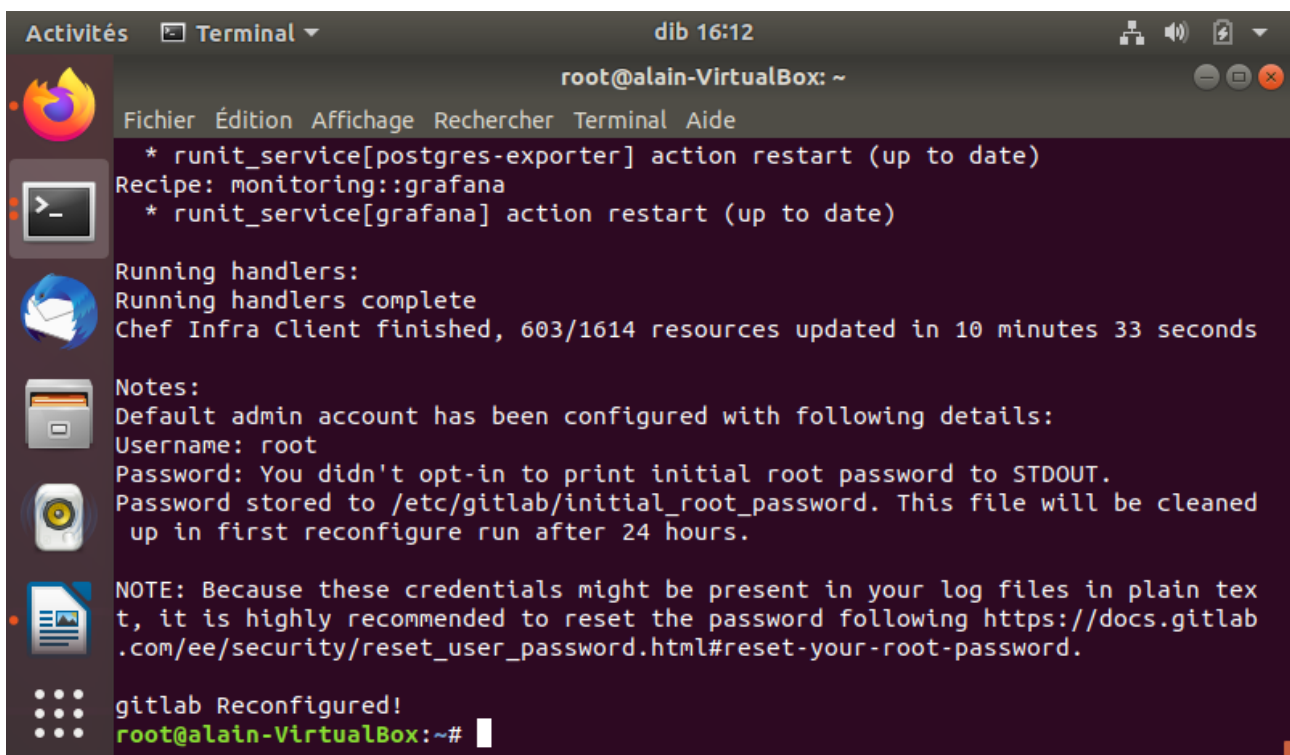
fig

A terminal window titled 'Terminal' with a dark background. The prompt is 'root@alain-VirtualBox: ~'. The user has entered several commands to configure GitLab: 'nano /etc/gitlab/gitlab.rb', 'ufw allow http', 'ufw allow https', and 'ufw allow OpenSSH'. The terminal shows the output of these commands, including 'Les règles ont été mises à jour' and 'Les règles ont été mises à jour (IPv6)'. There is also a link to the GitLab README and a survey link.

```
root@alain-VirtualBox: ~  
Fichier Édition Affichage Rechercher Terminal Aide  
For a comprehensive list of configuration options please see the Omnibus GitLab  
readme  
https://gitlab.com/gitlab-org/omnibus-gitlab/blob/master/README.md  
Help us improve the installation experience, let us know how we did with a 1 mi  
nute survey:  
https://gitlab.fra1.qualtrics.com/jfe/form/SV_6kVqZANThUQ1bZb?installation=omni  
bus&release=14-10  
root@alain-VirtualBox:~# nano /etc/gitlab/gitlab.rb  
root@alain-VirtualBox:~# ufw allow http  
Les règles ont été mises à jour  
Les règles ont été mises à jour (IPv6)  
root@alain-VirtualBox:~# ufw allow https  
Les règles ont été mises à jour  
Les règles ont été mises à jour (IPv6)  
root@alain-VirtualBox:~# ufw allow OpenSSH  
Les règles ont été mises à jour  
Les règles ont été mises à jour (IPv6)  
root@alain-VirtualBox:~#
```

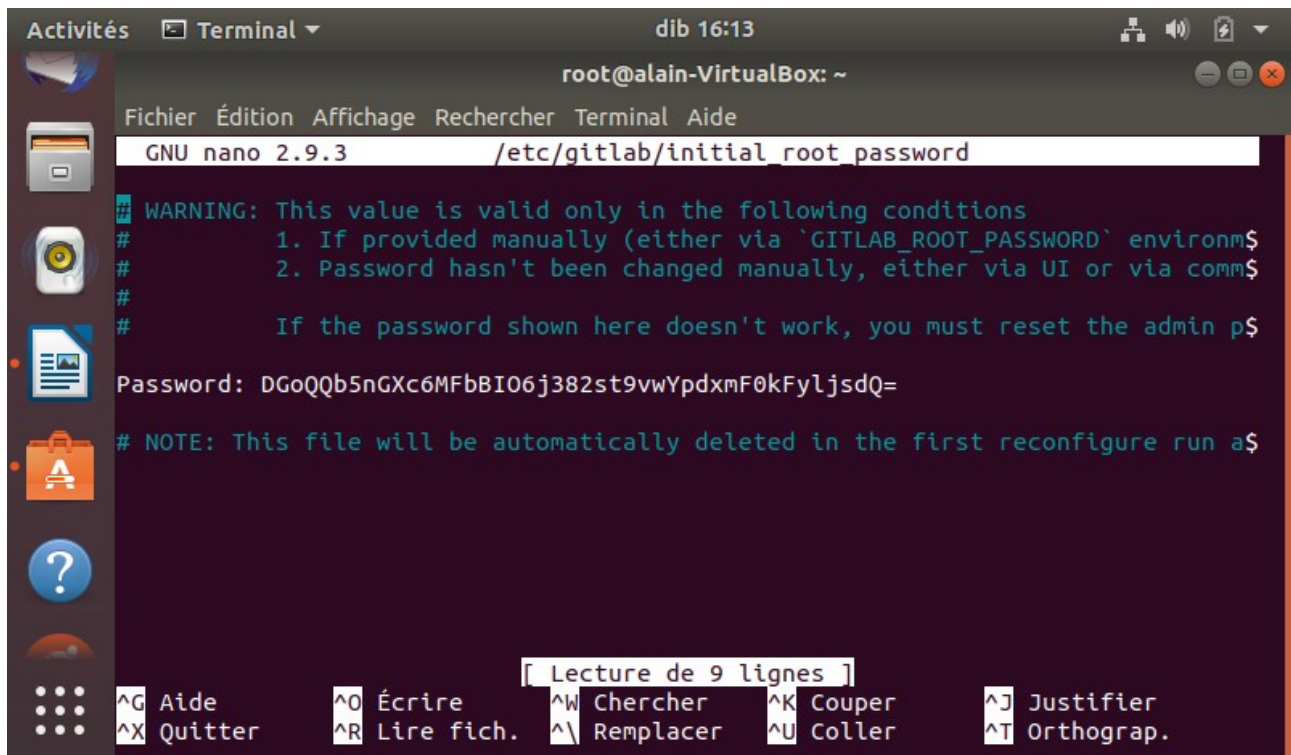
fig

gitlab-ctl reconfigure

A terminal window titled 'Terminal' with a dark background. The prompt is 'root@alain-VirtualBox: ~'. The user has entered 'gitlab-ctl reconfigure'. The terminal shows the output of this command, including 'Recipe: monitoring::grafana', 'Running handlers:', 'Chef Infra Client finished, 603/1614 resources updated in 10 minutes 33 seconds', and 'gitlab Reconfigured!'. There is also a note about the default admin account and a link to the GitLab documentation.

```
root@alain-VirtualBox: ~  
Fichier Édition Affichage Rechercher Terminal Aide  
* runit_service[postgres-exporter] action restart (up to date)  
Recipe: monitoring::grafana  
* runit_service[grafana] action restart (up to date)  
Running handlers:  
Running handlers complete  
Chef Infra Client finished, 603/1614 resources updated in 10 minutes 33 seconds  
Notes:  
Default admin account has been configured with following details:  
Username: root  
Password: You didn't opt-in to print initial root password to STDOUT.  
Password stored to /etc/gitlab/initial_root_password. This file will be cleaned  
up in first reconfigure run after 24 hours.  
NOTE: Because these credentials might be present in your log files in plain tex  
t, it is highly recommended to reset the password following https://docs.gitlab  
.com/ee/security/reset_user_password.html#reset-your-root-password.  
gitlab Reconfigured!  
root@alain-VirtualBox:~#
```

fig : bonne installation de gitlab-ce



The screenshot shows a terminal window titled "root@alain-VirtualBox: ~" with a menu bar containing "Fichier", "Édition", "Affichage", "Rechercher", "Terminal", and "Aide". The terminal is running the GNU nano 2.9.3 editor, editing the file `/etc/gitlab/initial_root_password`. The content of the file is as follows:

```
WARNING: This value is valid only in the following conditions
# 1. If provided manually (either via `GITLAB_ROOT_PASSWORD` environm$
# 2. Password hasn't been changed manually, either via UI or via comm$
#
# If the password shown here doesn't work, you must reset the admin p$
Password: DGoQQb5nGXc6MFbBI06j382st9vwYpdxmF0kFyljsdQ=
# NOTE: This file will be automatically deleted in the first reconfigure run a$
```

At the bottom of the terminal, there is a status bar with the text "[Lecture de 9 lignes]" and a set of keyboard shortcuts: `^G Aide`, `^X Quitter`, `^O Écrire`, `^R Lire fich.`, `^W Chercher`, `^K Couper`, `^J Justifier`, `^_ Remplacer`, `^U Coller`, and `^T Orthograp.`

