

Demo Project: Automate Node.js application Deployment

Project Description

In this project, we will use **Ansible** to automate the deployment of a **Node.js** application on a server hosted on **DigitalOcean**. The Ansible Playbook will:

- Install necessary technologies like Node.js and npm.
- Create a dedicated Linux user for the application.
- Deploy and run the Node.js application using that user.
- Ensure the application is running successfully.

Project Description

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Step 1: Create Server on DigitalOcean

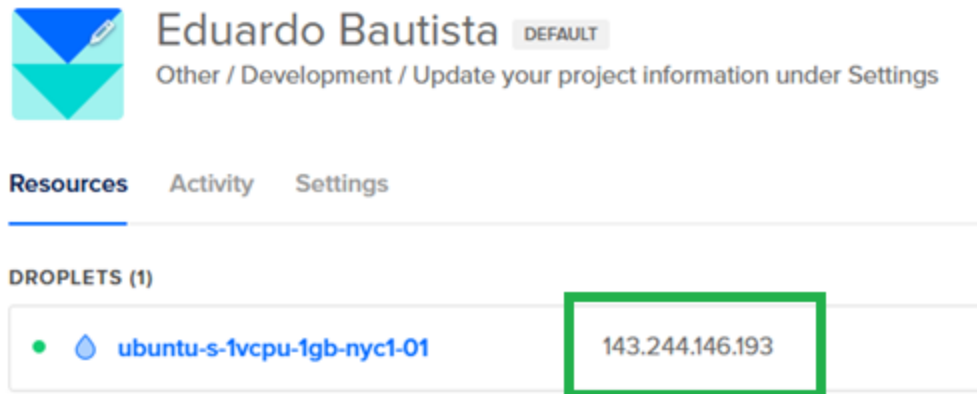
1. Go to **DigitalOcean**.
2. Create a new **Droplet**.
3. Select the **Region** closest to you.
4. Choose the **Ubuntu** distribution.
5. **Shared CPU Basic**:
 - Regular Disk type: **SSD**
 - **1GB / 1CPU**

6. Authentication Method:

- Use your existing **SSH key**.

7. Click **Create Droplet**.

8. Copy the new **Public IP Address**.



Step 2: Configure Ansible Inventory

Create a file called `hosts` and add the following content:

```
[webserver]
<your-public-ip> ansible_ssh_private_key_file=~/.ssh/id_rsa ansible_user=root
```

Replace `<your-public-ip>` with your DigitalOcean Droplet's public IP address.

Step 3: Write Ansible Playbook

Create a file named `deploy-node.yaml` with the following content:

```

---
- name: Install node and npm
  hosts: 143.244.146.193
  tasks:
    - name: Update apt repo and cache
      apt: update_cache=yes force_apt_get=yes cache_valid_time=3600
    - name: Install nodejs and npm
      apt:
        pkg:
          - nodejs
          - npm

- name: Create new linux user for node app
  hosts: 143.244.146.193
  tasks:
    - name: Create linux user
      user:
        name: NodeUser
        comment: Node User
        group: admin

- name: Deploy nodejs app
  hosts: 143.244.146.193
  become: True
  become_user: NodeUser
  tasks:
    - name: Unpack the nodejs file
      unarchive:
        src: /mnt/c/Users/eduar/devops_projects2/08-ansible/nodejs-app/nodejs-app-1.0.0.tgz
        dest: /home/NodeUser
    - name: Install dependencies
      npm:
        path: /home/NodeUser/package
    - name: Start the application
      command:
        chdir: /home/NodeUser/package/app
        cmd: node server
      async: 1000
      poll: 0
    - name: Ensure app is running
      shell: ps aux | grep node
      register: app_status
    - debug: msg={{app_status.stdout_lines}}

```

Step 4: Run Ansible Playbook

Execute the playbook using the following command: `ansible-playbook -i hosts deploy-node.yaml`

```

TASK [Create linux user] *****
changed: [143.244.146.193]

PLAY [Deploy nodejs app] *****

TASK [Gathering Facts] *****
[WARNING]: Module remote_tmp /home/NodeUser/.ansible/tmp did not exist and was created with a mode of 0700, this may cause issues when
running as another user. To avoid this, create the remote_tmp dir with the correct permissions manually
ok: [143.244.146.193]

TASK [Unpack the nodejs file] *****
changed: [143.244.146.193]

TASK [Install dependencies] *****
changed: [143.244.146.193]

TASK [Start the application] *****
changed: [143.244.146.193]

TASK [Ensure app is running] *****
changed: [143.244.146.193]

TASK [debug] *****
ok: [143.244.146.193] => {
  "msg": [
    "NodeUser      8773   8.2   6.4 1019116 62996 ?        SL   09:51   0:00 node server",
    "NodeUser      8806   0.0   0.1  2864   1684 pts/2    S+   09:52   0:00 /bin/sh -c ps aux | grep node",
    "NodeUser      8808   0.0   0.2   7152   2112 pts/2    S+   09:52   0:00 grep node"
  ]
}

PLAY RECAP *****
143.244.146.193 : ok=11  changed=7  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

```

Step 5: Verify Deployment

SSH into the server: `ssh root@<your-public-ip>`

List the files in the Node.js application directory: `ls /home/NodeUser/package`

Expected Output:

```

Dockerfile  Readme.md  app  node_modules  package-lock.json  package.js
n

```

Step 6: Use Ansible Variables

Variables can be used to make the playbook more dynamic. You can find the reference for this in the following repository: https://gitlab.com/twn-devops-projects/ansible/ansible-projects/-/tree/feature/variables?ref_type=heads

Step 7: Clean Up

- Delete the server from the DigitalOcean dashboard.