TASK 27

1. Ansible :

Ansible is an open-source IT automation engine that simplifies tasks like configuration management, application deployment, and provisioning using simple, declarative YAML code, working agentlessly over SSH or WinRM to manage servers and infrastructure efficiently, making complex IT processes repeatable and less error-prone.

- **Configuration Management:** Ensures servers and devices are consistently configured.
- **Application Deployment:** Automates the process of deploying apps.
- **Orchestration:** Coordinates complex workflows across multiple systems.
- **Cloud Provisioning:** Sets up cloud resources.
- **Agentless:** Doesn't require special software (agents) on managed nodes, just SSH/WinRM.
- **YAML-based:** Uses human-readable YAML for "playbooks" (instructions).
- **Idempotent:** Running a playbook multiple times results in the same state without unwanted changes.

2. ad hoc command :

An **Ansible ad hoc command** is a single-line command executed from the command line of the Ansible control node to automate a one-time task on one or more managed hosts. They are ideal for quick operations and troubleshooting that do not require the reusability and structured logic of a full Ansible playbook.

Eg (**Check connectivity - ansible all -m ping)**

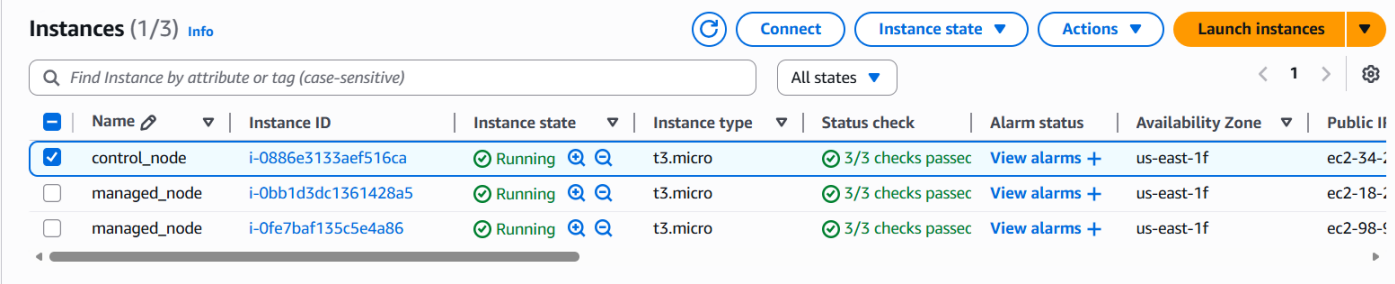
3.Pageant:

SSH authentication agent, securely holding your private keys in memory so you don't have to re-enter passphrases for every login, enabling seamless, passwordless access to servers. It runs in the system tray, loads your keys once (after you enter the passphrase), and then automatically provides those keys for authentication when PuTTY, pscp, or psftp connect to servers.

Steps :

