Lesson-End Project

Installing NodeJS Using Ansible Playbook

Project Agenda: To install NodeJS using an Ansible playbook for web development environments

Description: You work as a junior DevOps engineer in an IT firm. Your company is undertaking a project that involves setting up multiple web development environments. One of the key requirements is to automate the installation of NodeJS across all servers using Ansible to ensure consistency and efficiency.

Tools required: Ansible

Prerequisites: You must have Ansible installed in the lab to proceed.

Expected Deliverables: A playbook to install NodeJS and check the installation status of NodeJS.

Steps to be followed:

1. Install Ansible
2. Configure Ansible
3. Establish connectivity between the Ansible controller and the node machine
4. Create a NodeJS playbook
5. Execute the playbook
6. Confirm the installation

Step 1: Install Ansible

1.1 Find and install the required packages using the following command:
sudo apt-get install -f

```
labsuser@ip-172-31-17-34:~$ sudo apt-get install -f
Reading package lists... Done
Building dependency tree
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 390 not upgraded.
labsuser@ip-172-31-17-34:~$
```

1.2 Update the package repositories using the following command:
sudo apt-get install software-properties-common

```
labsuser@ip-172-31-17-34:~$ sudo apt-get install software-properties-common
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  python3-software-properties software-properties-gtk
The following packages will be upgraded:
  python3-software-properties software-properties-common software-properties-gtk
3 upgraded, 0 newly installed, 0 to remove and 387 not upgraded.
Need to get 101 kB of archives.
After this operation, 14.3 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 software-properties-common all 0.99.9.8 [10.6 kB]
Get:2 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 software-properties-gtk all 0.99.9.8 [66.0 kB]
Get:3 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-software-properties all 0.99.9.8 [24.9 kB]
Fetched 101 kB in 0s (4111 kB/s)
(Reading database ... 247505 files and directories currently installed.)
Preparing to unpack .../software-properties-common_0.99.9.8_all.deb ...
Unpacking software-properties-common (0.99.9.8) over (0.98.9.4) ...
Preparing to unpack .../software-properties-gtk_0.99.9.8_all.deb ...
Unpacking software-properties-gtk (0.99.9.8) over (0.98.9.4) ...
Preparing to unpack .../python3-software-properties_0.99.9.8_all.deb ...
Unpacking python3-software-properties (0.99.9.8) over (0.98.9.4) ...
Setting up python3-software-properties (0.99.9.8) ...
Setting up software-properties-common (0.99.9.8) ...
Setting up software-properties-gtk (0.99.9.8) ...
Processing triggers for dbus (1.12.16-2ubuntu2.1) ...
Processing triggers for shared-mime-info (1.15-1) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for libglib2.0-0:amd64 (2.64.6-1~ubuntu20.04.3) ...
Processing triggers for man-db (2.9.1-1) ...
labsuser@ip-172-31-17-34:~$
```

1.3 Update the list of software required to install Ansible using the following command:
sudo apt-add-repository ppa:ansible/ansible

```
labsuser@ip-172-31-17-34:~$ sudo apt-add-repository ppa:ansible/ansible
 Ansible is a radically simple IT automation platform that makes your applications and systems easier to deploy. Avoid writing scripts or custom code to deploy and update your applications— a
utomate in a language that approaches plain English, using SSH, with no agents to install on remote systems.

http://ansible.com/
 More info: https://launchpad.net/~ansible/+archive/ubuntu/ansible
Press [ENTER] to continue or Ctrl-c to cancel adding it.

Hit:1 https://download.docker.com/linux/ubuntu focal InRelease
Hit:2 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:4 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Hit:6 http://ppa.launchpad.net/ansible/ansible/ubuntu focal InRelease
Hit:7 http://security.ubuntu.com/ubuntu focal-security InRelease
Get:8 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11 Metadata [279 kB]
Get:9 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11 Metadata [390 kB]
Get:10 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 DEP-11 Metadata [940 B]
Hit:5 https://packages.cloud.google.com/apt kubernetes-xenial InRelease
Get:11 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-backports/main amd64 DEP-11 Metadata [7980 B]
Get:12 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-backports/universe amd64 DEP-11 Metadata [23.7 kB]
Fetched 925 kB in 1s (1241 kB/s)
Reading package lists... Done
labsuser@ip-172-31-17-34:~$
```

1.4 Download package information from configured sources using the following command:
sudo apt-get update

```
labsuser@ip-172-31-17-34:~$ sudo apt-get update
Hit:1 https://download.docker.com/linux/ubuntu focal InRelease
Hit:2 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal InRelease
Hit:3 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:4 http://us-west-2.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:5 https://packages.cloud.google.com/apt kubernetes-xenial InRelease
Hit:6 http://ppa.launchpad.net/ansible/ansible/ubuntu focal InRelease
Hit:7 http://security.ubuntu.com/ubuntu focal-security InRelease
Reading package lists... Done
labsuser@ip-172-31-17-34:~$
```