fig : mot de passe par défaut

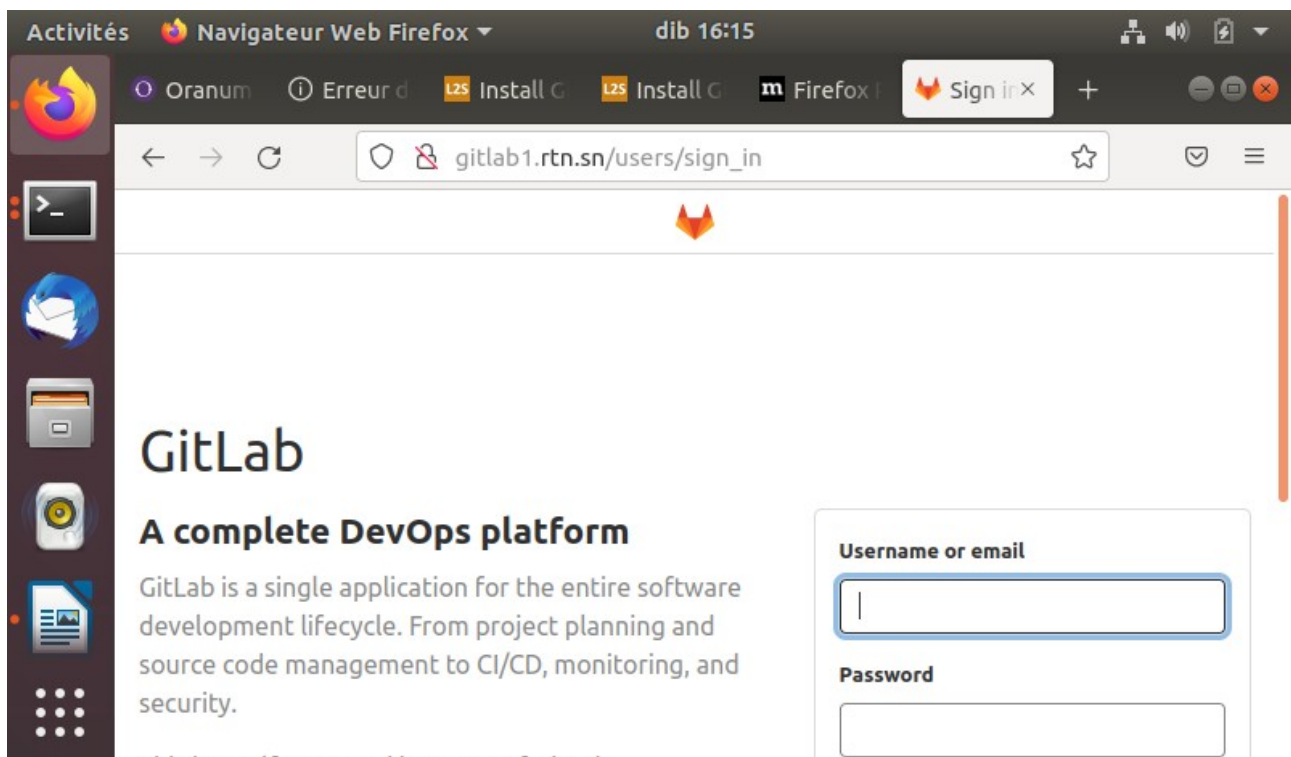


fig : premiere connexion

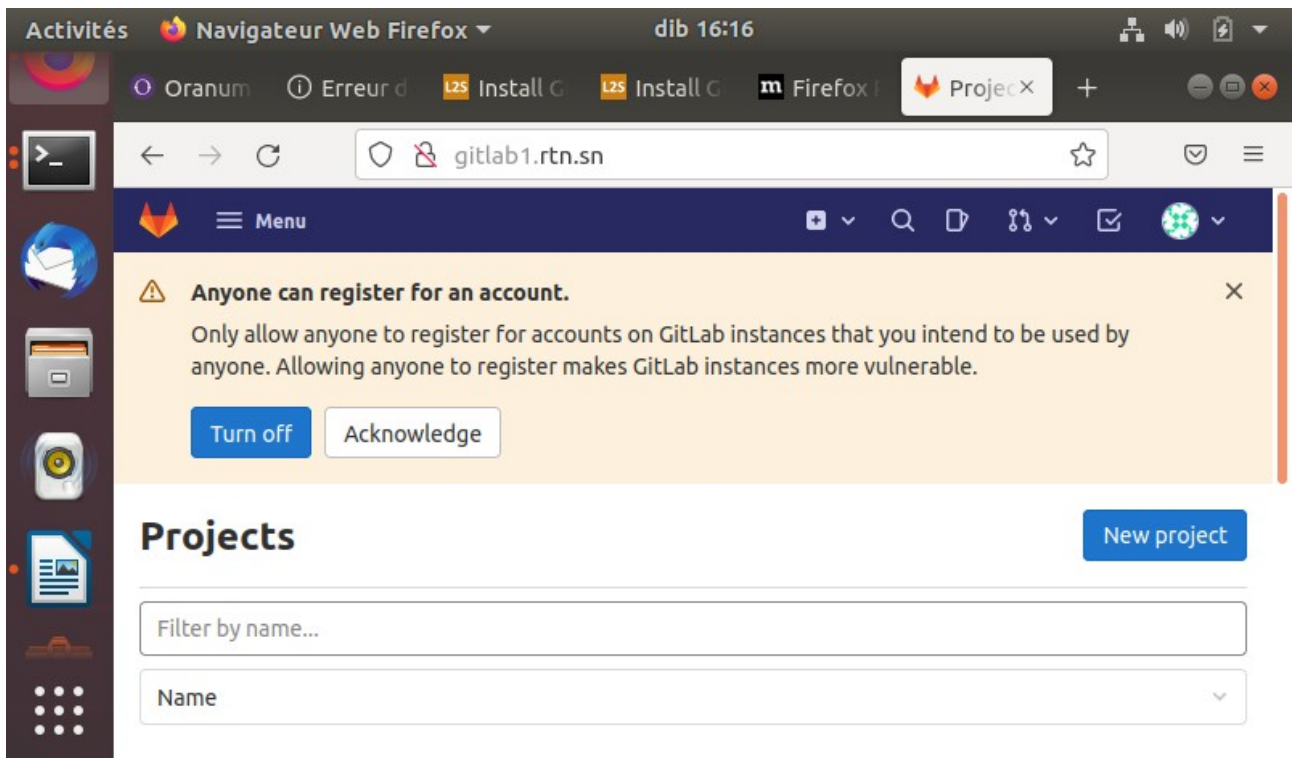


fig : on saisit root et on colle le mot de passe par défaut

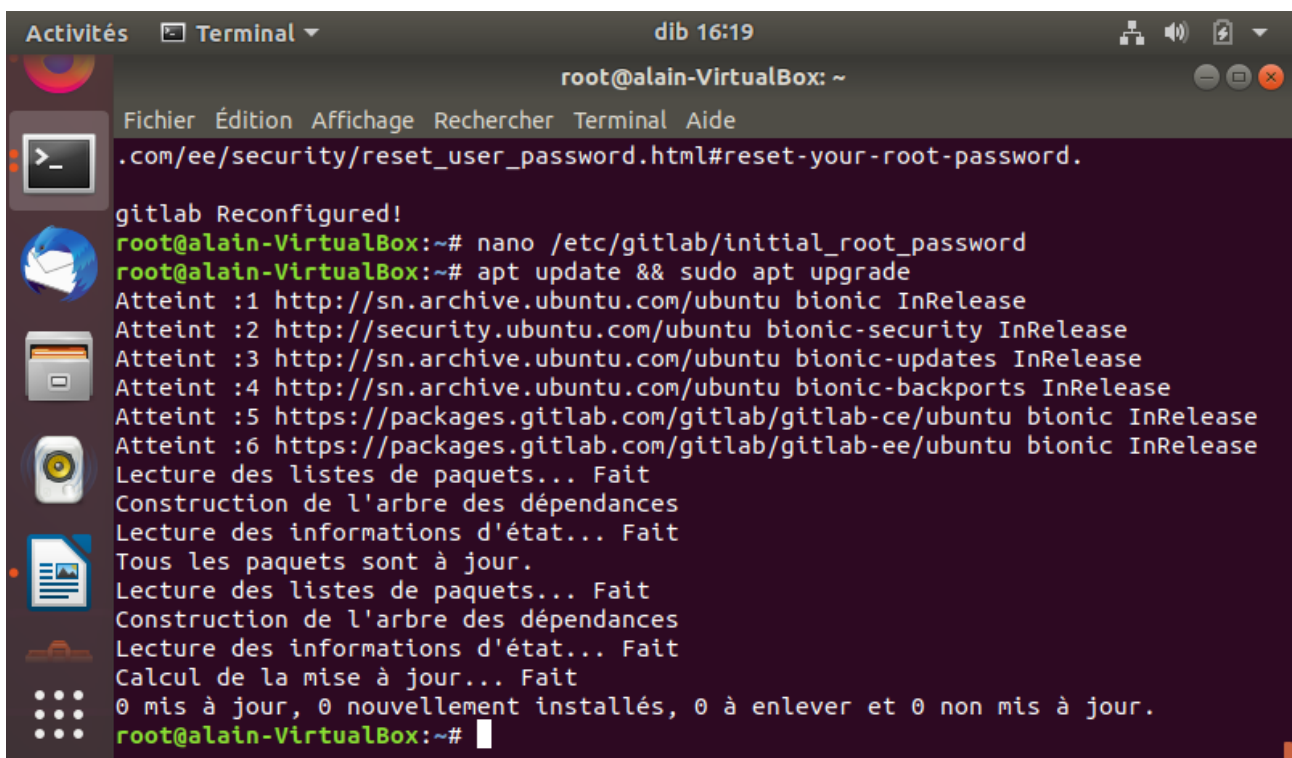


fig : mise à jour

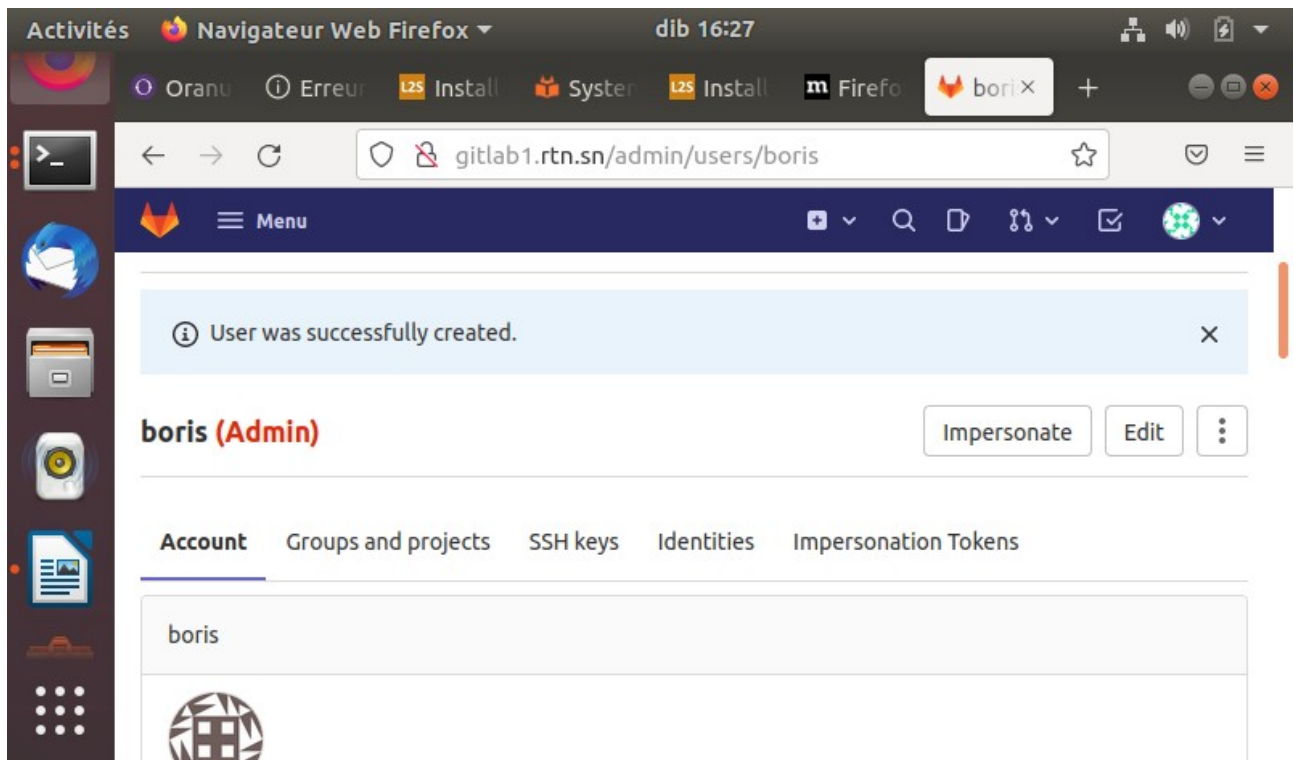
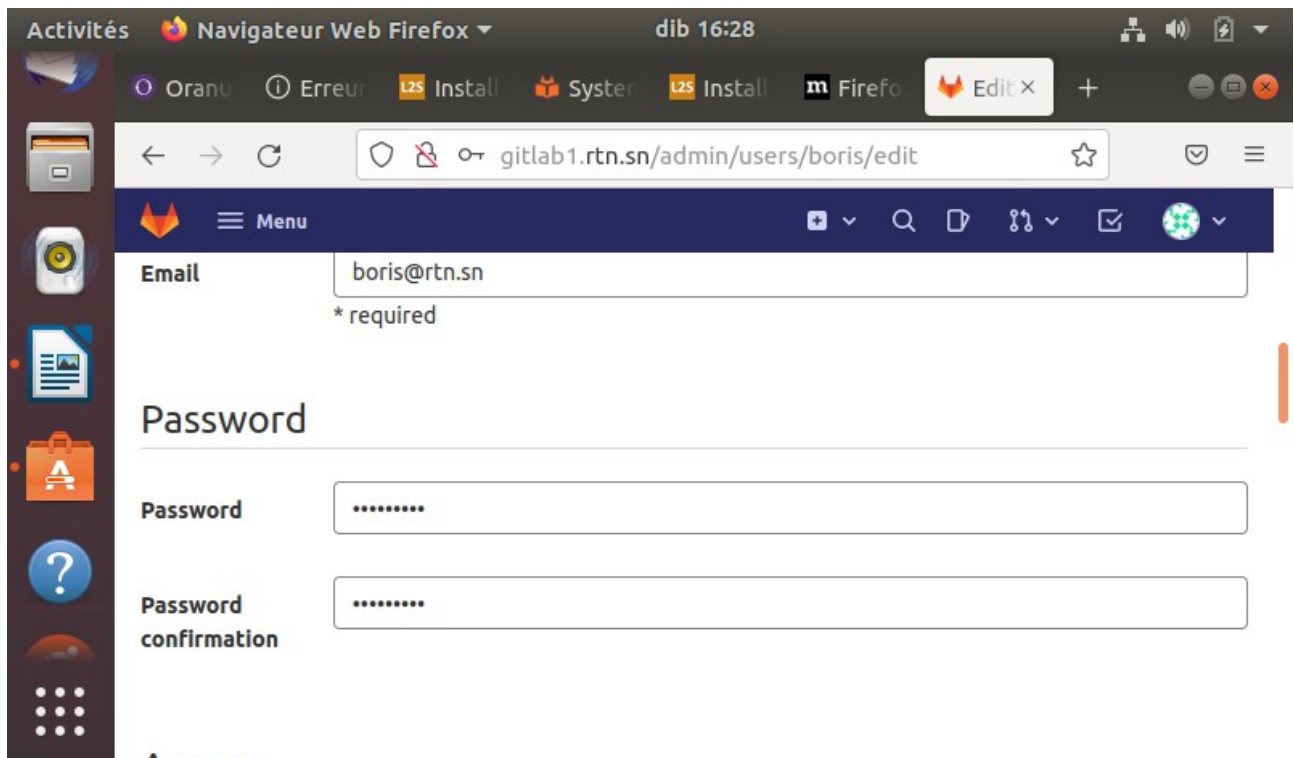


