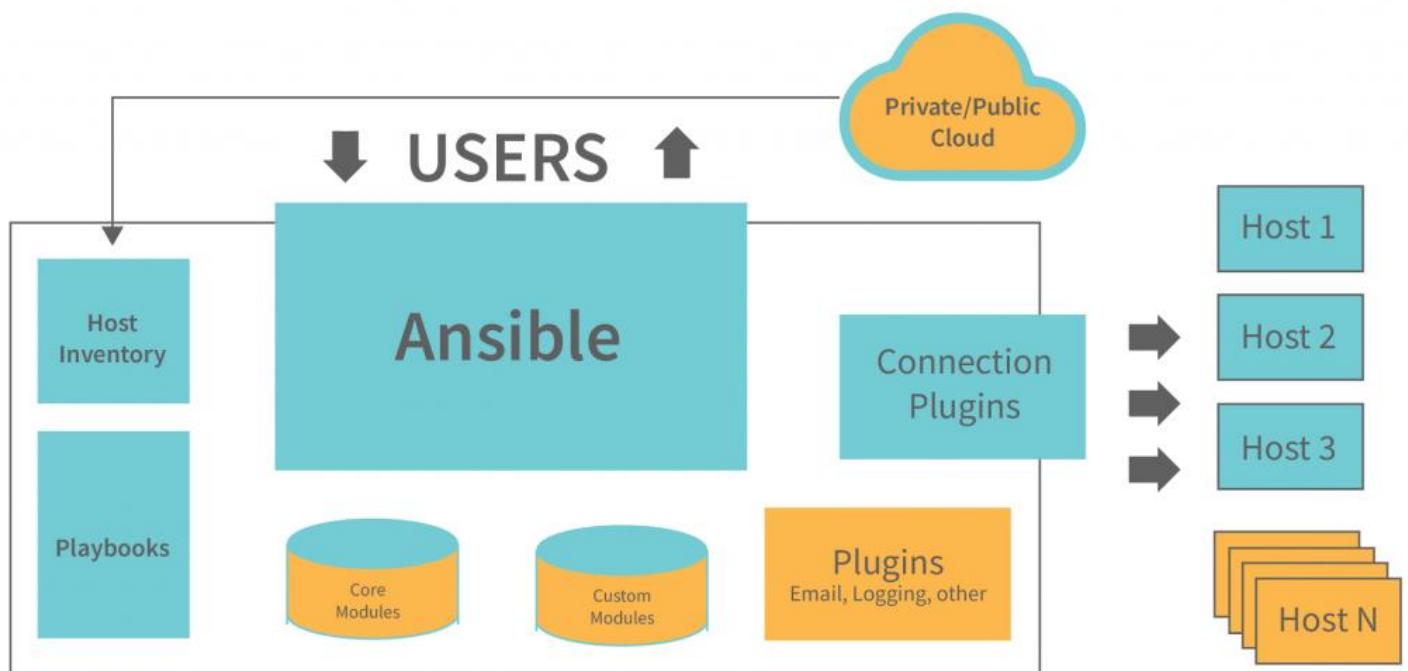


ANSIBLE:

Ansible is a software tool that provides simple but powerful automation for cross-platform computer support. It is primarily intended for IT professionals, who use it for application deployment, updates on workstations and servers, cloud provisioning, configuration management, intra-service orchestration, and nearly anything a systems administrator does on a weekly or daily basis. Ansible doesn't depend on agent software and has no additional security infrastructure, so it's easy to deploy.

Because Ansible is all about automation, it requires instructions to accomplish each job. With everything written down in simple script form, it's easy to do version control. The practical result of this is a major contribution to the "infrastructure as code" movement in IT: the idea that the maintenance of server and client infrastructure can and should be treated the same as software development, with repositories of self-documenting, proven, and executable solutions capable of running an organization regardless of staff changes.

While Ansible may be at the forefront of automation, systems administration, and DevOps, it's also useful to everyday users. Ansible allows you to configure not just one computer, but potentially a whole network of computers at once, and using it requires no programming skills. Instructions written for Ansible are human-readable. Whether you're entirely new to computers or an expert, Ansible files are easy to understand.



Configuration of Master and Node Instances:

Configuring a master and nodes in Ansible involves setting up the Ansible-master and configuring the Ansible-node to be managed by Ansible. Here's a step-by-step procedure for configuring the master and nodes:

- 1. Install Ansible on the Ansible-master:**

Ensure that we have a machine designated as the Ansible-master. This is where we will run Ansible commands from.

- 2. Set Up SSH Key-Based Authentication:** Ansible uses SSH to communicate with remote nodes. Ensure that you can SSH into the nodes without requiring a password by setting up SSH key-based authentication.

