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DT/NT : DT

LESSON : ANSIBLE

SUBJECT: PLAYBOOKS

BATCH : B 303

AWS-DEVOPS

TECHPRO EDUCATION

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Intro to Playbooks

• Playbooks are the basis for a really simple configuration management and multi-machine deployment system, unlike any that already exist, and one that is very well suited to deploying complex applications.

• Playbooks can declare configurations, but they can also orchestrate steps of any manual ordered process, even as different steps must bounce back and forth between sets of machines in particular orders.

```
- name: Install and Configure MySQL
  hosts: db-server
  tasks:
    - name: Install Pre-Requisites
      yum: name=pre-req-packages state=present

    - name: Install MySQL Packages
      yum: name=mysql state=present

    - name: Start MySQL Service
      service: name=mysql state=started

    - name: Configure Database
      mysql_db: name=db1 state=present
```

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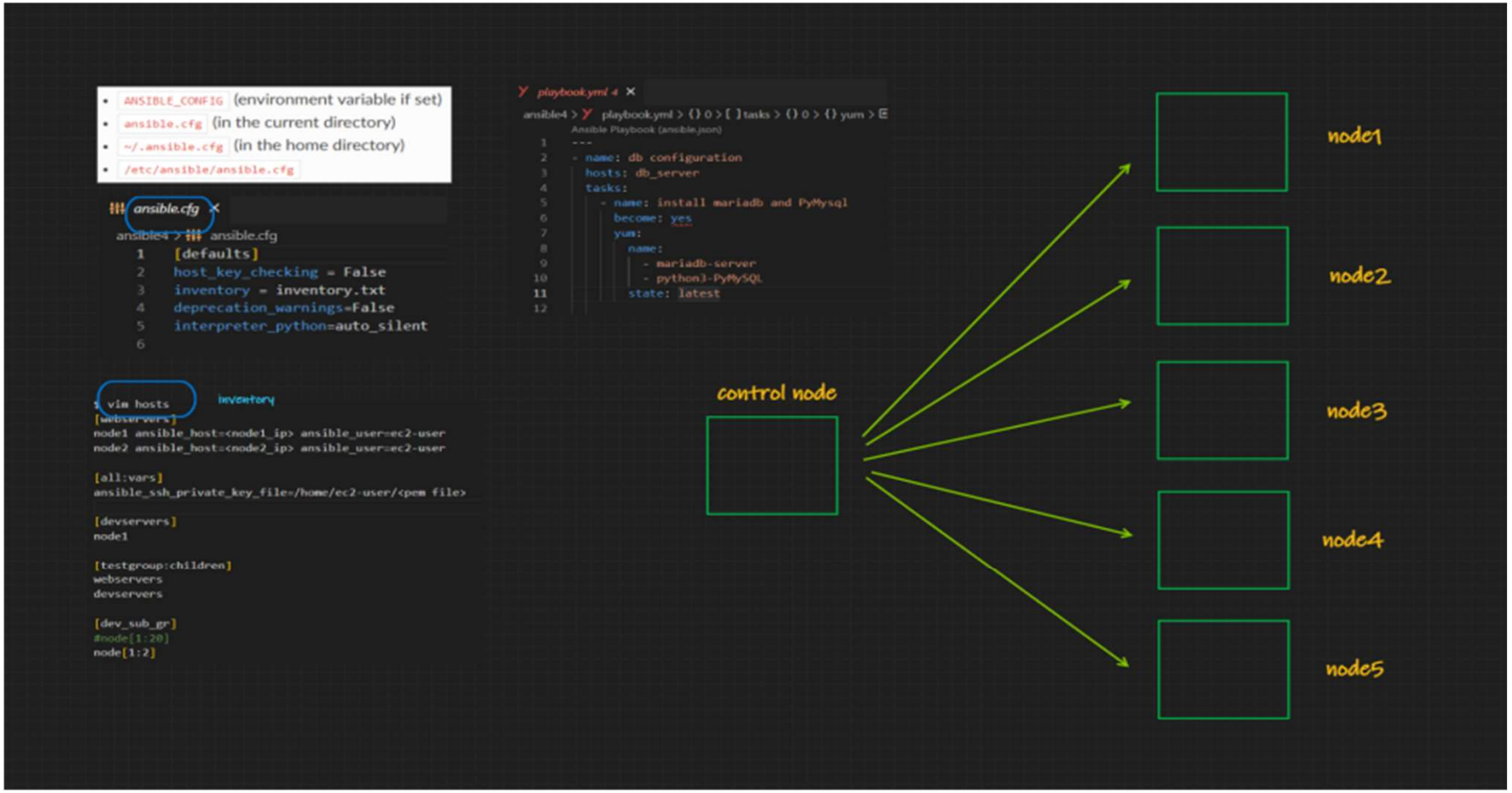
Intro to Playbooks



