Complete Step-by-Step Note: Installing Nginx on AWS Servers using Ansible Ad-hoc Commands

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1. Environment Setup

- **Local Machine:** Ubuntu (Ansible installed)
- **Servers:**
  1. `web_prod_01` → Ubuntu
  2. `web_prod_02` → Amazon Linux
- **Ansible Installation on Local Machine**

```
sudo apt update
sudo apt install ansible -y
ansible --version
```

- Confirms Ansible is installed successfully.

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2. Add Private Keys to Master Node

- Copy your private keys to the local machine (Ansible master):

```
mkdir -p ~/abc
# Copy your private keys here, e.g. key1.pem, key2.pem
```

- Set proper permissions for SSH keys:

```
chmod 600 ~/abc/key1.pem
chmod 600 ~/abc/key2.pem
```

> This ensures Ansible can use these keys for SSH connections securely.

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3. Create Inventory File (`invent.ini`)

- Create file `invent.ini` in your home directory or Ansible folder:

```
nano invent.ini
```

- Add the server details:

```
[webservers]
web_prod_01 ansible_host=65.2.63.102 ansible_user=ubuntu
ansible_ssh_private_key_file=~/abc/key2.pem
web_prod_02 ansible_host=35.154.163.43 ansible_user=ec2-user
ansible_ssh_private_key_file=~/abc/key1.pem
```

Explanation:

- `ansible_host` → Server IP
- `ansible_user` → SSH username (`ubuntu` for Ubuntu EC2, `ec2-user` for Amazon Linux)
- `ansible_ssh_private_key_file` → Path to private key
- `[webservers]` → Group name for both servers

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4. Test Connectivity

```
ansible all -i invent.ini -m ping
```

- Output should return `pong` from both servers → confirms SSH connectivity is working.

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5. Install Nginx using Ad-hoc Commands

a. Ubuntu Server (`web_prod_01`)

```
ansible web_prod_01 -i invent.ini -m apt -a "name=nginx state=present
update_cache=yes" -b
```

- `-b` → Use sudo
- `update_cache=yes` → Updates package list before installing

b. Start and Enable Nginx Service on Ubuntu

```
ansible web_prod_01 -i invent.ini -m service -a "name=nginx state=started
```

```
enabled=yes" -b
```

c. Check Service Status

```
ansible web_prod_01 -i invent.ini -m service -a "name=nginx state=started"
```

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d. Amazon Linux Server (`web_prod_02`)

```
ansible web_prod_02 -i invent.ini -m yum -a "name=nginx state=present" -b
```

e. Start and Enable Nginx Service on Amazon Linux

```
ansible web_prod_02 -i invent.ini -m service -a "name=nginx state=started
enabled=yes" -b
```

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6. Verify Installation

a. Check Nginx Version

```
ansible web_prod_01 -i invent.ini -m command -a "nginx -v"
ansible web_prod_02 -i invent.ini -m command -a "nginx -v"
```

b. Check Running Processes

```
ansible webservers -i invent.ini -m shell -a "ps aux | grep nginx"
```

c. Browser Test

- Open your servers' public IPs in a browser:

```
http://65.2.63.102   # Ubuntu
http://35.154.163.43 # Amazon Linux
```

- Should display the **default Nginx welcome page**.

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7. Summary Table of Commands

Step	Command	Purpose	
Install Ansible	`sudo apt install ansible -y`	Install Ansible on master node	
Add SSH Key	`chmod 600 ~/abc/key*.pem`	Secure private key for SSH	
Create Inventory	`nano invent.ini`	Add server IPs, users, keys	
Test Connectivity	`ansible all -i invent.ini -m ping`	Verify SSH access via Ansible	
Install Nginx (Ubuntu)	`ansible web_prod_01 -i invent.ini -m apt -a "name=nginx state=present update_cache=yes" -b`	Install Nginx on Ubuntu	
Install Nginx (Amazon Linux)	`ansible web_prod_02 -i invent.ini -m yum -a "name=nginx state=present" -b`	Install Nginx on Amazon Linux	
Start & Enable Service (Ubuntu)	`ansible web_prod_01 -i invent.ini -m service -a "name=nginx state=started enabled=yes" -b`	Start Nginx service	
Start & Enable Service (Amazon Linux)	`ansible web_prod_02 -i invent.ini -m service -a "name=nginx state=started enabled=yes" -b`	Start Nginx service	
Verify Version	`ansible <host> -i invent.ini -m command -a "nginx -v"`	Check Nginx version	
Verify Running	`ansible webservers -i invent.ini -m shell -a "ps aux | grep nginx"`	Confirm Nginx process running	