fig :



fig

creation de groups

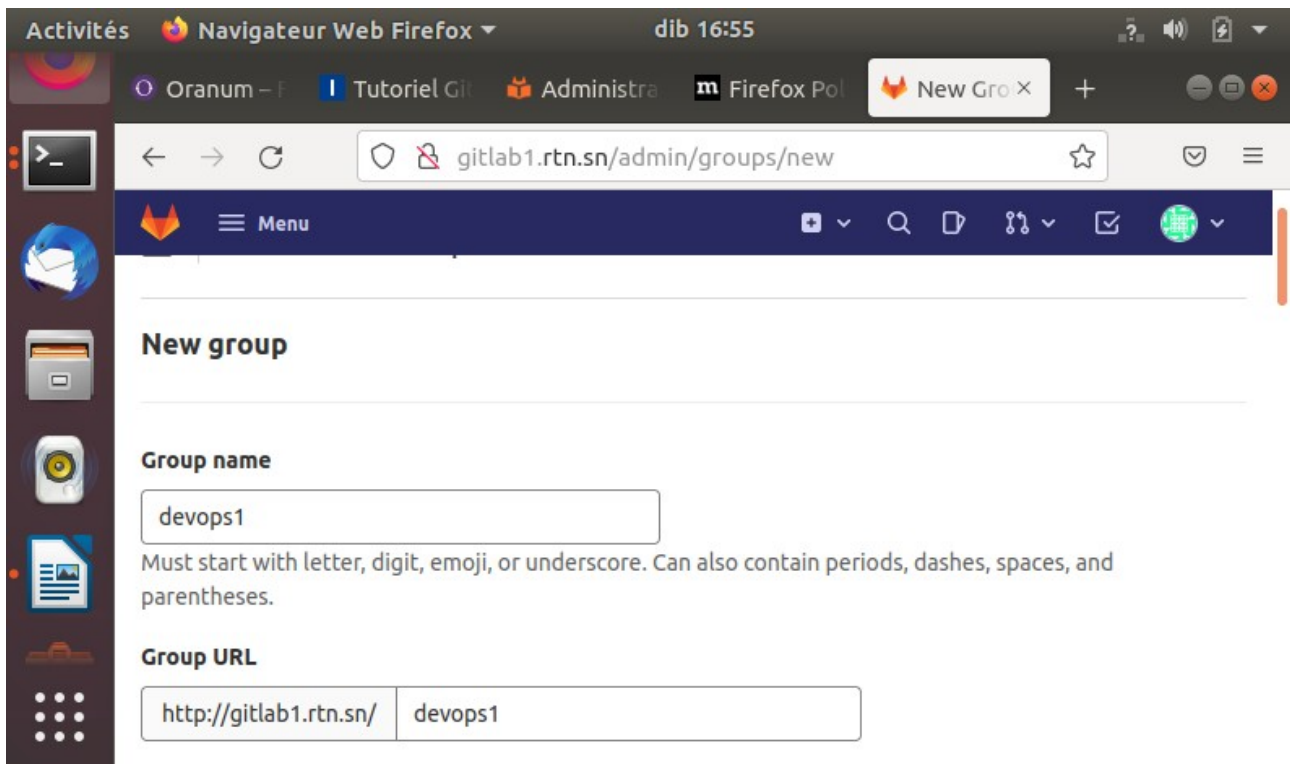


fig ; creation du groupe devops1

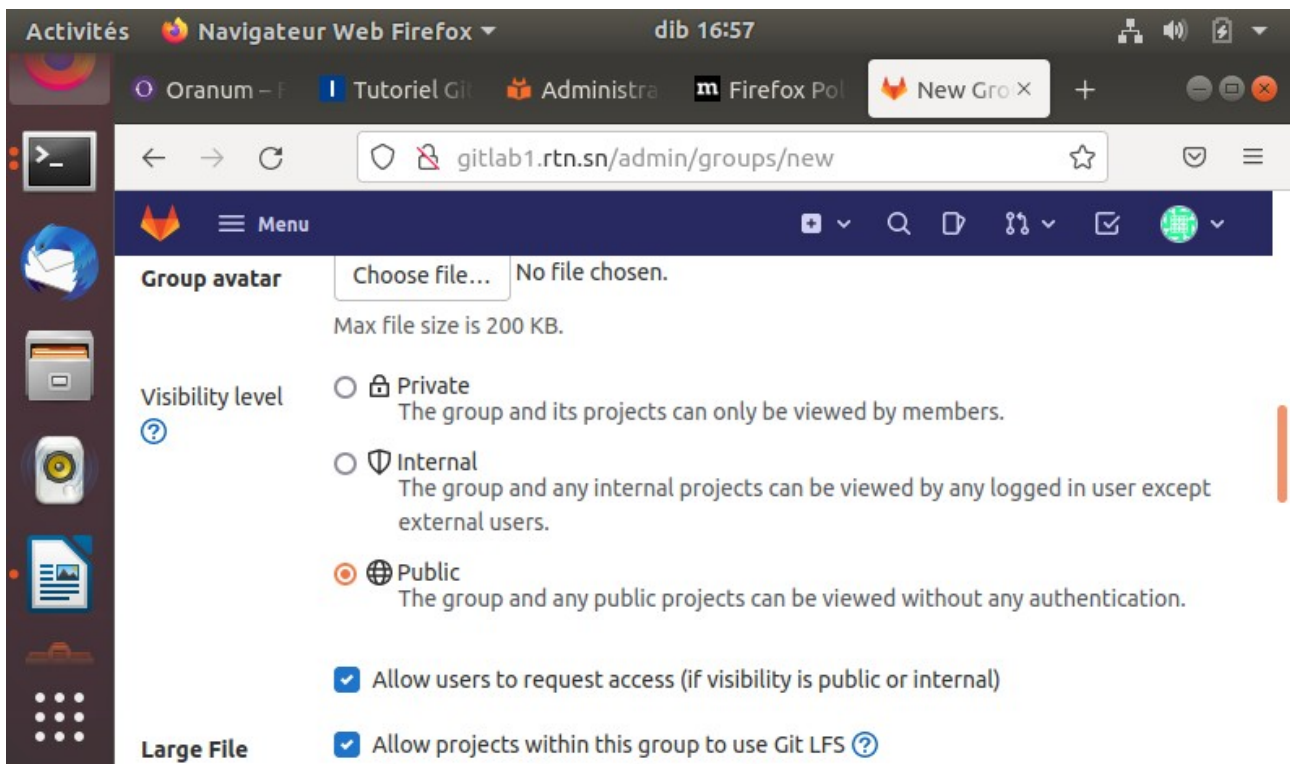


fig : groupe public

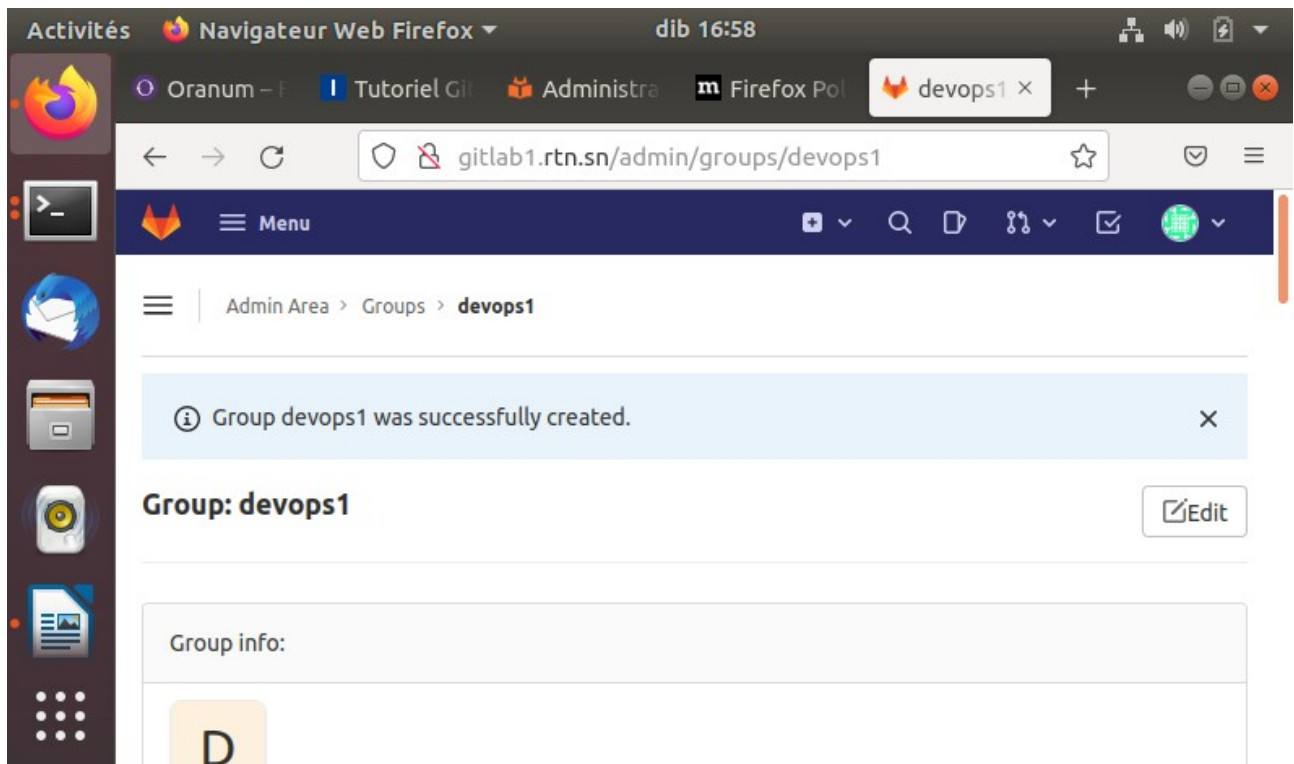