Create 3 instance 1.control_node 2.managed_node 3. managed_node

both instances download python3



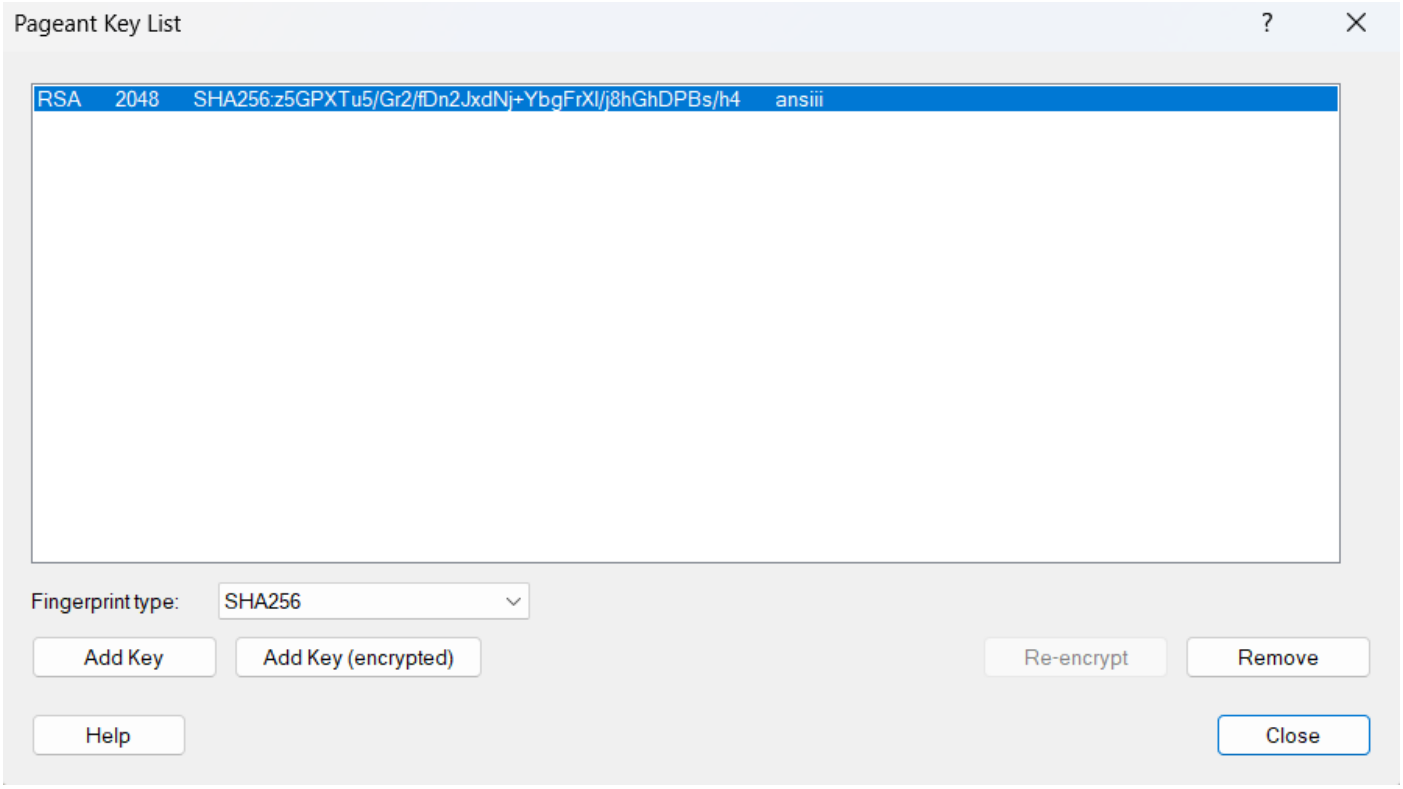
Install ansible in control_node only

```
[ec2-user@ip-172-31-66-217 ~]$ pip install ansible
Defaulting to user installation because normal site-packages is not writeable
Collecting ansible
  Downloading ansible-8.7.0-py3-none-any.whl (48.4 MB)
     |████████████████████████████████| 48.4 MB 18.7 MB/s
Collecting ansible-core~=2.15.7
  Downloading ansible_core-2.15.13-py3-none-any.whl (2.3 MB)
     |████████████████████████████████| 2.3 MB 115.4 MB/s
Collecting jinja2>=3.0.0
  Downloading jinja2-3.1.6-py3-none-any.whl (134 kB)
     |████████████████████████████████| 134 kB 73.2 MB/s
Collecting packaging
  Downloading packaging-25.0-py3-none-any.whl (66 kB)
     |████████████████████████████████| 66 kB 9.4 MB/s
Requirement already satisfied: PyYAML>=5.1 in /usr/lib64/python3.9/site-packages (from ansible-core~=2.15.7->ansible) (5.4.1)
Collecting importlib-resources<5.1,>=5.0
  Downloading importlib_resources-5.0.7-py3-none-any.whl (24 kB)
Collecting resolvelib<1.1.0,>=0.5.3
  Downloading resolvelib-1.0.1-py2.py3-none-any.whl (17 kB)
Requirement already satisfied: cryptography in /usr/lib64/python3.9/site-packages (from ansible-core~=2.15.7->ansible) (36.0.1)
Collecting MarkupSafe>=2.0
  Downloading markupsafe-3.0.3-cp39-cp39-manylinux2014_x86_64.manylinux_2_17_x86_64.manylinux_2_28_x86_64.whl (20 kB)
Requirement already satisfied: cffi>=1.12 in /usr/lib64/python3.9/site-packages (from cryptography->ansible-core~=2.15.7->ansible) (1.14.5)
Requirement already satisfied: pycparser in /usr/lib/python3.9/site-packages (from cffi>=1.12->cryptography->ansible-core~=2.15.7->ansible) (2.20)
Requirement already satisfied: ply==3.11 in /usr/lib/python3.9/site-packages (from pycparser->cffi>=1.12->cryptography->ansible-core~=2.15.7->ansible) (3.11)
Installing collected packages: MarkupSafe, resolvelib, packaging, jinja2, importlib-resources, ansible-core, ansible
Successfully installed MarkupSafe-3.0.3 ansible-8.7.0 ansible-core-2.15.13 importlib-resources-5.0.7 jinja2-3.1.6 packaging-25.0 resolvelib-1.0.1
```

