

# Project: NoSQL

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Setup Elasticsearch cluster using Ansible :

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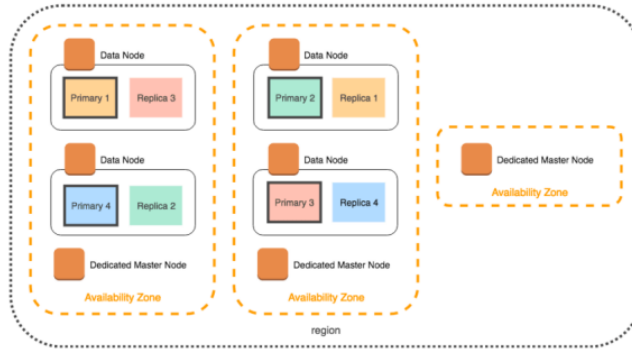
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## 1 Introduction of the project

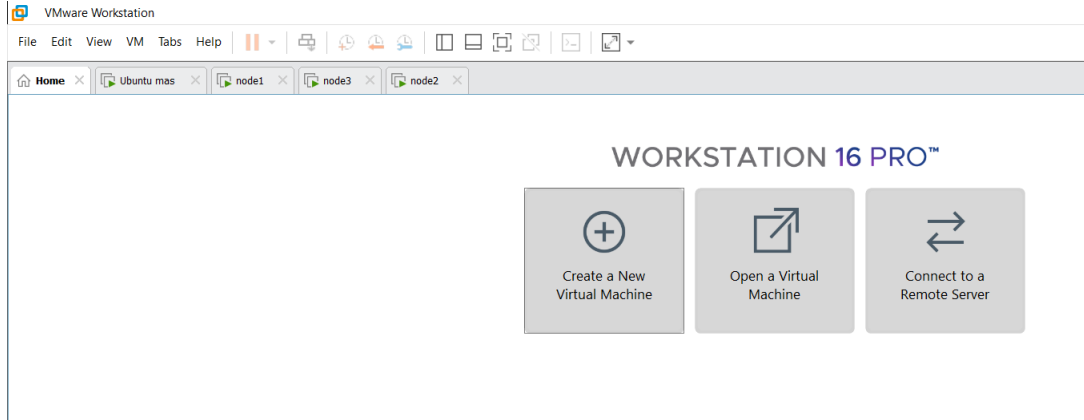
Elasticsearch is a powerful open-source, distributed real-time search and as engine which provides the ability for full-text search.

The aim of this project is to deploy Elasticsearch cluster using Ansible for automation.