fig : confirmation de creation de groupe devops1

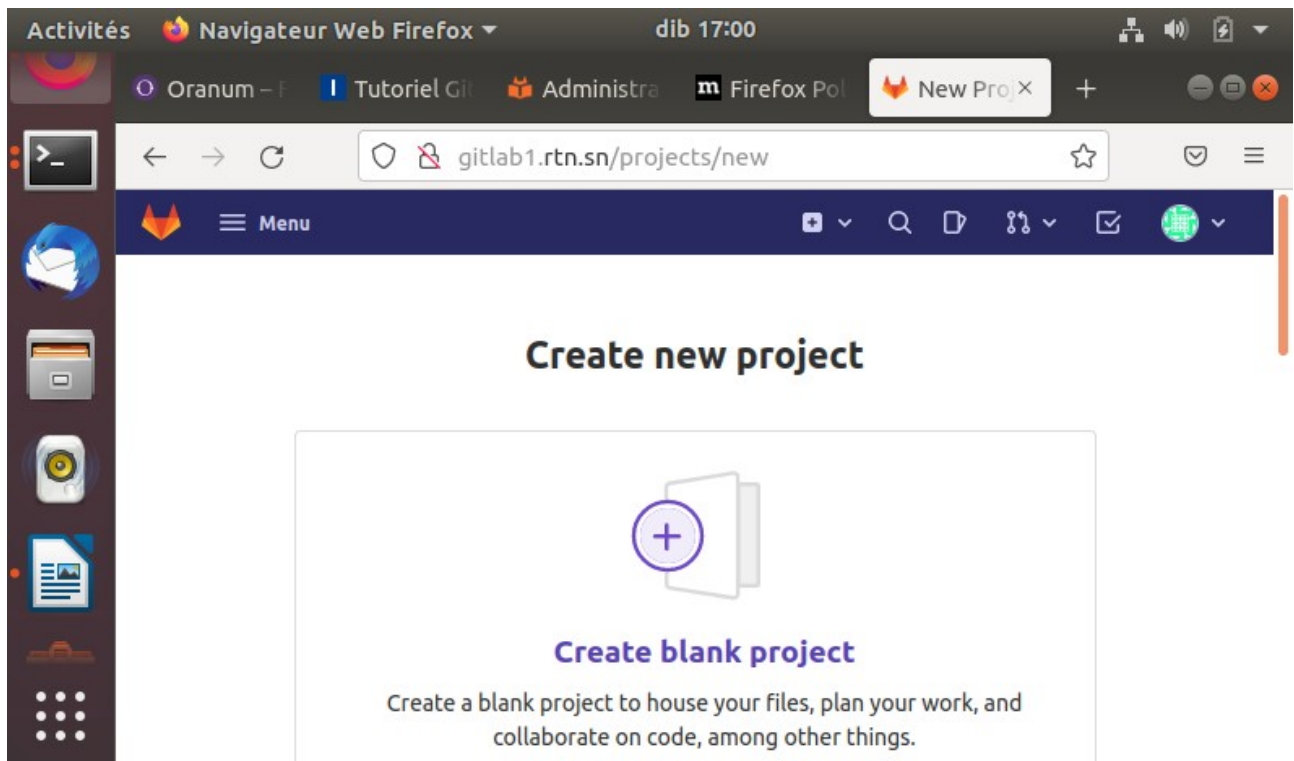
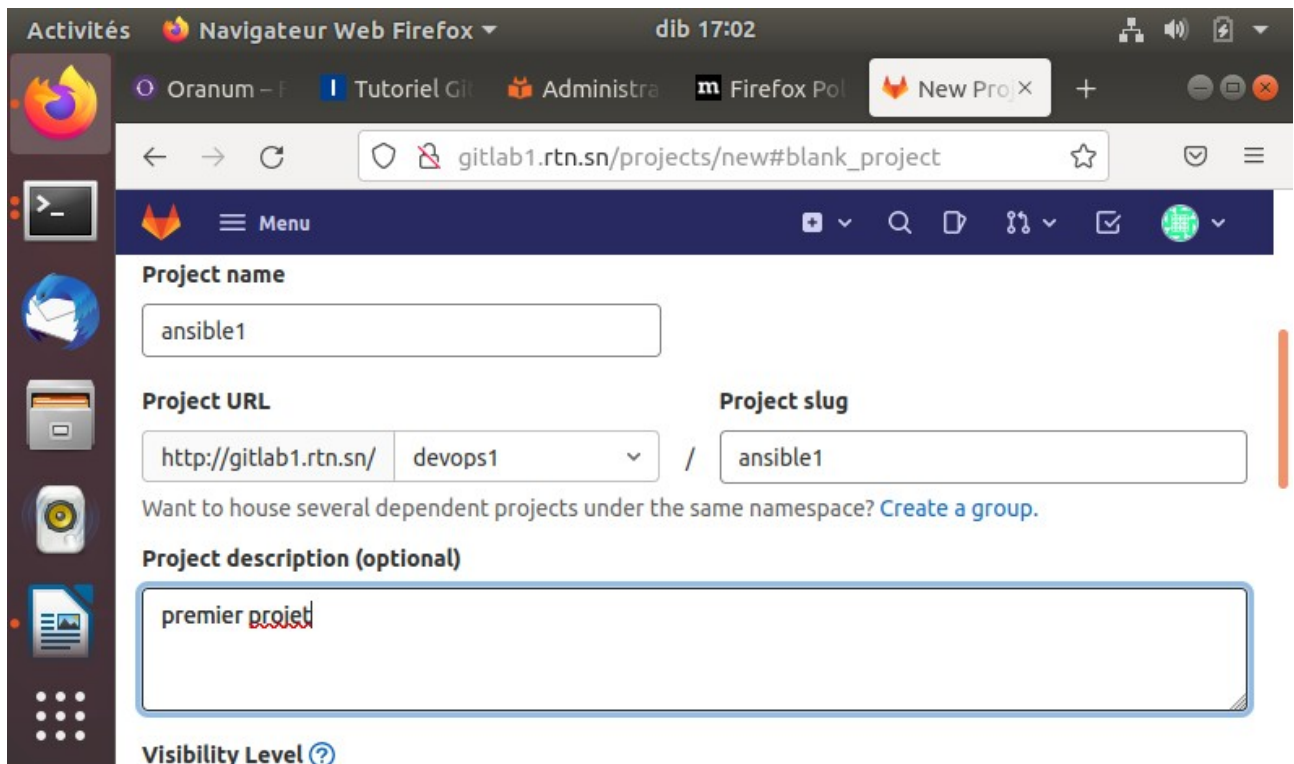
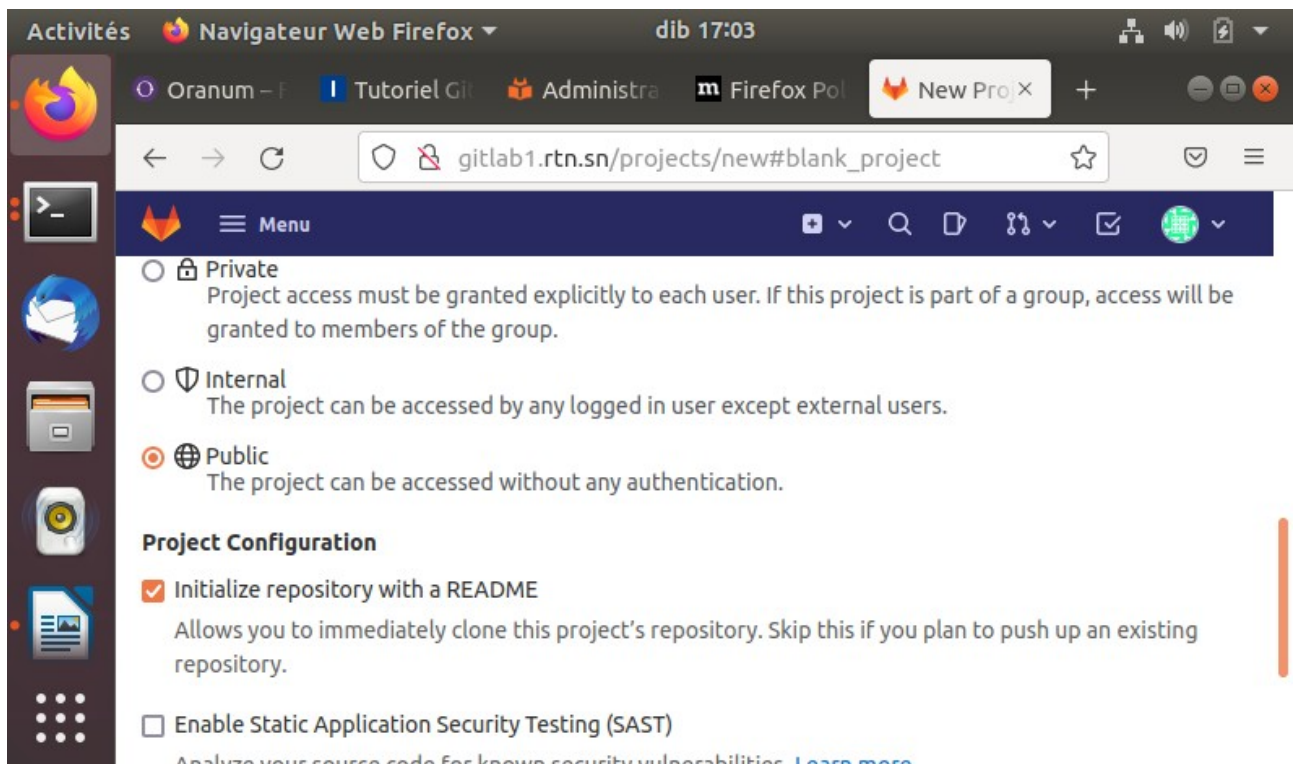


fig :



fig



fig

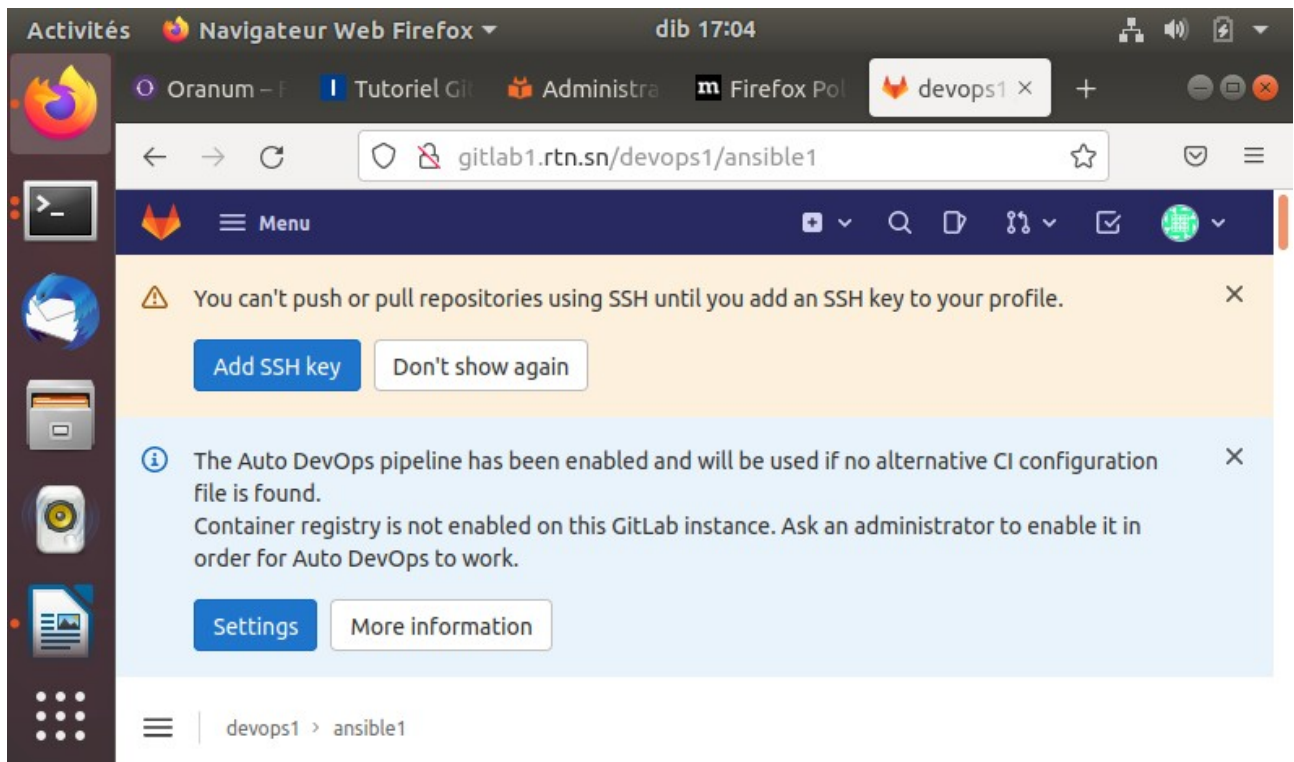


fig :