Intro to Playbooks

Control Node

Playbook

Inventory

Ansible

Hillroad Road, 43

Oxford Square, 15

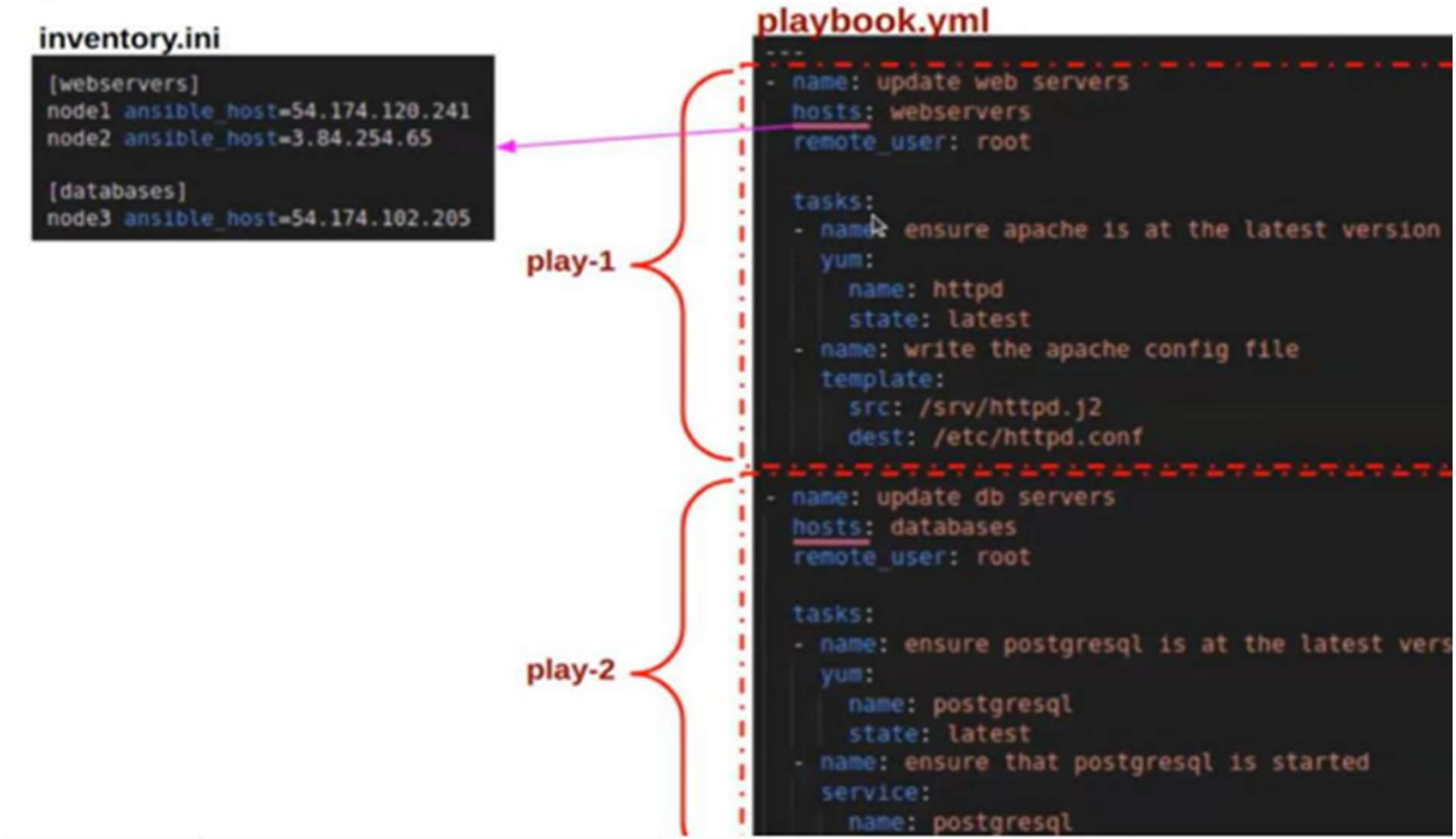
Faringdon Road, 4

Roman Walk, 9

Intro to Playbooks

The goal of a play is to map a group of hosts to some well defined roles, represented by things ansible calls tasks. At a basic level, a task is nothing more than a call to an ansible module.