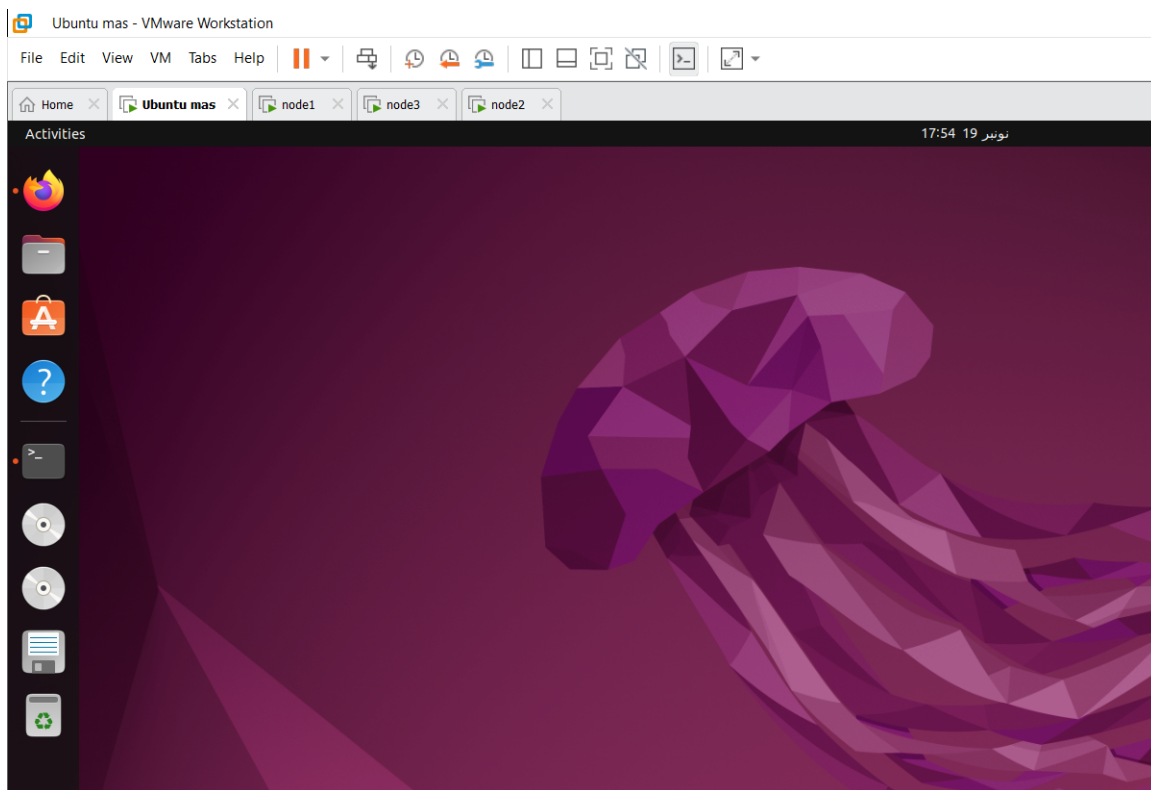


## 2 Steps of the project












The first step is to install VMware workstation.



Then we created a virtual machine in which we will install Ansible.



### Bridged network setup

Device	Summary
 Memory	4 GB
 Processors	2
 Hard Disk (SCSI)	20 GB
 CD/DVD 2 (SATA)	Using file C:\Users\dell\Dow...
 CD/DVD (SATA)	Using file autointst.iso
 Floppy	Using file autointst.flp
 Network Adapter	Bridged (Automatic)
 USB Controller	Present
 Sound Card	Auto detect
 Printer	Present
 Display	Auto detect

we have set up the ssh key

## Etape 2 : Mise en place de la clé ssh

Installez le paquet nécessaire pour ssh en tapant la commande :

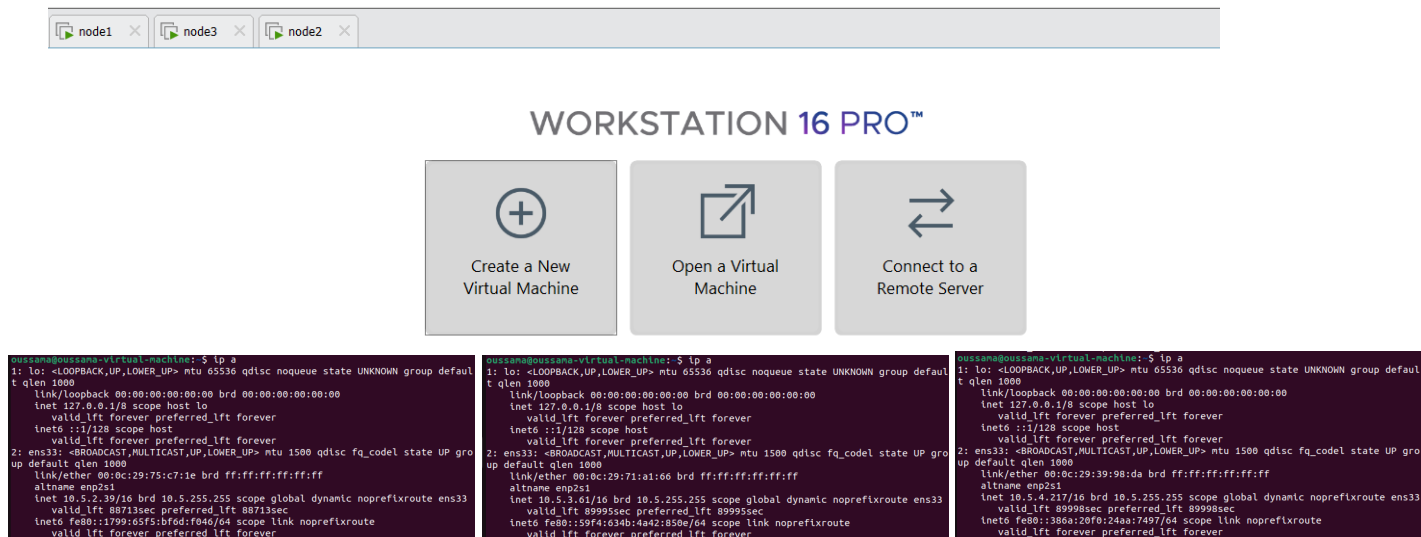
```
$ sudo apt-get install openssh-server
```