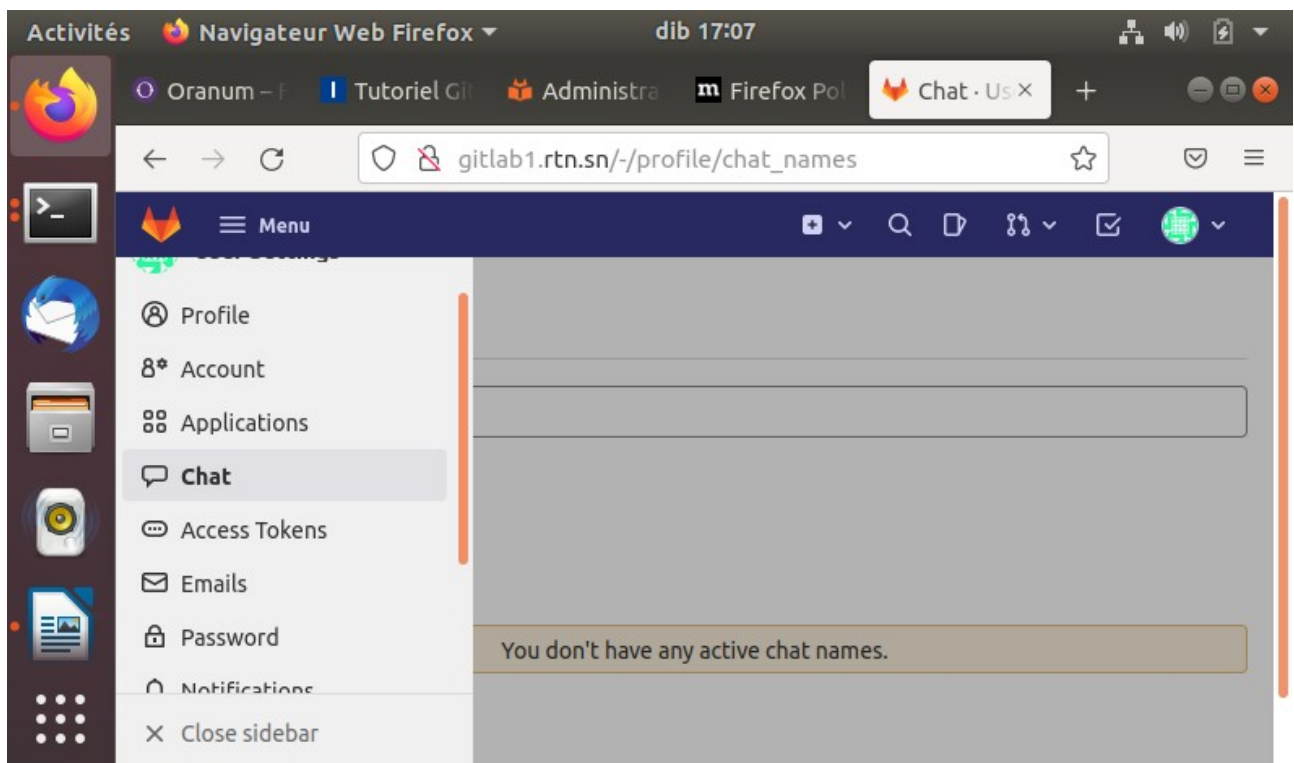
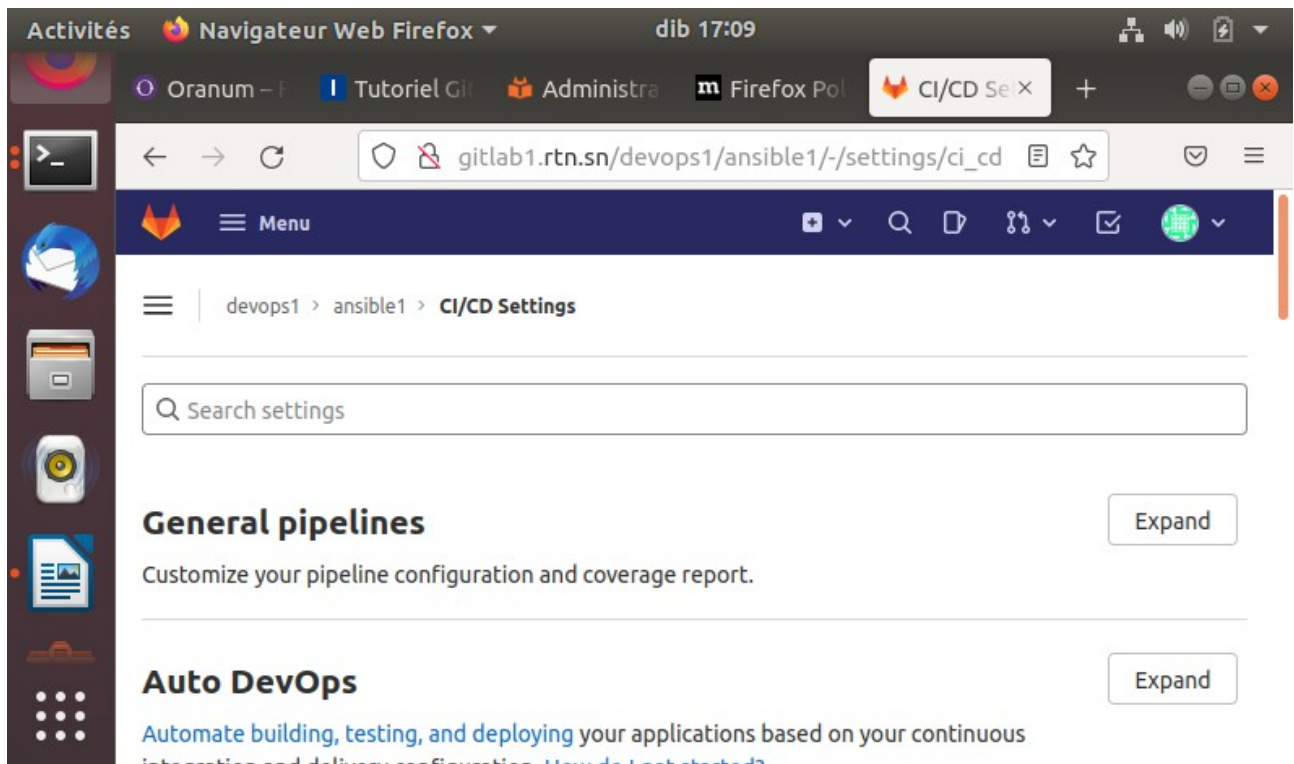


fig :



fig

Installation d'ansible

```
root@alain-VirtualBox:~# apt install software-properties-common
```

```
root@alain-VirtualBox:~# apt-add-repository ppa:ansible/ansible-2.10
```

```
Activités Terminal ▾ dib 19:31
root@alain-VirtualBox: ~
Fichier Édition Affichage Rechercher Terminal Aide
ansible:
  Installé : (aucun)
  Candidat : 2.10.7-1ppa~bionic
  Table de version :
    2.10.7-1ppa~bionic 500
      500 http://ppa.launchpad.net/ansible/ansible-2.10/ubuntu bionic/main am
d64 Packages
      500 http://ppa.launchpad.net/ansible/ansible-2.10/ubuntu bionic/main i3
86 Packages
    2.9.27-1ppa~bionic 500
      500 http://ppa.launchpad.net/ansible/ansible/ubuntu bionic/main amd64 P
ackages
      500 http://ppa.launchpad.net/ansible/ansible/ubuntu bionic/main i386 Pa
ckages
    2.5.1+dfsg-1ubuntu0.1 500
      500 http://sn.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 P
ackages
      500 http://sn.archive.ubuntu.com/ubuntu bionic-updates/universe i386 Pa
ckages
      500 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Pa
:

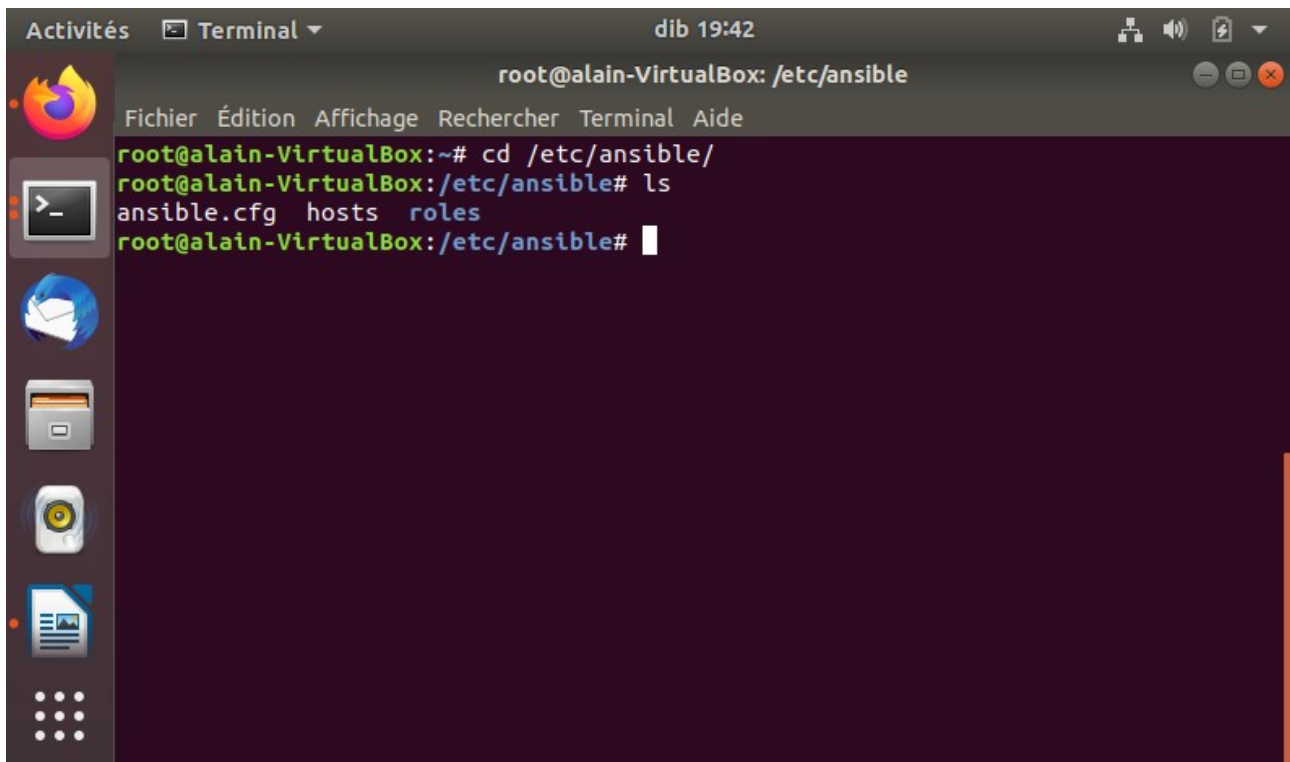
```

fig

```
Activités Terminal ▾ dib 19:39
root@alain-VirtualBox: ~
Fichier Édition Affichage Rechercher Terminal Aide
Dépaquetage de ansible-base (2.10.17-1ppa~bionic) ...
Sélection du paquet ansible précédemment désélectionné.
Préparation du dépaquetage de .../5-ansible_2.10.7-1ppa~bionic_all.deb ...
Dépaquetage de ansible (2.10.7-1ppa~bionic) ...
Paramétrage de python3-pyasn1 (0.4.2-3) ...
Paramétrage de sshpass (1.06-1) ...
Paramétrage de python3-jinja2 (2.10-1ubuntu0.18.04.1) ...
Paramétrage de python3-paramiko (2.0.0-1ubuntu1.3) ...
Paramétrage de ansible-base (2.10.17-1ppa~bionic) ...
Paramétrage de ansible (2.10.7-1ppa~bionic) ...
Traitement des actions différées (« triggers ») pour man-db (2.8.3-2ubuntu0.1)
...
root@alain-VirtualBox:~# ansible --version
ansible 2.10.17
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/alain/.ansible/plugins/modules', '/us
r/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  executable location = /usr/bin/ansible
  python version = 3.6.9 (default, Mar 15 2022, 13:55:28) [GCC 8.4.0]
root@alain-VirtualBox:~#

```

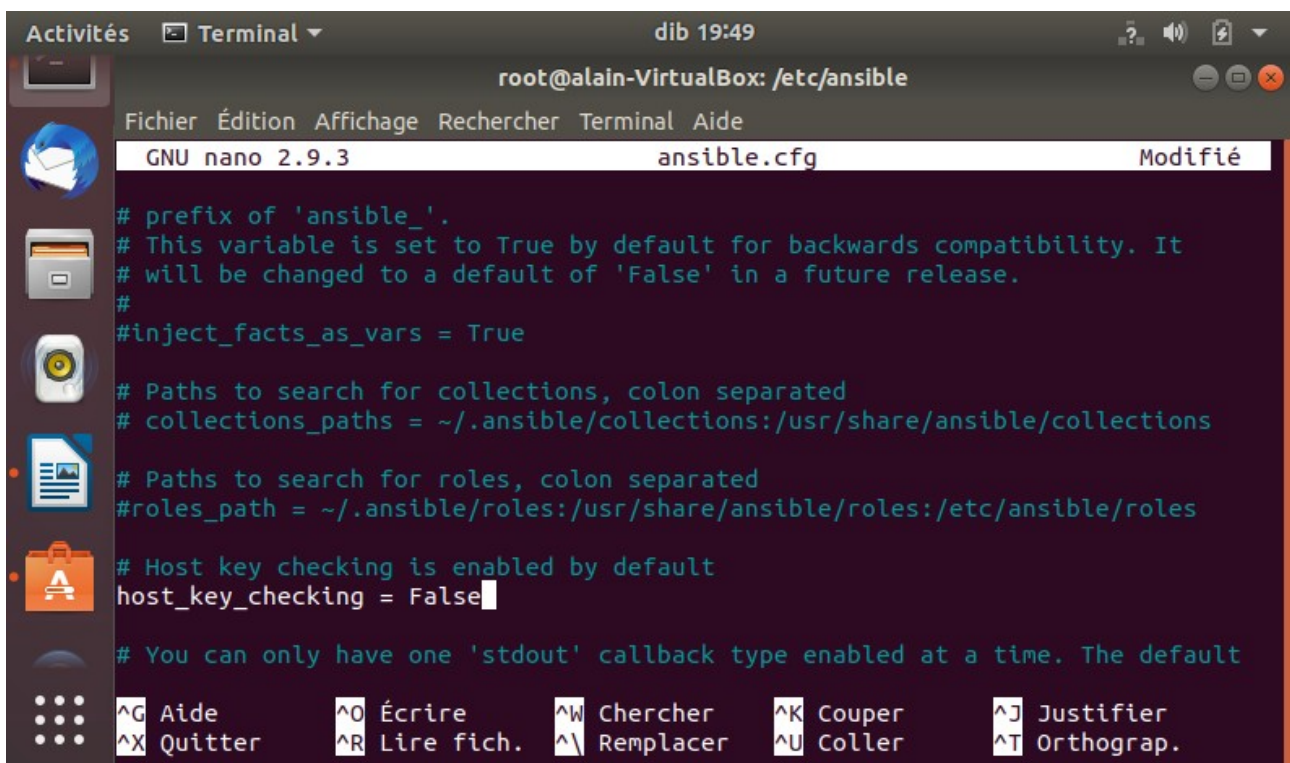
fig : version d'ansible et de python



The image shows a terminal window titled "Terminal" with the user "dib" at "19:42". The prompt is "root@alain-VirtualBox: /etc/ansible". The user has executed the following commands:

```
root@alain-VirtualBox:~# cd /etc/ansible/
root@alain-VirtualBox:/etc/ansible# ls
ansible.cfg  hosts  roles
root@alain-VirtualBox:/etc/ansible#
```