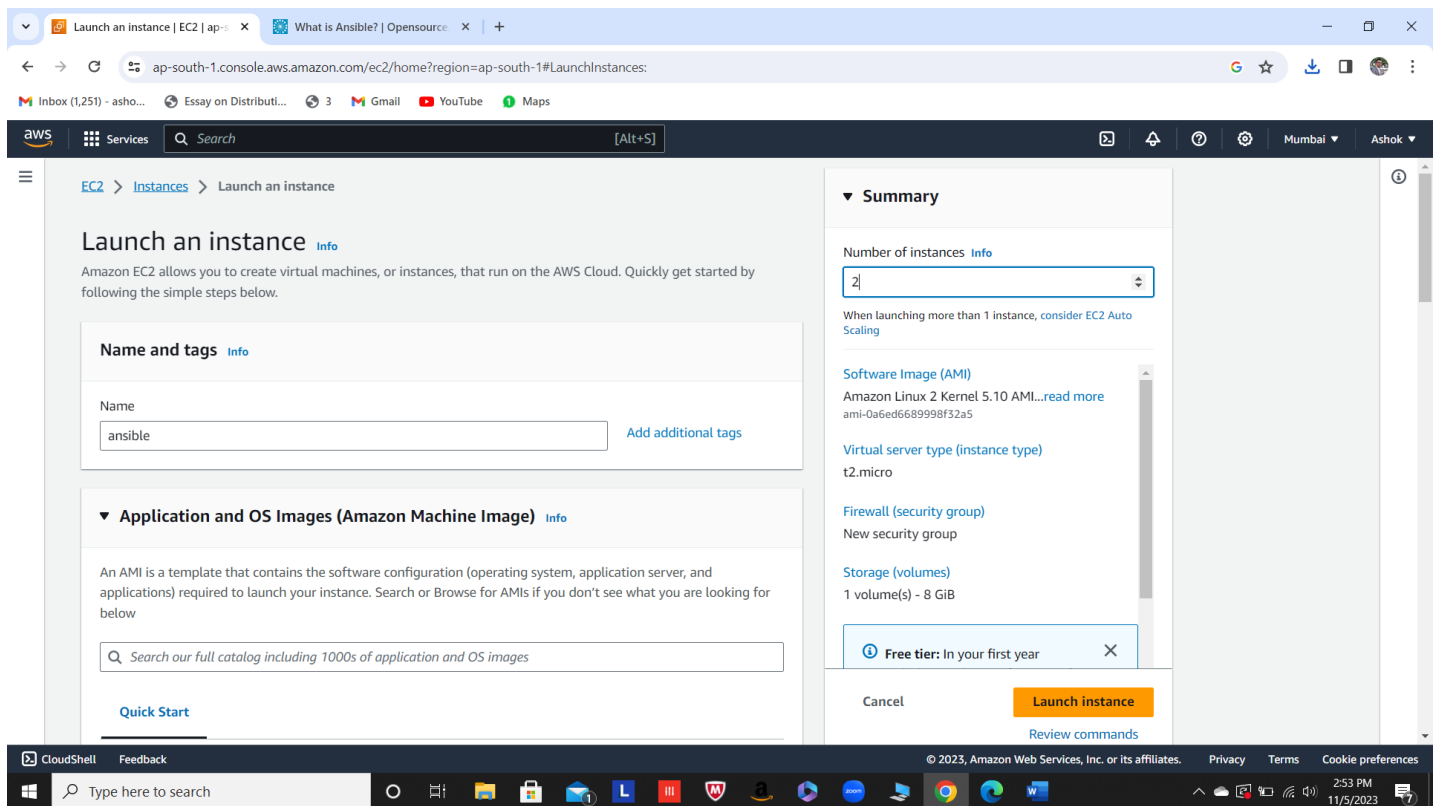
- 3. Test SSH Connection:** Verify that Ansible can connect to the nodes using SSH.

- 4. Configure Ansible Inventory:** The inventory file (host) defines the remote servers (nodes) that Ansible will manage. Create an inventory file, typically named host, and define the IP addresses.

- 5. Create Ansible Playbooks:** Ansible playbooks are YAML files that define tasks to be executed on remote nodes.

- 6. Run Ansible Playbook:** Execute the playbooks to configure the nodes.

- Create instances Ansible-master and Ansible-node.



The screenshot shows the AWS Management Console for the 'ap-south-1' region. The left sidebar contains navigation links for EC2 Dashboard, Global View, Events, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, and Lifecycle Manager. The main content area displays the 'Instances' page with a table of running instances. Below the table, the 'Monitoring' section provides a detailed view of the selected instances, including CPU utilization and status check graphs.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
ansible-master	i-0dd3cf711ec900450	Running	t2.micro	2/2 checks passed	No alarms	ap-south-1a	ec2-3-110-31-12
ansible-node	i-02b42e85b65d2524c	Running	t2.micro	2/2 checks passed	No alarms	ap-south-1a	ec2-13-232-249-

- Pip -y (to install python)(dependency for ansible).