Intro to Playbooks



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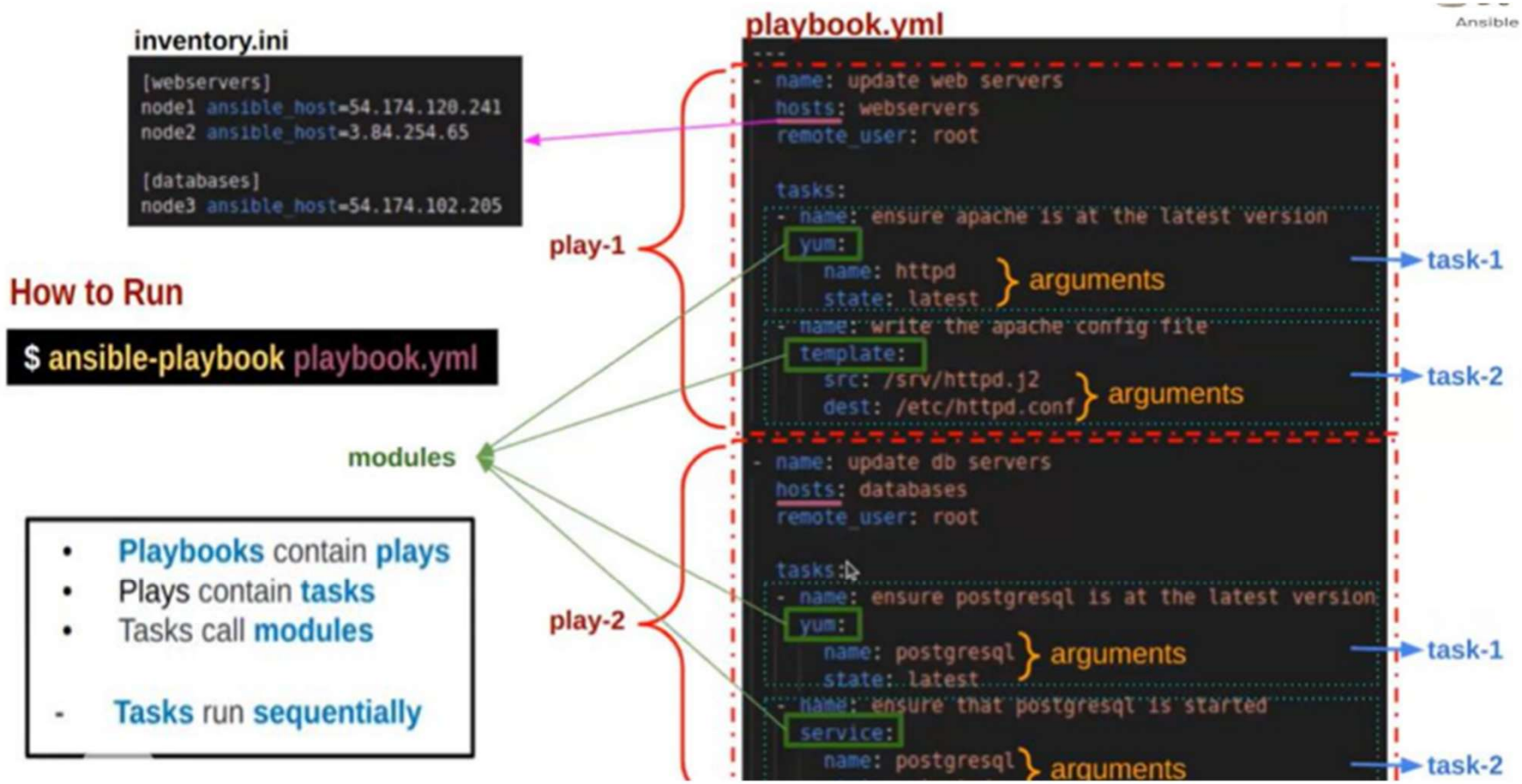
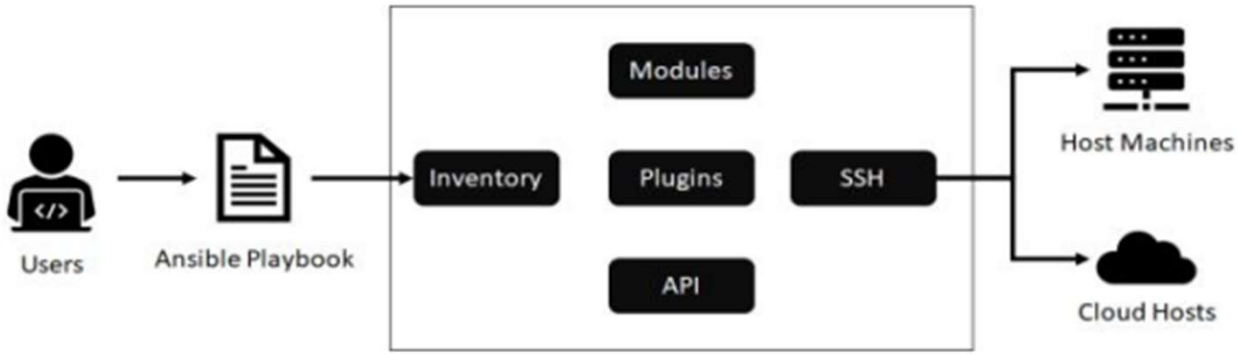
Intro to Playbooks