fig : dossier de config d'ansible



The image shows the same terminal window, but now the "GNU nano 2.9.3" editor is open, editing "ansible.cfg". The file content is as follows:

```
# prefix of 'ansible_'.
# This variable is set to True by default for backwards compatibility. It
# will be changed to a default of 'False' in a future release.
#
#inject_facts_as_vars = True

# Paths to search for collections, colon separated
# collections_paths = ~/.ansible/collections:/usr/share/ansible/collections

# Paths to search for roles, colon separated
#roles_path = ~/.ansible/roles:/usr/share/ansible/roles:/etc/ansible/roles

# Host key checking is enabled by default
host_key_checking = False

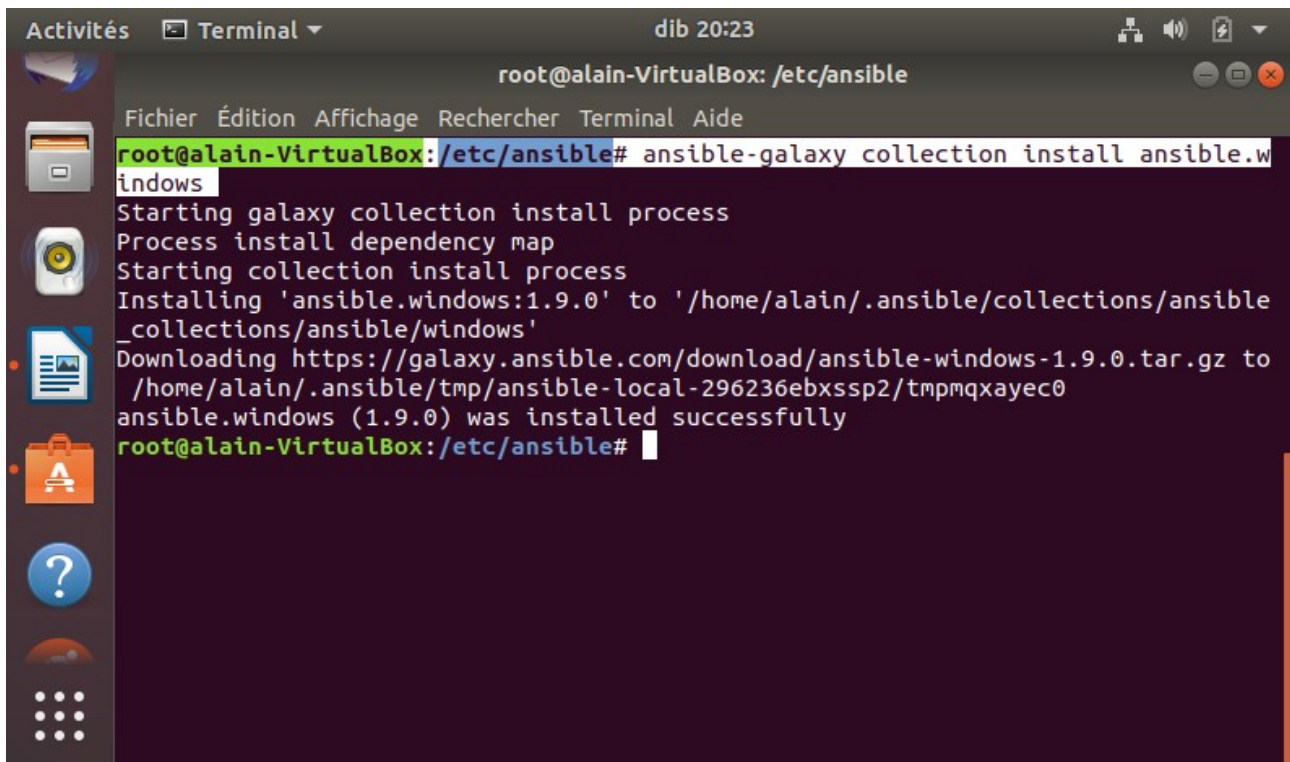
# You can only have one 'stdout' callback type enabled at a time. The default
```

The bottom of the screen shows the nano editor's command shortcuts:

```
^G Aide      ^O Écrire    ^W Chercher  ^K Couper    ^J Justifier
^X Quitter   ^R Lire fich.^_ Remplacer  ^U Coller    ^T Orthograp.
```

fig : desactivation de la verification de la clé

```
root@alain-VirtualBox:/etc/ansible# ansible-galaxy collection install ansible.windows
```

A terminal window titled 'root@alain-VirtualBox: /etc/ansible' with a menu bar (Fichier, Édition, Affichage, Rechercher, Terminal, Aide). The command 'ansible-galaxy collection install ansible.windows' is entered. The output shows the installation process: 'Starting galaxy collection install process', 'Process install dependency map', 'Starting collection install process', 'Installing 'ansible.windows:1.9.0' to '/home/alain/.ansible/collections/ansible_collections/ansible/windows'', and 'Downloading https://galaxy.ansible.com/download/ansible-windows-1.9.0.tar.gz to /home/alain/.ansible/tmp/ansible-local-296236ebxssp2/tmpmqxayec0'. The final message is 'ansible.windows (1.9.0) was installed successfully'.

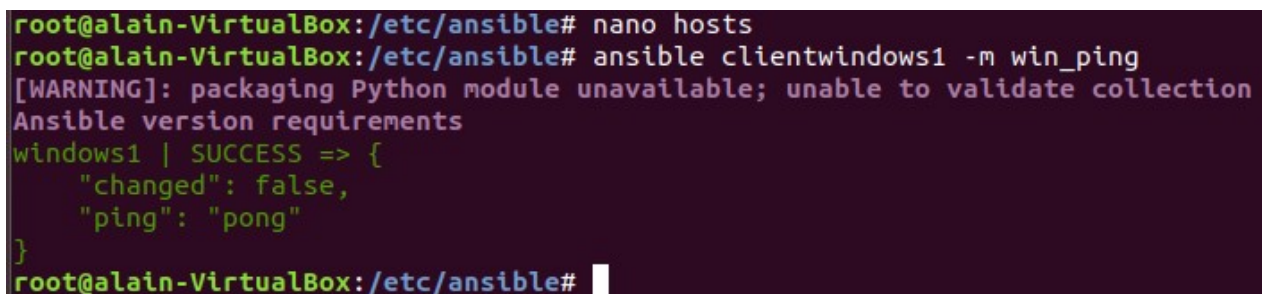
```
root@alain-VirtualBox: /etc/ansible# ansible-galaxy collection install ansible.w
indows
Starting galaxy collection install process
Process install dependency map
Starting collection install process
Installing 'ansible.windows:1.9.0' to '/home/alain/.ansible/collections/ansible
_collections/ansible/windows'
Downloading https://galaxy.ansible.com/download/ansible-windows-1.9.0.tar.gz to
/home/alain/.ansible/tmp/ansible-local-296236ebxssp2/tmpmqxayec0
ansible.windows (1.9.0) was installed successfully
root@alain-VirtualBox: /etc/ansible#
```

fig : installation de module ansible.windows

on ajoute à la fin du fichier `/etc/ansible/hosts`

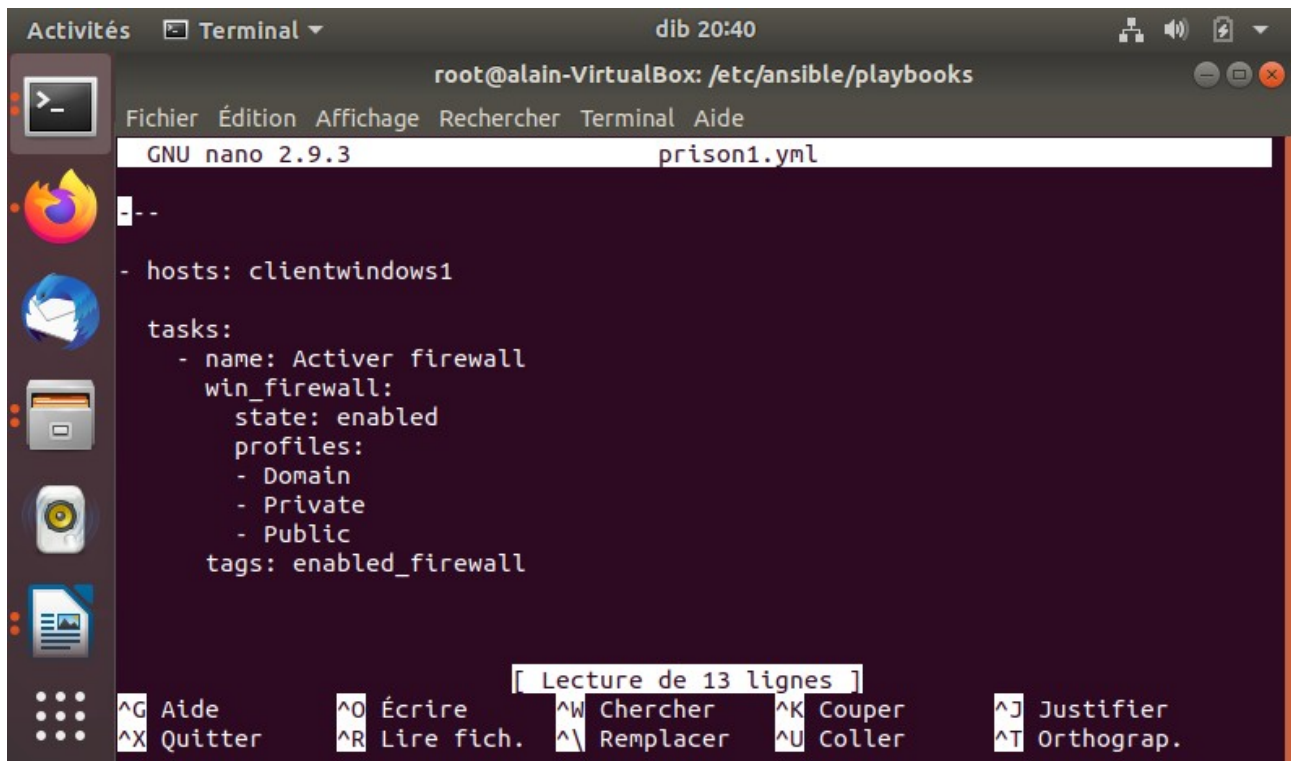
```
[clientwindows1]
windows1 ansible_host=192.168.1.6
```

```
[clientwindows1:vars]
ansible_ssh_user=ec2lt
ansible_ssh_pass=P@sser123
ansible_user=ec2lt
ansible_pass=P@sser123
ansible_shell_type=cmd
```

A terminal window showing the execution of an Ansible playbook. The command 'ansible clientwindows1 -m win_ping' is entered. The output shows a warning about packaging Python module unavailability, followed by the success of the ping operation: 'windows1 | SUCCESS => { "changed": false, "ping": "pong" }'.

```
root@alain-VirtualBox: /etc/ansible# nano hosts
root@alain-VirtualBox: /etc/ansible# ansible clientwindows1 -m win_ping
[WARNING]: packaging Python module unavailable; unable to validate collection
Ansible version requirements
windows1 | SUCCESS => {
    "changed": false,
    "ping": "pong"
}
root@alain-VirtualBox: /etc/ansible#
```

fig :

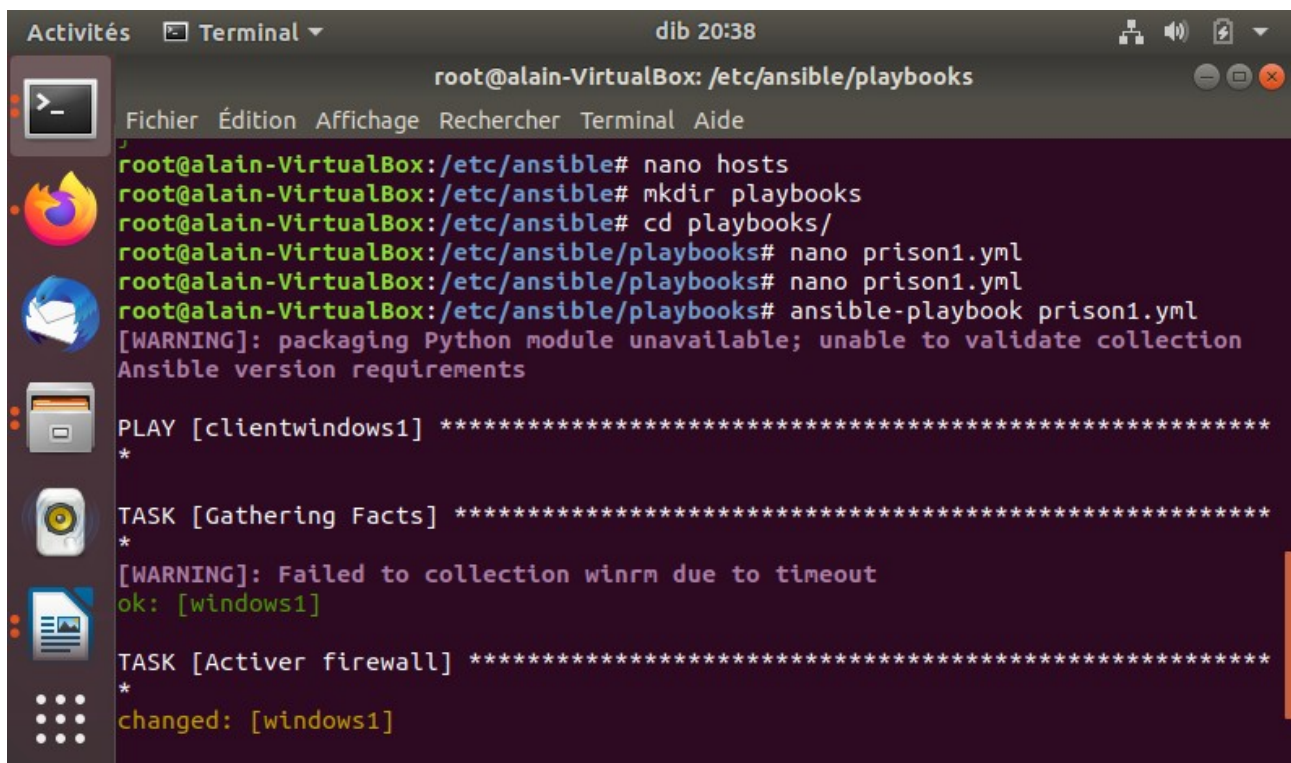


```
root@alain-VirtualBox: /etc/ansible/playbooks
Fichier Édition Affichage Rechercher Terminal Aide
GNU nano 2.9.3 prison1.yml
--
- hosts: clientwindows1

tasks:
  - name: Activer firewall
    win_firewall:
      state: enabled
      profiles:
        - Domain
        - Private
        - Public
      tags: enabled_firewall

[ Lecture de 13 lignes ]
^G Aide      ^O Écrire    ^W Chercher  ^K Couper    ^J Justifier
^X Quitter   ^R Lire fich.^_ Remplacer  ^U Coller    ^T Orthograp.
```