The screenshot shows the AWS CloudShell terminal interface. The terminal output displays the command 'yum install pip -y' being executed. The output shows the installation process for python2-pip, including dependency resolution and transaction summary. The terminal also shows the instance ID 'i-0dd3cf711ec900450 (ansible-master)' and its public/private IP addresses.

```
[root@ip-172-31-46-33 ~]# yum install pip -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.6 kB 00:00:00
Resolving Dependencies
--> Running transaction check
--> Package python2-pip.noarch 0:20.2.2-1.amzn2.0.4 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====================================================================================================================================
 Package Arch Version Repository Size
=====================================================================================================================================
Installing:
python2-pip noarch 20.2.2-1.amzn2.0.4 amzn2-core 2.0 M
Transaction Summary
-----
Install 1 Package

Total download size: 2.0 M
Installed size: 9.5 M
Downloading packages:
python2-pip-20.2.2-1.amzn2.0.4.noarch.rpm | 2.0 MB 00:00:00
Running transaction check
Running transaction test
```

i-0dd3cf711ec900450 (ansible-master)
PublicIPs: 3.110.31.126 PrivateIPs: 172.31.46.33

- Pip install ansible (to install ansible).

```
[root@ip-172-31-46-33 ~]# pip install ansible
DEPRECATION: Python 2.7 reached the end of its life on January 1st, 2020. Please upgrade your Python as Python 2.7 is no longer maintained. pip 21.0 will drop support for Python 2.7 in January 2021. More details about Python 2 support in pip can be found at https://pip.pypa.io/en/latest/development/release-process/#python-2-support
WARNING: Running pip install with root privileges is generally not a good idea. Try 'pip install --user' instead.
Collecting ansible
  Downloading ansible-4.10.0.tar.gz (36.8 MB)
    | 36.8 MB 381 kB/s
Collecting ansible-core~=2.11.7
  Downloading ansible-core-2.11.12.tar.gz (7.1 MB)
    | 7.1 MB 30.4 MB/s
Requirement already satisfied: Jinja2 in /usr/lib/python2.7/site-packages (from ansible-core~=2.11.7->ansible) (2.7.2)
Requirement already satisfied: PyYAML in /usr/lib64/python2.7/site-packages (from ansible-core~=2.11.7->ansible) (3.10)
Requirement already satisfied: cryptography in /usr/lib64/python2.7/site-packages (from ansible-core~=2.11.7->ansible) (1.7.2)
Collecting packaging
  Downloading packaging-20.9-py2.py3-none-any.whl (40 kB)
    | 40 kB 8.0 MB/s
Collecting resolvelib<0.6.0,>=0.5.3
  Downloading resolvelib-0.5.4-py2.py3-none-any.whl (12 kB)
Requirement already satisfied: MarkupSafe in /usr/lib64/python2.7/site-packages (from Jinja2->ansible-core~=2.11.7->ansible) (0.11)
Requirement already satisfied: idna>=2.0 in /usr/lib/python2.7/site-packages (from cryptography->ansible-core~=2.11.7->ansible) (2.4)
Requirement already satisfied: pyasn1>=0.1.8 in /usr/lib/python2.7/site-packages (from cryptography->ansible-core~=2.11.7->ansible) (0.1.9)
Requirement already satisfied: six>=1.4.1 in /usr/lib/python2.7/site-packages (from cryptography->ansible-core~=2.11.7->ansible) (1.11.0)
Requirement already satisfied: setuptools in /usr/lib/python2.7/site-packages (from cryptography->ansible-core~=2.11.7->ansible) (41.2.0)
Requirement already satisfied: enum34 in /usr/lib/python2.7/site-packages (from cryptography->ansible-core~=2.11.7->ansible) (1.0.4)
Requirement already satisfied: ipaddress in /usr/lib/python2.7/site-packages (from cryptography->ansible-core~=2.11.7->ansible) (1.0.16)
Requirement already satisfied: cffi>=1.4.1 in /usr/lib64/python2.7/site-packages (from cryptography->ansible-core~=2.11.7->ansible) (1.6.0)

i-Odd3cf711ec900450 (ansible-master)
```

- Ansible --version (to check ansible version).

```
[root@ip-172-31-46-33 ~]# ansible --version
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Current version: 2.7.18 (default, Oct 19 2023, 21:17:03)
[GCC 7.3.1 20180712 (Red Hat 7.3.1-17)]. This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
ansible [core 2.11.12]
  config file = None
  configured module search path = [u'/root/.ansible/plugins/modules', u'/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python2.7/site-packages/ansible
  ansible collection location = /root/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 2.7.18 (default, Oct 19 2023, 21:17:03) [GCC 7.3.1 20180712 (Red Hat 7.3.1-17)]
  Jinja version = 2.7.2
  libyaml = True

i-Odd3cf711ec900450 (ansible-master)
```

- Ssh-keygen (to generate public ip key)