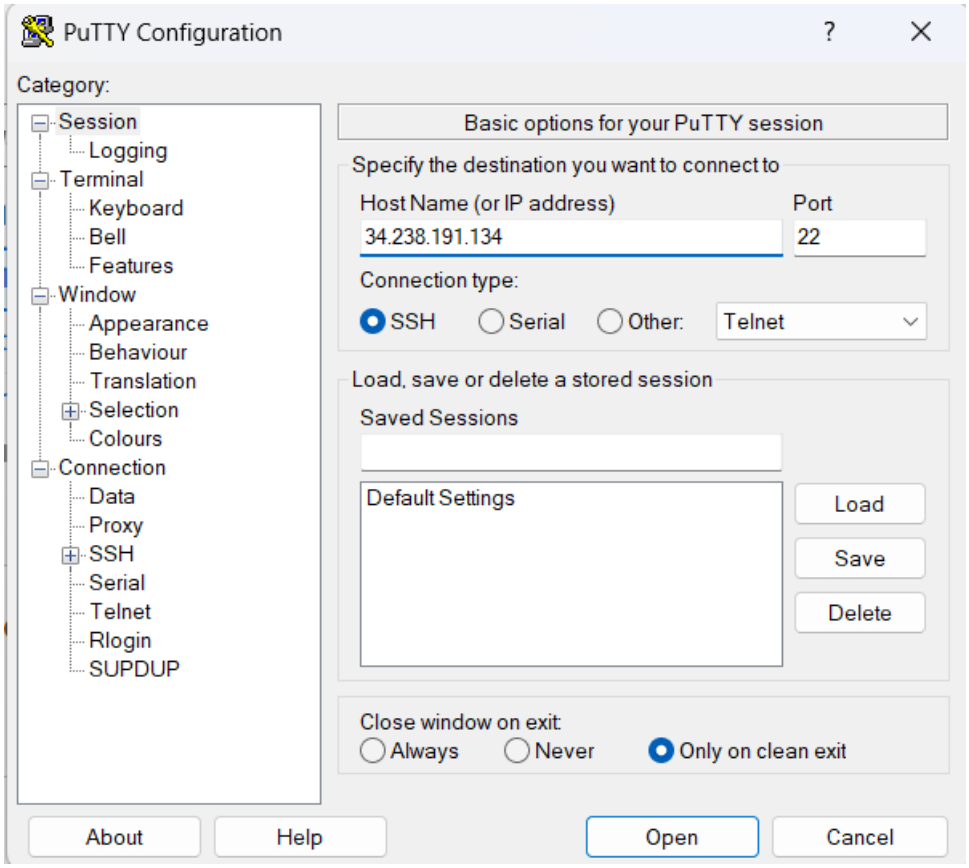
Download ansible configuration files

```
[ec2-user@ip-172-31-66-217 ~]$ wget https://raw.githubusercontent.com/ansible/ansible/stable-2.11/examples/ansible.cfg
--2025-12-23 10:17:56--  https://raw.githubusercontent.com/ansible/ansible/stable-2.11/examples/ansible.cfg
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.110.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.108.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 20353 (20K) [text/plain]
Saving to: 'ansible.cfg'

ansible.cfg                         100%[=============================================================================>]  19.88K  --.-KB/s    in 0s

2025-12-23 10:17:56 (137 MB/s) - 'ansible.cfg' saved [20353/20353]

[ec2-user@ip-172-31-66-217 ~]$ ls
ansible.cfg
```