fig



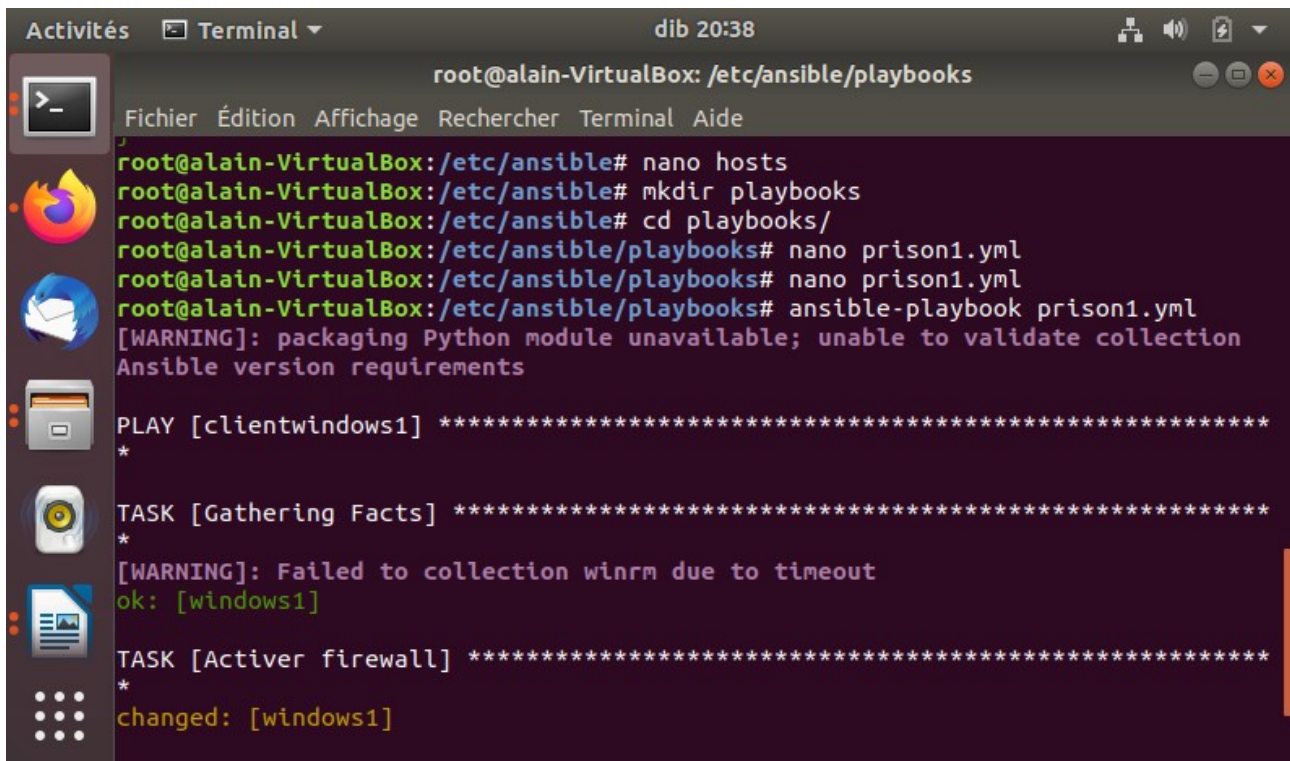
```
root@alain-VirtualBox: /etc/ansible/playbooks
Fichier Édition Affichage Rechercher Terminal Aide
root@alain-VirtualBox:/etc/ansible# nano hosts
root@alain-VirtualBox:/etc/ansible# mkdir playbooks
root@alain-VirtualBox:/etc/ansible# cd playbooks/
root@alain-VirtualBox:/etc/ansible/playbooks# nano prison1.yml
root@alain-VirtualBox:/etc/ansible/playbooks# nano prison1.yml
root@alain-VirtualBox:/etc/ansible/playbooks# ansible-playbook prison1.yml
[WARNING]: packaging Python module unavailable; unable to validate collection
Ansible version requirements

PLAY [clientwindows1] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Failed to collection winrm due to timeout
ok: [windows1]

TASK [Activer firewall] *****
*
changed: [windows1]
```

fig



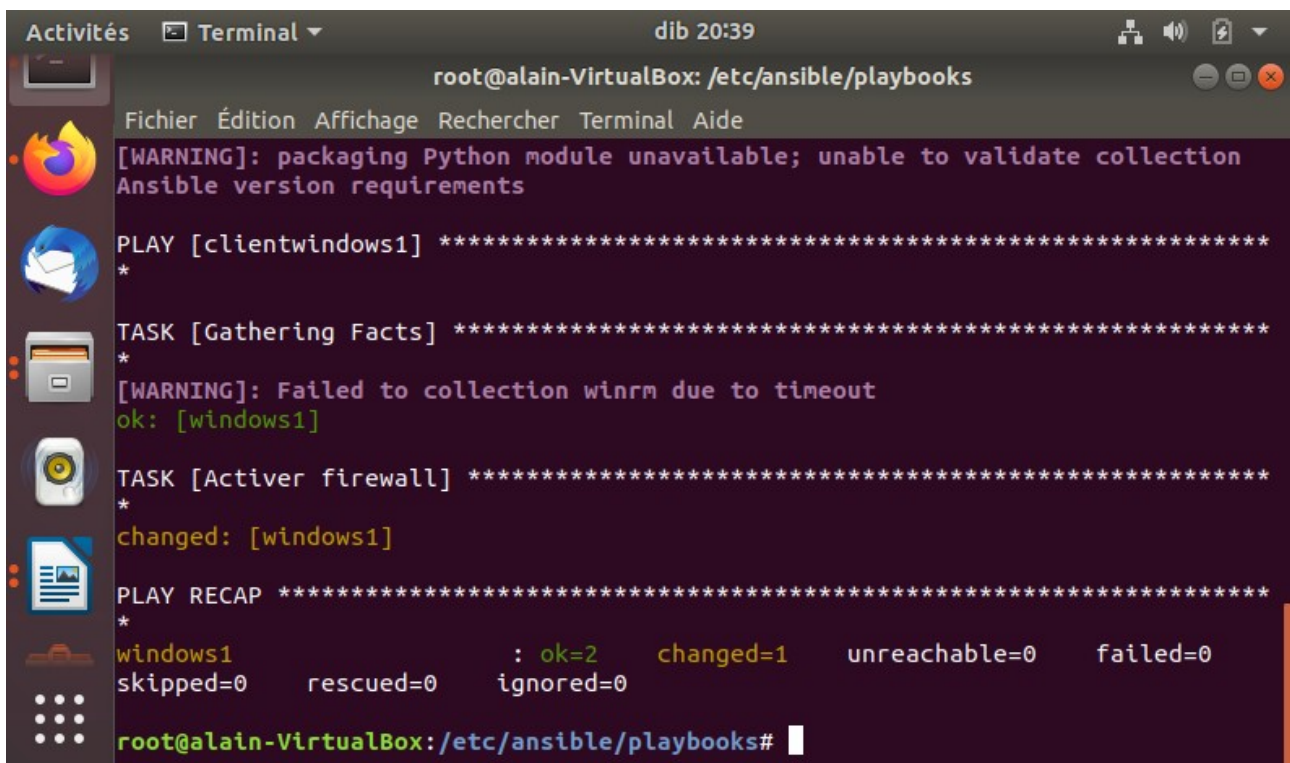
```
root@alain-VirtualBox: /etc/ansible/playbooks
Fichier Édition Affichage Rechercher Terminal Aide
root@alain-VirtualBox:/etc/ansible# nano hosts
root@alain-VirtualBox:/etc/ansible# mkdir playbooks
root@alain-VirtualBox:/etc/ansible# cd playbooks/
root@alain-VirtualBox:/etc/ansible/playbooks# nano prison1.yml
root@alain-VirtualBox:/etc/ansible/playbooks# nano prison1.yml
root@alain-VirtualBox:/etc/ansible/playbooks# ansible-playbook prison1.yml
[WARNING]: packaging Python module unavailable; unable to validate collection
Ansible version requirements

PLAY [clientwindows1] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Failed to collection winrm due to timeout
ok: [windows1]

TASK [Activer firewall] *****
*
changed: [windows1]
```

fig



```
root@alain-VirtualBox: /etc/ansible/playbooks
Fichier Édition Affichage Rechercher Terminal Aide
[WARNING]: packaging Python module unavailable; unable to validate collection
Ansible version requirements

PLAY [clientwindows1] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Failed to collection winrm due to timeout
ok: [windows1]

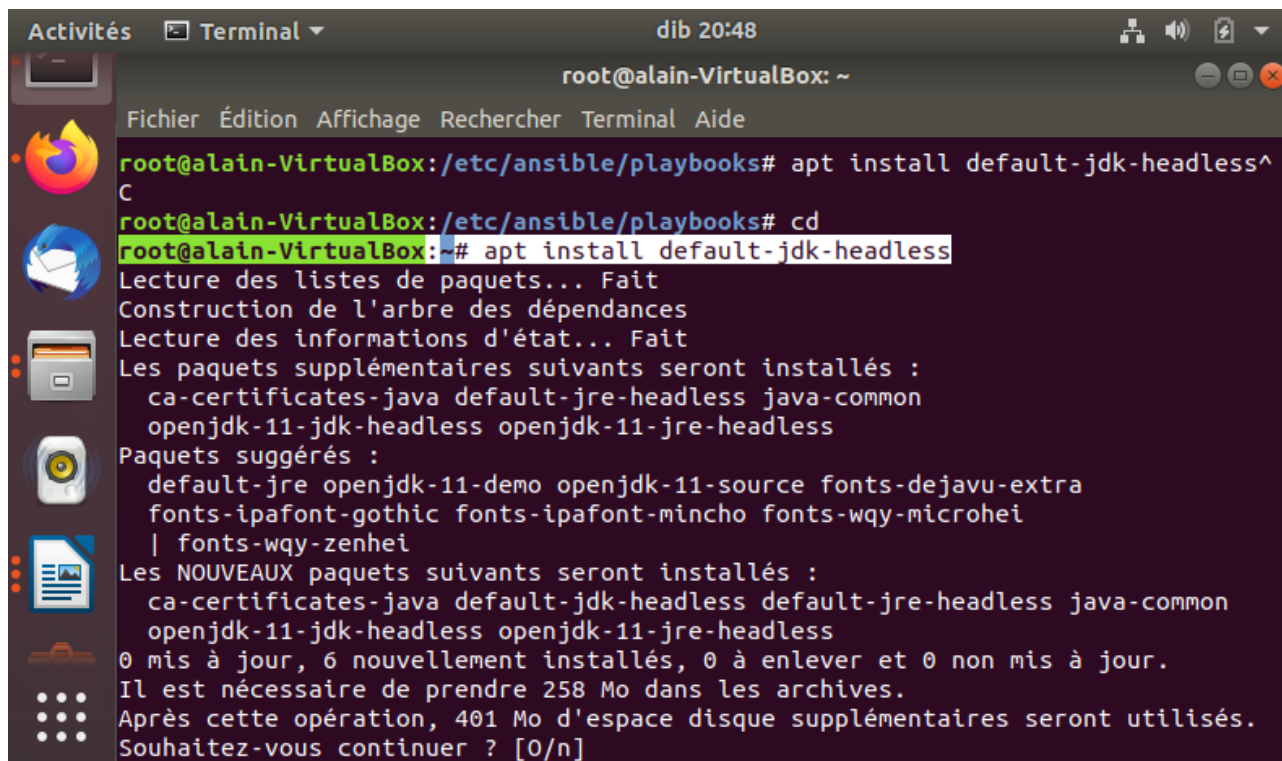
TASK [Activer firewall] *****
*
changed: [windows1]

PLAY RECAP *****
*
windows1 : ok=2 changed=1 unreachable=0 failed=0
skipped=0 rescued=0 ignored=0

root@alain-VirtualBox:/etc/ansible/playbooks#
```

fig : resussite de l'execution du playbook

Installation de jenkins



```
root@alain-VirtualBox: ~  
Fichier Édition Affichage Rechercher Terminal Aide  
root@alain-VirtualBox:/etc/ansible/playbooks# apt install default-jdk-headless^  
C  
root@alain-VirtualBox:/etc/ansible/playbooks# cd  
root@alain-VirtualBox:~# apt install default-jdk-headless  
Lecture des listes de paquets... Fait  
Construction de l'arbre des dépendances  
Lecture des informations d'état... Fait  
Les paquets supplémentaires suivants seront installés :  
  ca-certificates-java default-jre-headless java-common  
  openjdk-11-jdk-headless openjdk-11-jre-headless  
Paquets suggérés :  
  default-jre openjdk-11-demo openjdk-11-source fonts-dejavu-extra  
  fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei  
  | fonts-wqy-zenhei  
Les NOUVEAUX paquets suivants seront installés :  
  ca-certificates-java default-jdk-headless default-jre-headless java-common  
  openjdk-11-jdk-headless openjdk-11-jre-headless  
0 mis à jour, 6 nouvellement installés, 0 à enlever et 0 non mis à jour.  
Il est nécessaire de prendre 258 Mo dans les archives.  
Après cette opération, 401 Mo d'espace disque supplémentaires seront utilisés.  
Souhaitez-vous continuer ? [O/n]
```

```
root@alain-VirtualBox:~# apt install default-jdk-headless
```