The screenshot shows a web browser window with multiple tabs. The active tab is 'EC2 Instance Connect | ap-south-1'. The address bar shows the URL: `ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0dd3cf711ec900450&osUser=root®ion=ap-south-1&sshPort=22#`. The browser's taskbar shows various applications like Gmail, YouTube, and Maps. The main content area displays the AWS CloudShell interface. The terminal window shows the command `ssh-keygen` being executed. The output indicates that a public/private RSA key pair is being generated. The user is prompted to enter a file name, a passphrase, and to confirm the passphrase. The key is saved in `/root/.ssh/id_rsa` and `/root/.ssh/id_rsa.pub`. The terminal also displays the key fingerprint (SHA256) and a randomart image. The terminal output is as follows:

```
[root@ip-172-31-46-33 ~]# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa.
Your public key has been saved in /root/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:7/G5h3woYlqNmmYaKqiXhOzR9bM9av8m5GeyW+p8SA root@ip-172-31-46-33.ap-south-1.compute.internal
The key's randomart image is:
+---[RSA 2048]-----+
|
|  .
| o o +S .
| * + o
| + o ooE+B o.
| . . = oo=*o%+o
|*o.o .+++oO*
+---[SHA256]-----+
[root@ip-172-31-46-33 ~]#
```

Below the terminal window, the instance details for 'i-0dd3cf711ec900450 (ansible-master)' are shown, including Public IPs (3.110.31.126) and Private IPs (172.31.46.33).

The screenshot shows the same AWS CloudShell interface as the previous image. The terminal window now shows the command `cat .ssh/id_rsa.pub` being executed. The output displays the public key in PEM format. The terminal output is as follows:

```
[root@ip-172-31-46-33 ~]# cat .ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCykxHpIkjyRjYwLTDkv248fzAncVATB6RhIDROkKupfcVrXMKa0ISPPyacm9oSgtR/4NkcSJS5oAReSamjCT4RBir17zqnp6snhfLHLALMwgYJwOCH8MG43ye2SkAEZNS7J
30XOj1lQ8zaOQxiTT36bK2n1DV2uKkLLA1/cMSmH5jqR5acpBpSFxg8TAqU3BzqZFv01Nj1Fo2Mwg12/LCdoG/t7gp/qTy8TIuxVCsv/RyeMTJPrSvdB2Pldg2+PQH21BIyDezxRXbQ/P2oi3V+pLveZmyeW3fY/9dW17jEQf
RkoJTxftdCuPg0IMmx7gLYZGopSGFoF0KvXyLrP root@ip-172-31-46-33.ap-south-1.compute.internal
[root@ip-172-31-46-33 ~]# ^C
[root@ip-172-31-46-33 ~]#
```

The instance details for 'i-0dd3cf711ec900450 (ansible-master)' are still visible below the terminal window.

- In ansible-node add public ip key

Instances | EC2 | ap-south-1 | EC2 Instance Connect | ap-south-1 | What is Ansible? | Opensource

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root&sshPort=22#

Inbox (1,251) - asho... Essay on Distributi... 3 Gmail YouTube Maps

aws Services Search [Alt+S]

```

[root@ip-172-31-32-254 ~]# vi .ssh/authorized_keys
[root@ip-172-31-32-254 ~]#

```

i-02b42e85b65d2524c (ansible-node)

PublicIPs: 13.232.249.212 PrivateIPs: 172.31.32.254

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Type here to search

3:14 PM 11/5/2023

- Now check connection.

[illegible]

- Create a playbooks directory.

The screenshot shows a web browser window with multiple tabs. The active tab is 'EC2 Instance Connect | ap-south-1', displaying a terminal session in the AWS CloudShell. The terminal output shows the following commands and results:

```
[root@ip-172-31-46-33 ~]# mkdir playbooks
[root@ip-172-31-46-33 ~]# cd playbooks/
[root@ip-172-31-46-33 playbooks]# vi host
[root@ip-172-31-46-33 playbooks]# ansible -m ping 172.31.32.254 -i host
(DEPRECATION WARNING): Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Current version: 2.7.18 (default, Oct 19 2023, 21:17:03)
(GCC 7.3.1 20180712 (Red Hat 7.3.1-17)). This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
172.31.32.254 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
[root@ip-172-31-46-33 playbooks]#
```

Below the terminal window, a metadata box for the instance 'i-Odd3cf711ec900450 (ansible-master)' is visible, showing Public IPs: 3.110.31.126 and Private IPs: 172.31.46.33.

The bottom of the image shows the Windows taskbar with various application icons and the system clock indicating 3:23 PM on 11/5/2023.