(Remarque : en cas d'erreur, taper : `sudo apt --fix-broken install`)

Maintenant, il faut mettre en place la clé ssh pour son propre compte. Pour cela, exécutez les commandes suivantes :

```
$ ssh-keygen -t rsa -P ""
$ cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
$ chmod 0600 ~/.ssh/authorized_keys
```

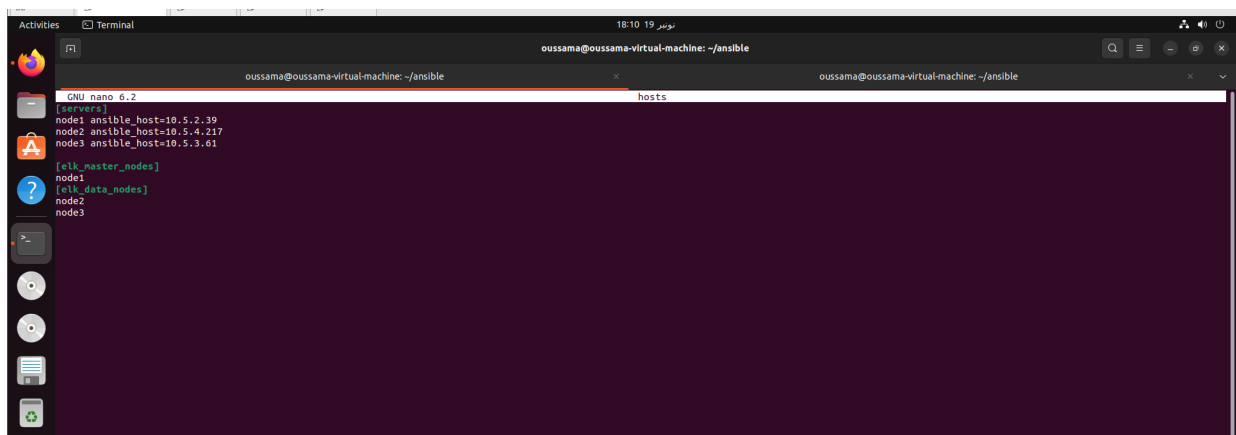
Then we clone 3 VM from the first one.(master node, two data nodes)



We create two file hosts and elasticsearch.yml.

Then we configure the two files.

host file



elasticsearch.yml file

```

GNU nano 6.2
- hosts: elk_master_nodes
  roles:
    - role: elastic.elasticsearch
  vars:
    es_version: 7.10.0
    es_enable_xpack: false
    es_data_dirs:
      - "/data/elasticsearch/data"
    es_log_dir: "/data/elasticsearch/logs"
    es_java_install: true
    es_heap_size: "1g"
    es_config:
      cluster.name: "Boujbair_es_cluster"
      cluster.initial_master_nodes: ["10.5.2.39:9300"]
      discovery.seed_hosts: ["10.5.2.39:9300", "10.5.4.217:9300", "10.5.3.61:9300"]
      http.port: 9200
      node.data: false
      node.master: true
      bootstrap.memory_lock: false
      network.host: "0.0.0.0"
    es_plugins:
      - plugin: ingest-attachment

- hosts: elk_data_nodes
  roles:
    - role: elastic.elasticsearch
  vars:
    es_version: 7.10.0
    es_enable_xpack: false
    es_data_dirs:
      - "/data/elasticsearch/data"
    es_log_dir: "/data/elasticsearch/logs"
    es_java_install: true
    es_config:
      cluster.name: "Boujbair_es_cluster"
      cluster.initial_master_nodes: ["10.5.2.39:9300"]
      discovery.seed_hosts: ["10.5.2.39:9300", "10.5.4.217:9300", "10.5.3.61:9300"]
      http.port: 9200
  
```

We test the ping between the 3 VMs

```

oussama@oussama-virtual-machine:~/ansible$ ansible all -m ping -i hosts
node3 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
node2 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
node1 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}