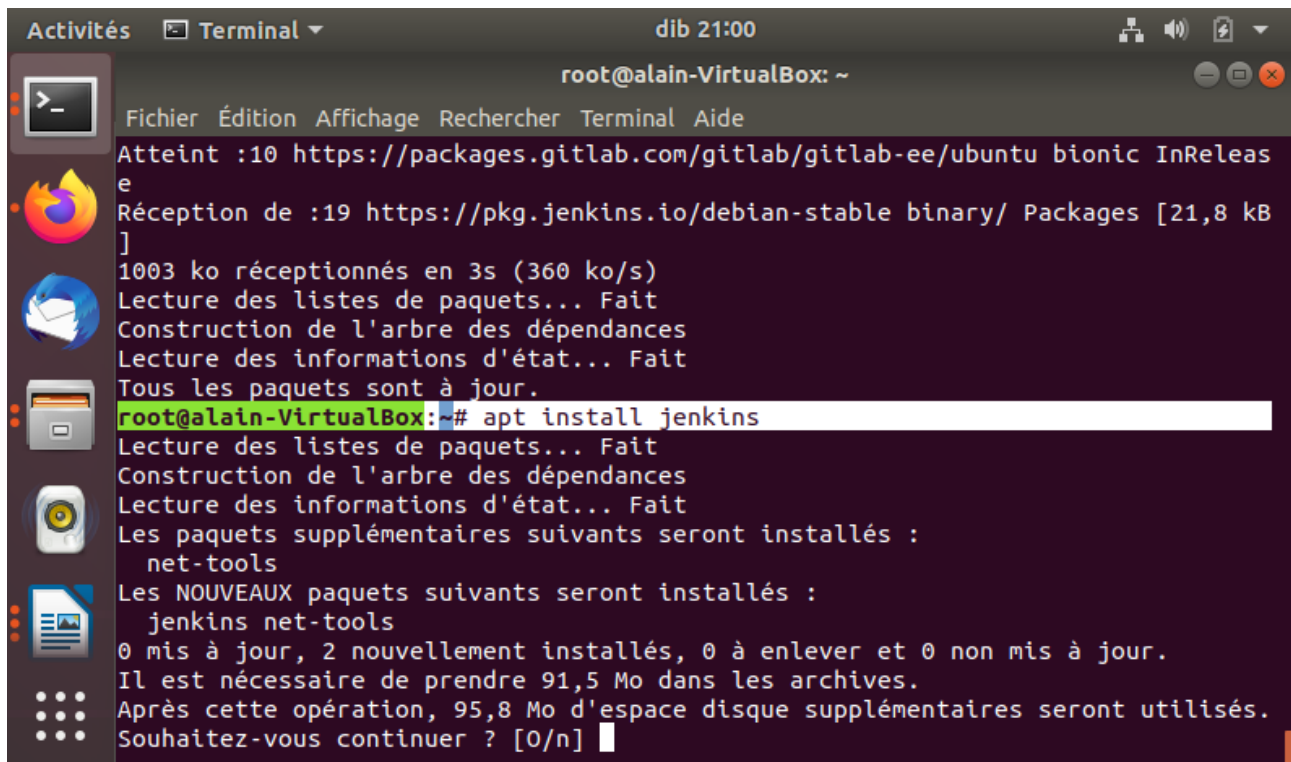
fig : installation de la jvm

```
root@alain-VirtualBox:~# wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo  
apt-key add -
```

```
root@alain-VirtualBox:~# sudo sh -c 'echo deb http://pkg.jenkins.io/debian-stable binary/ >  
/etc/apt/sources.list.d/jenkins.list'
```

```
root@alain-VirtualBox:~# apt update
```

```
root@alain-VirtualBox:~# apt install jenkins
```



The terminal window shows the installation of Jenkins on a Linux system. The user is logged in as root on a machine named alain-VirtualBox. The terminal output shows the following steps:

```
root@alain-VirtualBox: ~  
Fichier Édition Affichage Rechercher Terminal Aide  
Atteint :10 https://packages.gitlab.com/gitlab/gitlab-ee/ubuntu bionic InReleas  
e  
Réception de :19 https://pkg.jenkins.io/debian-stable binary/ Packages [21,8 kB  
]  
1003 ko réceptionnés en 3s (360 ko/s)  
Lecture des listes de paquets... Fait  
Construction de l'arbre des dépendances  
Lecture des informations d'état... Fait  
Tous les paquets sont à jour.  
root@alain-VirtualBox:~# apt install jenkins  
Lecture des listes de paquets... Fait  
Construction de l'arbre des dépendances  
Lecture des informations d'état... Fait  
Les paquets supplémentaires suivants seront installés :  
net-tools  
Les NOUVEAUX paquets suivants seront installés :  
jenkins net-tools  
0 mis à jour, 2 nouvellement installés, 0 à enlever et 0 non mis à jour.  
Il est nécessaire de prendre 91,5 Mo dans les archives.  
Après cette opération, 95,8 Mo d'espace disque supplémentaires seront utilisés.  
Souhaitez-vous continuer ? [O/n]
```

fig : installation de jenkins

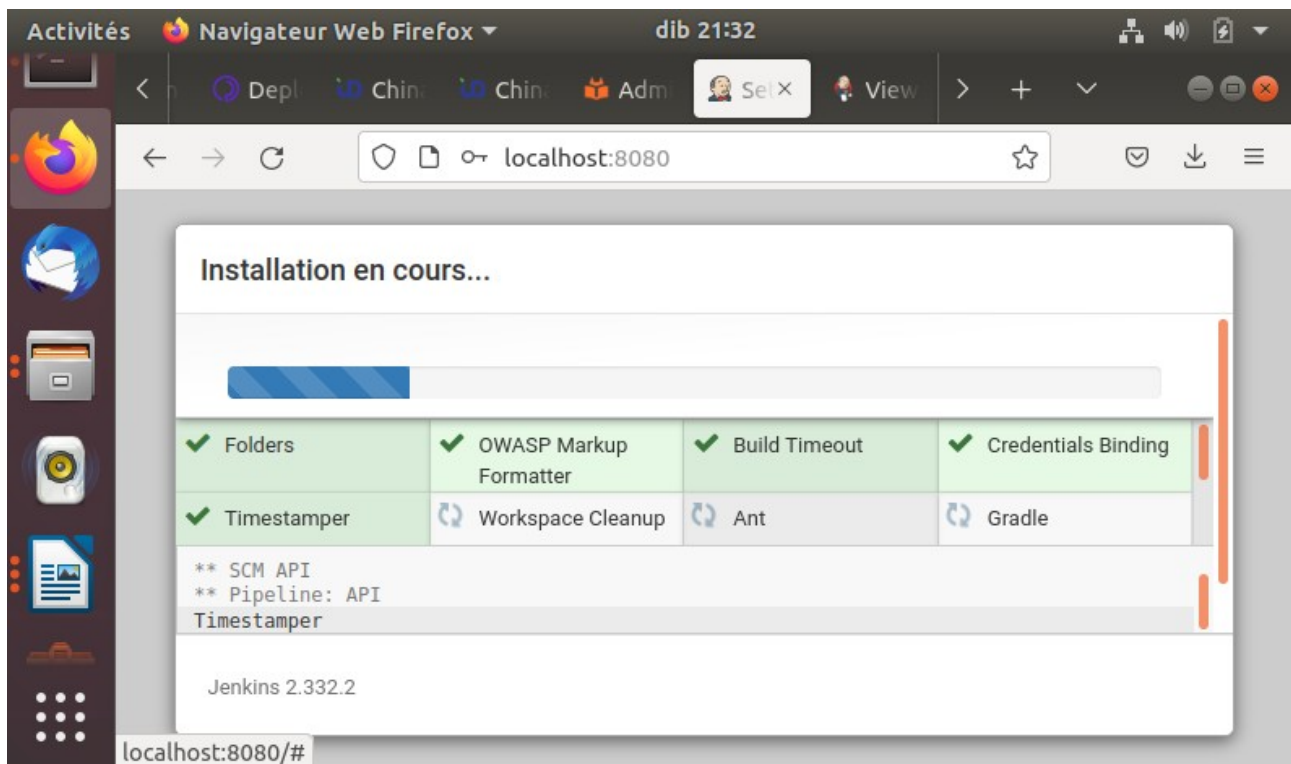
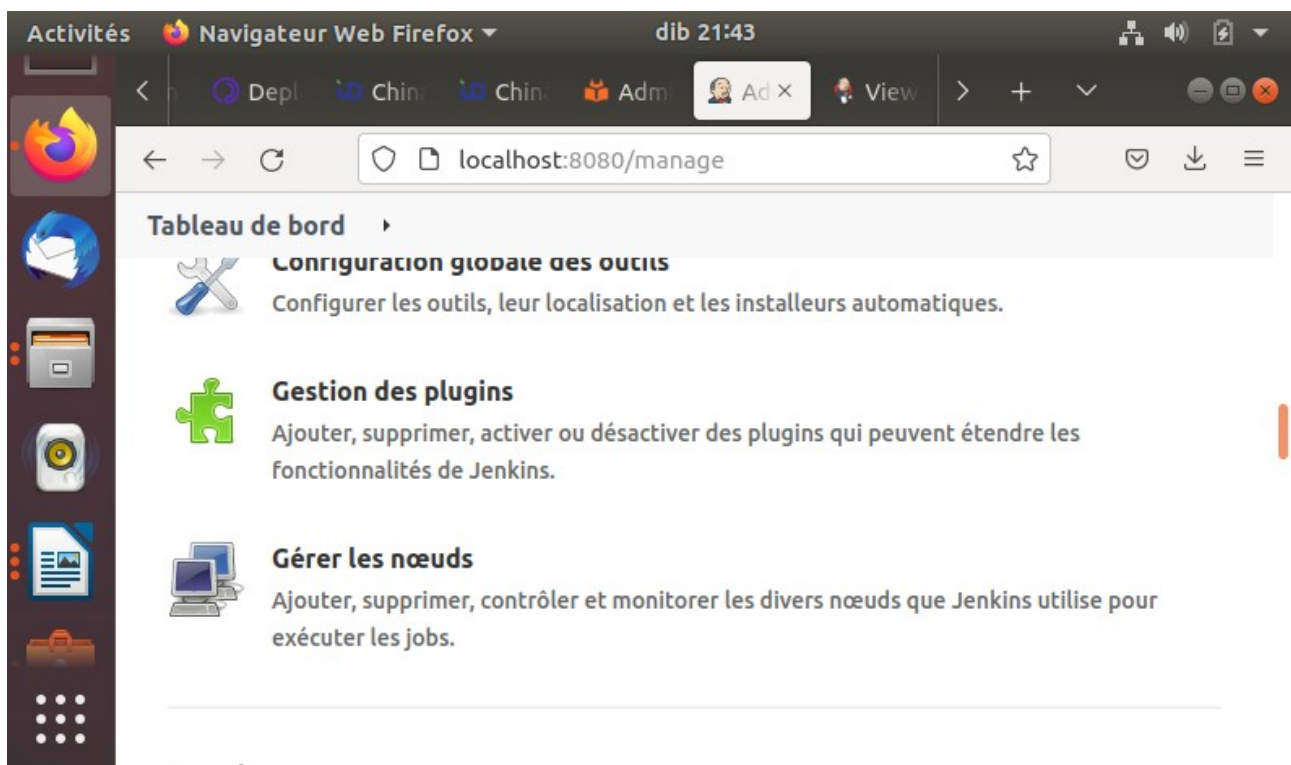


fig : installation des modules



fig