1. Create a playbook to install git and maven.

The screenshot shows the AWS CloudShell interface. The terminal displays the following Ansible playbook content:

```
---
- hosts: all
  user: root
  become: yes
  vars:
    a:
      - git
      - maven
  tasks:
    - name: package installation
      yum:
        name: "{{a}}"
        state: present
```

Below the terminal, a metadata box for the instance `i-Odd3cf711ec900450 (ansible-master)` is visible, showing public and private IP addresses. The bottom of the screen shows the Windows taskbar with various application icons.

The screenshot shows the AWS CloudShell interface with the execution output of the `gitmaven.yml` playbook. The terminal output includes:

```
[root@ip-172-31-46-33 playbooks]# ls
deploy.yml  gitclone.yml  gitmaven.yml  host  maven-build.yml  tomcat.yml
[root@ip-172-31-46-33 playbooks]# vi gitmaven.yml
[root@ip-172-31-46-33 playbooks]# ansible-playbook gitmaven.yml -i host
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Current version: 2.7.18 (default, Oct 19 2023, 21:17:03)
(GCC 7.3.1 20180712 (Red Hat 7.3.1-17)). This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.

PLAY [all] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.32.254]

TASK [package installation] *****
ok: [172.31.32.254]

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

[root@ip-172-31-46-33 playbooks]#
```

The same instance metadata box and Windows taskbar are visible at the bottom of the screen.

Instances | EC2 Instance | EC2 Instance | Ashok cake z... | (2) WhatsApp | ansible_proje | New Tab | Ashokrekha/ | Apache Tomc | +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root®ion=ap-south-1&sshPort=22#/ | All Bookmarks

aws Services Search [Alt+S] Mumbai Ashok

```
[root@ip-172-31-32-254 ~]# git -v
git version 2.40.1
[root@ip-172-31-32-254 ~]# mvn -v
Apache Maven 3.0.5 (Red Hat 3.0.5-17)
Maven home: /usr/share/maven
Java version: 17.0.9, vendor: Amazon.com Inc.
Java home: /usr/lib/jvm/java-17-amazon-corretto.x86_64
Default locale: en_US, platform encoding: UTF-8
OS name: "linux", version: "5.10.198-187.748.amzn2.x86_64", arch: "amd64", family: "unix"
[root@ip-172-31-32-254 ~]#
```

i-02b42e85b65d2524c (ansible-node) X

PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254

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Type here to search

5:28 PM 11/16/2023

2. Create a playbook to install tomcat.

The screenshot shows the AWS CloudShell interface with an Ansible playbook for installing Java and Tomcat. The terminal output shows the playbook being executed on the instance i-Odd3cf711ec900450 (ansible-master). The tasks include installing Java, creating a directory for Tomcat, downloading and unarchiving Tomcat 9, and running Tomcat.

```
---
- hosts: all
  user: root
  become: yes
  tasks:
    - name: install java
      yum:
        name: java
        state: present

    - name: directory creation
      file:
        path: /root/tomcat
        state: directory

    - name: download & unarchive tomcat9
      unarchive:
        src: https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.83/bin/apache-tomcat-9.0.83.tar.gz
        dest: /root/tomcat
        remote_src: yes

    - name: Run Tomcat
      shell: nohup ./startup.sh
      args:
        chdir: /root/tomcat/apache-tomcat-9.0.83/bin

-- INSERT --
```

i-Odd3cf711ec900450 (ansible-master)
PublicIPs: 65.1.114.142 PrivateIPs: 172.31.46.33

The screenshot shows the continuation of the Ansible playbook execution. The tasks include creating a directory for Tomcat, downloading and unarchiving Tomcat 9, and running Tomcat. The terminal output shows the playbook being executed on the instance i-Odd3cf711ec900450 (ansible-master). The tasks include creating a directory for Tomcat, downloading and unarchiving Tomcat 9, and running Tomcat.

```
name: java
state: present

- name: directory creation
  file:
    path: /root/tomcat
    state: directory

- name: download & unarchive tomcat9
  unarchive:
    src: https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.83/bin/apache-tomcat-9.0.83.tar.gz
    dest: /root/tomcat
    remote_src: yes

- name: Run Tomcat
  shell: nohup ./startup.sh
  args:
    chdir: /root/tomcat/apache-tomcat-9.0.83/bin

-- INSERT --
```

i-Odd3cf711ec900450 (ansible-master)
PublicIPs: 65.1.114.142 PrivateIPs: 172.31.46.33

Instances | EC2 Instance x EC2 Instance x Ashok cake z: x (2) WhatsApp x ansible_proje x New Tab x Ashokrekha/ x Apache Tomc x +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0dd3cf711ec900450&osUser=root&sshPort=22#/