```

We start running the cluster

```

oussama@oussama-virtual-machine:~/ansible$ ansible-playbook -i hosts elasticsearch.yml --extra-vars "ansible_sudo_pass=rootroot"
[DEPRECATION WARNING]: "include" is deprecated, use include_tasks/import_tasks instead. This feature will be removed in version 2.16. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.

PLAY [elk_master_nodes] *****
TASK [Gathering Facts] *****
ok: [node1]
TASK [elastic.elasticsearch : set_fact] *****
ok: [node1]
TASK [elastic.elasticsearch : os-specific vars] *****
ok: [node1]
TASK [elastic.elasticsearch : Set fact oss_version when using es_enable_xpack] *****
ok: [node1]
TASK [elastic.elasticsearch : Warn about deprecated es_enable_xpack variable] *****
ok: [node1] => {
  "msg": "WARNING: es_enable_xpack variable is now deprecated. You should use oss_version instead"
}
TASK [elastic.elasticsearch : Set the defaults here otherwise they can't be overridden in the same play if the role is called twice] *****
ok: [node1]
TASK [elastic.elasticsearch : Use the oss repo and package] *****
ok: [node1]
TASK [elastic.elasticsearch : Set the URL scheme to https if SSL/TLS is enabled] *****
skipping: [node1]
TASK [elastic.elasticsearch : Warn about deprecated es_xpack_features variable] *****
skipping: [node1]
TASK [elastic.elasticsearch : fail when oss_version is true with es_version >= 7.11.0] *****
skipping: [node1]

```

```

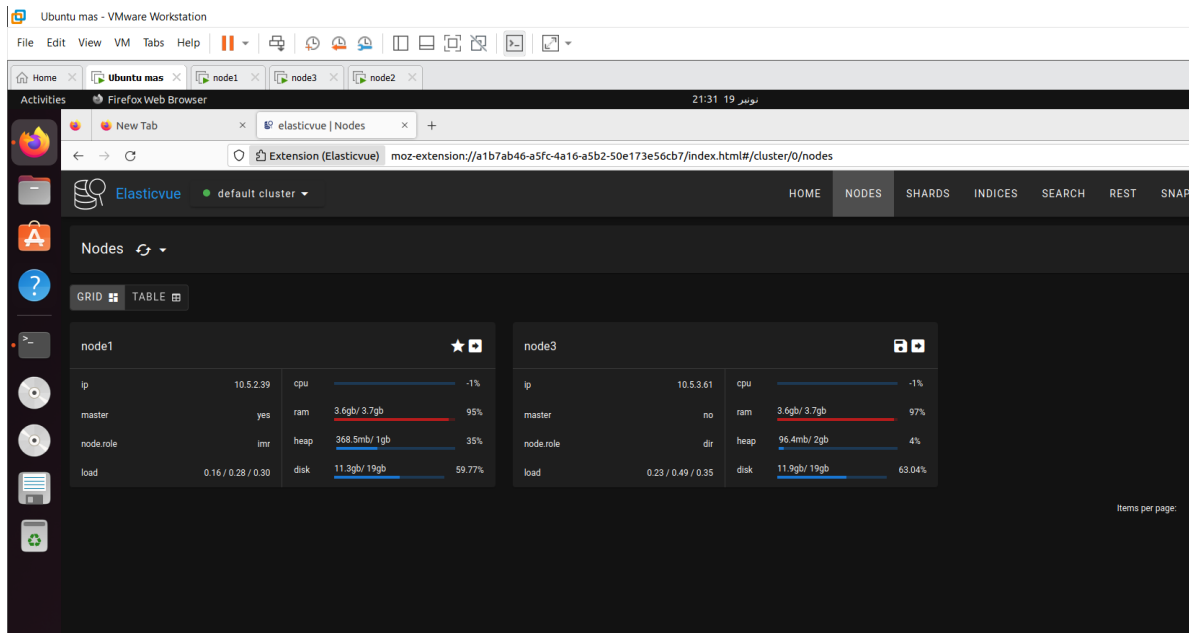
TASK [elastic.elasticsearch : Install templates] *****

PLAY RECAP *****
node1      : ok=40    changed=0    unreachable=0    failed=0    skipped=125    rescued=0    ignored=0
node2      : ok=79    changed=0    unreachable=0    failed=0    skipped=251    rescued=0    ignored=0
node3      : ok=79    changed=0    unreachable=0    failed=0    skipped=185    rescued=0    ignored=0

oussama@oussama-virtual-machine:~/ansible$

```

The problem that interrupts me is when launching the execution of the cluster 2 nodes (master node and data node) are launched successfully the other data node does not work. I think the problem is that my machine even I have 16 GB of ram but the 4 machines are configured at 4 GB each so a problem of resources.



FIN