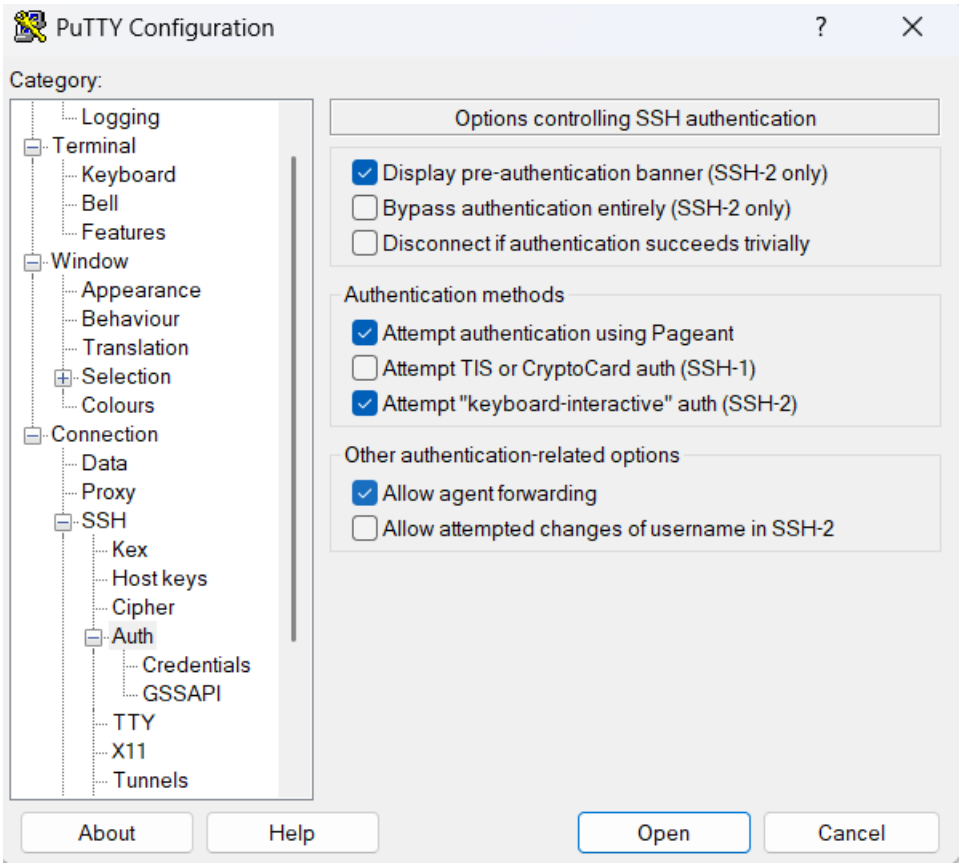
Add the private key in pageant



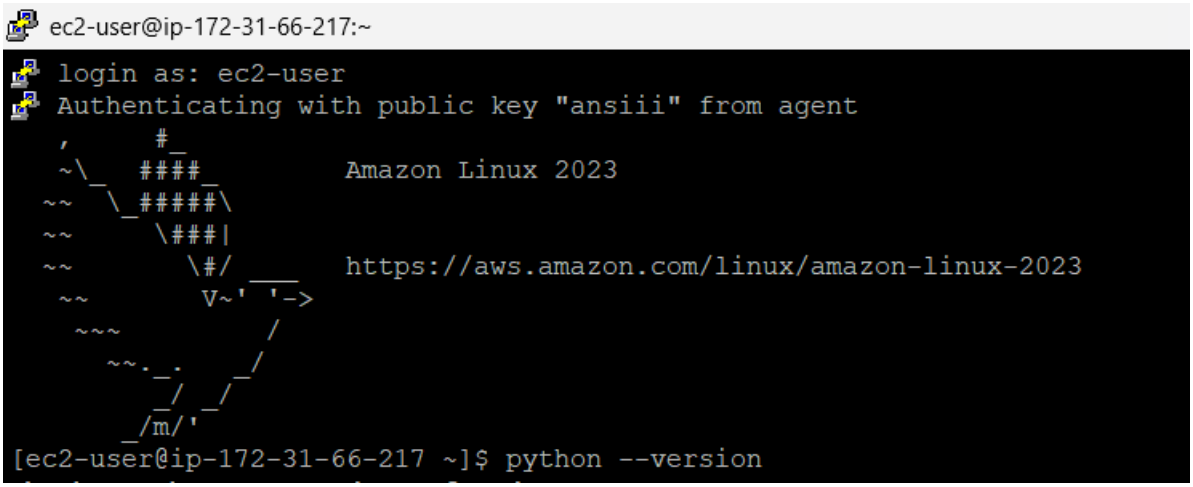
Enter the host public ip



Select (allow agent forwarding)



Connect ec2 to putty



Then check other instance are communicated