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aws Services Search [Alt+S] Mumbai Ashok

```
[root@ip-172-31-46-33 playbooks]# vi tomcat.yml
[root@ip-172-31-46-33 playbooks]# ansible-playbook tomcat.yml -i host
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Current version: 2.7.18 (default, Oct 19 2023, 21:17:03)
(GCC 7.3.1 20180712 (Red Hat 7.3.1-17)). This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.

PLAY [all] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.32.254]

TASK [install java] *****
ok: [172.31.32.254]

TASK [directory creation] *****
ok: [172.31.32.254]

TASK [download & unarchive tomcat9] *****
ok: [172.31.32.254]

TASK [Run Tomcat] *****
changed: [172.31.32.254]

PLAY RECAP *****

i-0dd3cf711ec900450 (ansible-master)
PublicIPs: 65.1.114.142 PrivateIPs: 172.31.46.33
```

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Instances | EC2 Instance x EC2 Instance x Ashok cake z: x (2) WhatsApp x ansible_proje x New Tab x Ashokrekha/ x Apache Tomc x +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0dd3cf711ec900450&osUser=root&sshPort=22#/

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```
[GCC 7.3.1 20180712 (Red Hat 7.3.1-17)]. This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.

PLAY [all] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.32.254]

TASK [install java] *****
ok: [172.31.32.254]

TASK [directory creation] *****
ok: [172.31.32.254]

TASK [download & unarchive tomcat9] *****
ok: [172.31.32.254]

TASK [Run Tomcat] *****
changed: [172.31.32.254]

PLAY RECAP *****
172.31.32.254 : ok=5 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

[root@ip-172-31-46-33 playbooks]#
```

i-0dd3cf711ec900450 (ansible-master)
PublicIPs: 65.1.114.142 PrivateIPs: 172.31.46.33

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Type here to search

Instances | EC2 Instance | EC2 Instance | Ashok cake 2 | (2) WhatsApp | ansible_proje | New Tab | Ashokreka | Apache Tomcat | +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root®ion=ap-south-1&sshPort=22#

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```
[root@ip-172-31-32-254 ~]# ls
live01 tomcat
[root@ip-172-31-32-254 ~]# cd tomcat/
[root@ip-172-31-32-254 tomcat]# ls
apache-tomcat-9.0.83
[root@ip-172-31-32-254 tomcat]# cd apache-tomcat-9.0.83/
[root@ip-172-31-32-254 apache-tomcat-9.0.83]# systemctl status
ip-172-31-32-254.ap-south-1.compute.internal
State: running
Jobs: 0 queued
Failed: 0 units
Since: Thu 2023-11-16 09:07:16 UTC; 2h 34min ago
CGroup: /
├─1 /usr/lib/systemd/systemd --switched-root --system --deserialize 21
├─user.slice
│ └─user-0.slice
│   ├──session-33.scope
│   │ └─26586 /usr/bin/java -Djava.util.logging.config.file=/root/tomcat/apache-tomcat-9.0.83/conf/logging.properties -Djava.util.logging.manager=org.apache.ju
│   ├──session-10.scope
│   │ └─2527 systemctl status
│   │   └─2528 systemctl status
│   │     └─25948 sshd: root@pts/0
│   │       └─26348 -bash
├─system.slice
│ └─rngd.service
│   └─2656 /sbin/rngd -f --fill-watermark=0 --exclude=jitter
```

i-02b42e85b65d2524c (ansible-node)

PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254

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EC2 | ap-south-1 | EC2 Instance Connect | ap-sou... | EC2 Instance Connect | ap-sou... | Ansible - start tomcat on host | Apache Tomcat/9.0.82 | +

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#SecurityGroup:group-id=sg-088ecd41cab3b0a03

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aws Services Search [Alt+S]

EC2 Dashboard X

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

New

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

LifeCycle Manager

Details

Security group name	Security group ID	Description	VPC ID
launch-wizard-12	sg-088ecd41cab3b0a03	launch-wizard-12 created 2023-11-05T09:21:34.440Z	vpc-075dacfc279fec998
Owner	Inbound rules count	Outbound rules count	
709174083818	2 Permission entries	1 Permission entry	

Inbound rules Outbound rules Tags

Inbound rules (2)

Filter security group rules

<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	Port range
<input type="checkbox"/>	-	sgr-0ace5cbf0f7b604fe	IPv4	SSH	TCP	22
<input type="checkbox"/>	-	sgr-0d28c065aed0752...	IPv4	Custom TCP	TCP	8080

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Apache Tomcat/9.0.83



If you're seeing this, you've successfully installed Tomcat. Congratulations!