1.5 Install Ansible using the following command:
sudo apt-get install ansible

```
labsuser@ip-172-31-17-34:~$ sudo apt-get install ansible
Reading package lists... Done
Building dependency tree
Reading state information... Done
ansible is already the newest version (5.3.0-1ppa~focal).
0 upgraded, 0 newly installed, 0 to remove and 387 not upgraded.
labsuser@ip-172-31-17-34:~$
```

Step 2: Configure Ansible

2.1 Add localhost in the ansible host file **/etc/ansible/hosts** using the following command:
sudo vi /etc/ansible/hosts

```
labsuser@ip-172-31-17-34:~$ sudo vi /etc/ansible/hosts
labsuser@ip-172-31-17-34:~$
```

2.2 When the file opens, add the following two lines of code at the end of the file:

[webservers]

localhost ansible_connection=local

```
## alpha.example.org
## beta.example.org
## 192.168.1.100
## 192.168.1.110

# If you have multiple hosts following a pattern, you can specify
# them like this:

## www[001:006].example.com

# Ex 3: A collection of database servers in the 'dbservers' group:

## [dbservers]
##
## db01.intranet.mydomain.net
## db02.intranet.mydomain.net
## 10.25.1.56
## 10.25.1.57

# Here's another example of host ranges, this time there are no
# leading 0s:

## db-[99:101]-node.example.com
[webservers]
localhost ansible_connection=local
```

Step 3: Establish connectivity between the Ansible controller and the node machine

3.1 Execute the below command to validate the host inventory file:

ansible all -m ping

```
sakshiguptasimp@ip-172-31-22-2:~$ ansible all -m ping
localhost | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
sakshiguptasimp@ip-172-31-22-2:~$
```

Step 4: Create a NodeJS playbook

4.1 Create and open a yml file using the following command:
sudo nano node-playbook.yml

```
sakshiguptasimp@ip-172-31-22-2:~$ sudo nano node-playbook.yml
```

4.2 Add the following code in the YAML file:

```
---
- name: Install NodeJS
  hosts: all
  become: yes

  tasks:
    - name: Check OS version
      ansible.builtin.shell: cat /etc/os-release
      register: os_version

    - name: Install NodeJS on Ubuntu
      ansible.builtin.apt:
        name: nodejs
        state: present
      when: "'Ubuntu' in os_version.stdout"

    - name: Install NodeJS on CentOS
      ansible.builtin.yum:
        name: nodejs
        state: present
      when: "'CentOS' in os_version.stdout"

    - name: Add NodeSource repository for Ubuntu
      ansible.builtin.shell: curl -sL https://deb.nodesource.com/setup_14.x | sudo -E
bash -
      when: "'Ubuntu' in os_version.stdout"
      register: add_repo_ubuntu
      notify: install_nodejs_ubuntu

    - name: Add NodeSource repository for CentOS
      ansible.builtin.shell: curl -sL https://rpm.nodesource.com/setup_14.x | sudo bash -
```

```
    when: "'CentOS' in os_version.stdout"
    register: add_repo_centos
    notify: install_nodejs_centos

handlers:
  - name: install_nodejs_ubuntu
    ansible.builtin.apt:
      name: nodejs
      state: present
    when: "'Ubuntu' in os_version.stdout"

  - name: install_nodejs_centos
    ansible.builtin.yum:
      name: nodejs
      state: present
    when: "'CentOS' in os_version.stdout"
```

```
 GNU nano 6.2                                                node-playbook.yml
---
- name: Install NodeJS
  hosts: all
  become: yes

  tasks:
    - name: Check OS version
      ansible.builtin.shell: cat /etc/os-release
      register: os_version

    - name: Install NodeJS on Ubuntu
      ansible.builtin.apt:
        name: nodejs
        state: present
      when: "'Ubuntu' in os_version.stdout"

    - name: Install NodeJS on CentOS
      ansible.builtin.yum:
        name: nodejs
        state: present
      when: "'CentOS' in os_version.stdout"

    - name: Add NodeSource repository for Ubuntu
      ansible.builtin.shell: curl -sL https://deb.nodesource.com/setup_14.x | sudo -E bash -
```

Note: Use Ctrl + X to exit, Y for yes, and then press enter to save the file

Step 5: Execute the playbook

5.1 Run the playbook using the following command:
ansible-playbook node-playbook.yml

```
sakshiguptasimp@ip-172-31-22-2:~$ sudo nano node-playbook.yml
sakshiguptasimp@ip-172-31-22-2:~$ ansible-playbook node-playbook.yml

PLAY [Install NodeJS] **********************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************
ok: [localhost]

TASK [Check OS version] ********************************************************************************************************
changed: [localhost]

TASK [Install NodeJS on Ubuntu] ************************************************************************************************
changed: [localhost]

TASK [Install NodeJS on CentOS] ************************************************************************************************
skipping: [localhost]

TASK [Add NodeSource repository for Ubuntu] ************************************************************************************
```

Step 6: Confirm the installation

6.1 Check the status of the NodeJS using the following command:
node -v

```
sakshiguptasimp@ip-172-31-22-2:~$ node -v
v12.22.9
sakshiguptasimp@ip-172-31-22-2:~$
```

By following the above steps, you have successfully installed NodeJS using an Ansible playbook for web development environments.