Recommended Reading:
[Security Considerations How-To](#)
[Manager Application How-To](#)
[Clustering/Session Replication How-To](#)

[Server Status](#)
[Manager App](#)
[Host Manager](#)

Developer Quick Start
[Tomcat Setup](#)
[First Web Application](#)
[Realms & AAA](#)
[JDBC DataSources](#)
[Examples](#)
[Servlet Specifications](#)
[Tomcat Versions](#)

Managing Tomcat
For security, access to the `manager` webapp is restricted. Users are defined in:
`$CATALINA_HOME/conf/tomcat-users.xml`
In Tomcat 9.0 access to the manager application is split between different users.
[Read more...](#)
[Release Notes](#)
[Changelog](#)
[Migration Guide](#)
[Security Notices](#)

Documentation
[Tomcat 9.0 Documentation](#)
[Tomcat 9.0 Configuration](#)
[Tomcat Wiki](#)
Find additional important configuration information in:
`$CATALINA_HOME/RUNNING.txt`
Developers may be interested in:
[Tomcat 9.0 Bug Database](#)
[Tomcat 9.0 JavaDocs](#)
[Tomcat 9.0 Git Repository at GitHub](#)

Getting Help
FAQ and Mailing Lists
The following mailing lists are available:


[tomcat-announce](#)
Important announcements, releases, security vulnerability notifications. (Low volume).

[tomcat-users](#)
User support and discussion

[taglibs-user](#)
User support and discussion for [Apache Taglibs](#)

[tomcat-dev](#)
Development mailing list, including commit messages

Type here to search



5:12 PM
11/16/2023

3. Create a playbook to clone or pull the code from git hub.

The screenshot shows the AWS CloudShell interface. The terminal displays the following Ansible playbook content:

```
---
- hosts: all
  user: root
  become: yes
  tasks:
    - name: Clone a github repository
      git:
        repo: https://github.com/Ashokrekha/live01.git
        dest: /root/live01/
        clone: yes
        update: yes
```

Below the terminal, a summary box for instance `i-Odd3cf711ec900450 (ansible-master)` shows public and private IP addresses. The bottom of the interface includes the CloudShell toolbar and a Windows taskbar.

The screenshot shows the AWS CloudShell interface with the execution output of the `gitclone.yml` playbook. The terminal output includes:

```
[root@ip-172-31-46-33 playbooks]# ls
deploy.yml  gitclone.yml  gitmaven.yml  host  maven-build.yml  tomcat.yml
[root@ip-172-31-46-33 playbooks]# vi gitclone.yml
[root@ip-172-31-46-33 playbooks]# ansible-playbook gitclone.yml -i host
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Current version: 2.7.18 (default, Oct 19 2023, 21:17:03)
[GCC 7.3.1 20180712 (Red Hat 7.3.1-17)]. This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.

PLAY [all] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.32.254]

TASK [Clone a github repository] *****
ok: [172.31.32.254]

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

[root@ip-172-31-46-33 playbooks]#
```

The summary box below the terminal shows the instance `i-Odd3cf711ec900450 (ansible-master)` with its IP addresses. The bottom of the interface includes the CloudShell toolbar and a Windows taskbar.

Instances | EC2 Instance | EC2 Instance | Apache Tomcat | (2) WhatsApp | ansible_projects | New Tab | Ashokrekha | Apache Tomcat | +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root®ion=ap-south-1&sshPort=22#

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aws Services Search [Alt+S] Mumbai Ashok

```
[root@ip-172-31-32-254 ~]# ls
live01 tomcat
[root@ip-172-31-32-254 ~]#
```

i-02b42e85b65d2524c (ansible-node) X

PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254

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5:17 PM 11/16/2023

4. Create a playbook to build the code using maven.

The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, 'Services', a search bar, and user information 'Mumbai' and 'Ashok'. The main content area displays the Ansible playbook 'maven-build.yml' with the following content:

```
---
- hosts: all
  user: root
  become: yes
  tasks:
    - name: build the project with maven
      shell: cd /root/live01 && mvn clean package
```

Below the code editor, the instance details for 'i-Odd3cf711ec900450 (ansible-master)' are shown, including PublicIPs: 65.1.114.142 and PrivateIPs: 172.31.46.33. The bottom status bar indicates 'CloudShell' and 'Feedback'.

The screenshot shows the AWS Management Console interface with the Ansible playbook 'maven-build.yml' being executed. The terminal output is as follows:

```
[root@ip-172-31-46-33 playbooks]# ansible-playbook maven-build.yml -i host
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Current version: 2.7.18 (default, Oct 19 2023, 21:17:03)
[GCC 7.3.1 20180712 (Red Hat 7.3.1-17)]. This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.

PLAY [all] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.32.254]

TASK [build the project with maven] *****
changed: [172.31.32.254]

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

[root@ip-172-31-46-33 playbooks]#
```

Below the terminal output, the instance details for 'i-Odd3cf711ec900450 (ansible-master)' are shown, including PublicIPs: 65.1.114.142 and PrivateIPs: 172.31.46.33. The bottom status bar indicates 'CloudShell' and 'Feedback'.

Instances | EC2 Instance | EC2 Instance | Apache Tomcat | (2) WhatsApp | ansible-proje | New Tab | Ashokrekha/ | Apache Tomcat | +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root®ion=ap-south-1&sshPort=22#

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```
[root@ip-172-31-32-254 ~]# ls
live01 tomcat
[root@ip-172-31-32-254 ~]# cd live01/
[root@ip-172-31-32-254 live01]# ls
Dockerfile Jenkinsfile pom.xml README.md src target
[root@ip-172-31-32-254 live01]# cd target/
[root@ip-172-31-32-254 target]# ls
classes generated-sources live live.war maven-archiver maven-status surefire
[root@ip-172-31-32-254 target]#
```

i-02b42e85b65d2524c (ansible-node)

PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254

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5. Create a playbook to deploy the war file into tomcat.

The screenshot shows the AWS CloudShell interface. The terminal displays the following Ansible playbook content:

```
---
- hosts: all
  user: root
  become: yes
  tasks:
    - name: copy the WAR file to tomcat webapps directory
      copy:
        src: /root/live01/target/live.war
        dest: /root/tomcat/apache-tomcat-9.0.83/webapps/
        remote_src: yes
```

Below the terminal, the instance details for 'i-Odd3cf711ec900450 (ansible-master)' are shown, including PublicIPs: 65.1.114.142 and PrivateIPs: 172.31.46.33.

The screenshot shows the AWS CloudShell interface with the execution output of the 'deploy.yml' playbook. The terminal output includes:

```
[root@ip-172-31-46-33 playbooks]# ls
deploy.yml  gitclone.yml  gitmaven.yml  maven-build.yml  tomcat.yml
[root@ip-172-31-46-33 playbooks]# vi deploy.yml
[root@ip-172-31-46-33 playbooks]# ansible-playbook deploy.yml -i host
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Current version: 2.7.18 (default, Oct 19 2023, 21:17:03)
(GCC 7.3.1 20180712 (Red Hat 7.3.1-17)). This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.

PLAY [all] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.32.254 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.32.254]

TASK [copy the WAR file to tomcat webapps directory] *****
ok: [172.31.32.254]

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

[root@ip-172-31-46-33 playbooks]#
```

Below the terminal, the instance details for 'i-Odd3cf711ec900450 (ansible-master)' are shown, including PublicIPs: 65.1.114.142 and PrivateIPs: 172.31.46.33.

Instances | EC x EC2 Instance x EC2 Instance x Apache Tomcat x (2) WhatsApp x ansible_proje x New Tab x Ashokrekha/ x Apache Tomcat x +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-02b42e85b65d2524c&osUser=root®ion=ap-south-1&sshPort=22#/

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aws Services Search [Alt+S] Mumbai Ashok

```
[root@ip-172-31-32-254 ~]# ls
live01 tomcat
[root@ip-172-31-32-254 ~]# cd tomcat/
[root@ip-172-31-32-254 tomcat]# ls
apache-tomcat-9.0.83
[root@ip-172-31-32-254 tomcat]# cd apache-tomcat-9.0.83/
[root@ip-172-31-32-254 apache-tomcat-9.0.83]# ls
bin BUILDING.txt conf CONTRIBUTING.md lib LICENSE logs NOTICE README.md RELEASE-NOTES RUNNING.txt temp webapps work
[root@ip-172-31-32-254 apache-tomcat-9.0.83]# cd webapps/
[root@ip-172-31-32-254 webapps]# ls
docs examples host-manager live live.war manager ROOT
[root@ip-172-31-32-254 webapps]#
```

i-02b42e85b65d2524c (ansible-node)
PublicIPs: 35.154.122.136 PrivateIPs: 172.31.32.254

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Instances | EC x EC2 Instance x EC2 Instance x Ashok cake zone x (2) WhatsApp x ansible_proje x New Tab x Ashokrekha/ x Apache Tomcat x +

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Ansible Use Cases:

- **Provisioning:** Provisioning is creating new infrastructure. Ansible allows for application management, deployment, orchestration, and configuration management.
- **Continuous Delivery:** Ansible provides a simpler way to automatically deploy applications. All required services for a deployment can be configured from a single system. Continuous Integration (CI) tool can be used to run Ansible playbook which can be used to test and automatically deploy the application to production if tests are passed.
- **Application Deployment:** Ansible provides a simpler way to deploy applications across the infrastructure. Deployment of multi-tier applications can be simplified and the infrastructure can be easily changed over time.
- **Ansible for Cloud Computing:** Ansible makes it easy to provision instances across all cloud providers. Ansible contains multiple modules and allows to manage of large cloud infrastructure across the public-private and hybrid cloud.
- **Ansible for Security and Compliance:** You can define security policies in Ansible which will automate security policy across all machines in the network. Security roles once configured in an Ansible node will be embedded across all machines in the network automatically.

Conclusion:

Ansible is an open-source tool for provisioning, application deployment, configuration management. It enables Infrastructure as code (IaC). Ansible runs on Unix systems but it can be used to configure Windows as well as Linux. Ansible scripts are called Playbooks which consist of various modules. Ansible is an excellent tool to save time, money, and effort to automate tasks across multiple servers. Learning how to use Ansible to automate IT tasks is valuable to your Career and Organization.