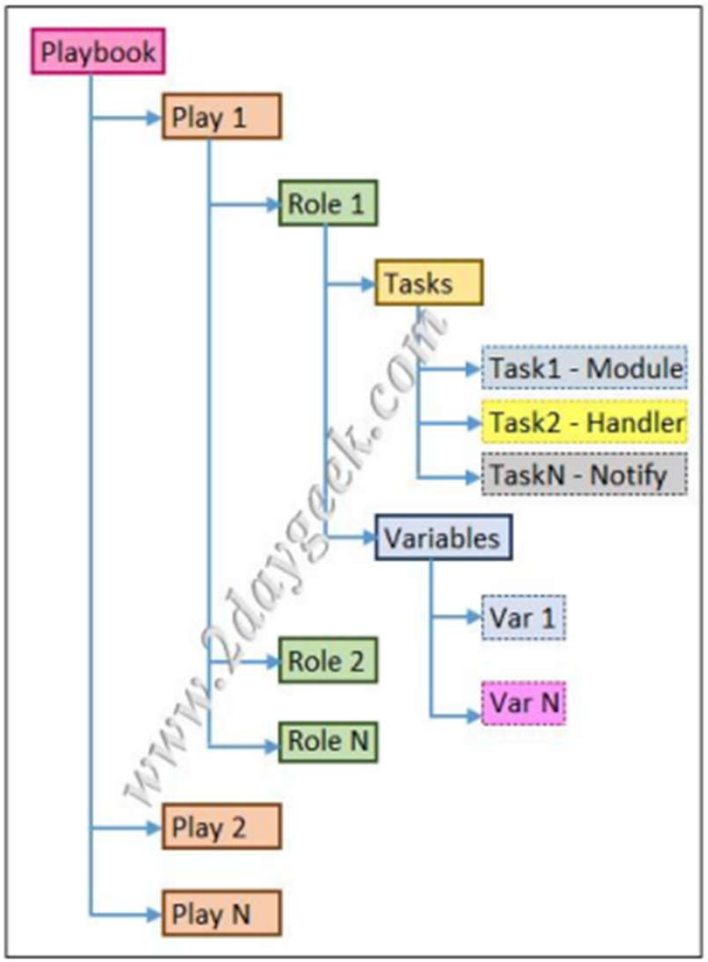
Hosts and Users

• For each play in a playbook, you get to choose which machines in your infrastructure to target and what remote user to complete the steps (called tasks) as.
• The host defined in the inventory file must match the host used in the playbook and all connection information for the host is retrieved from the inventory file.

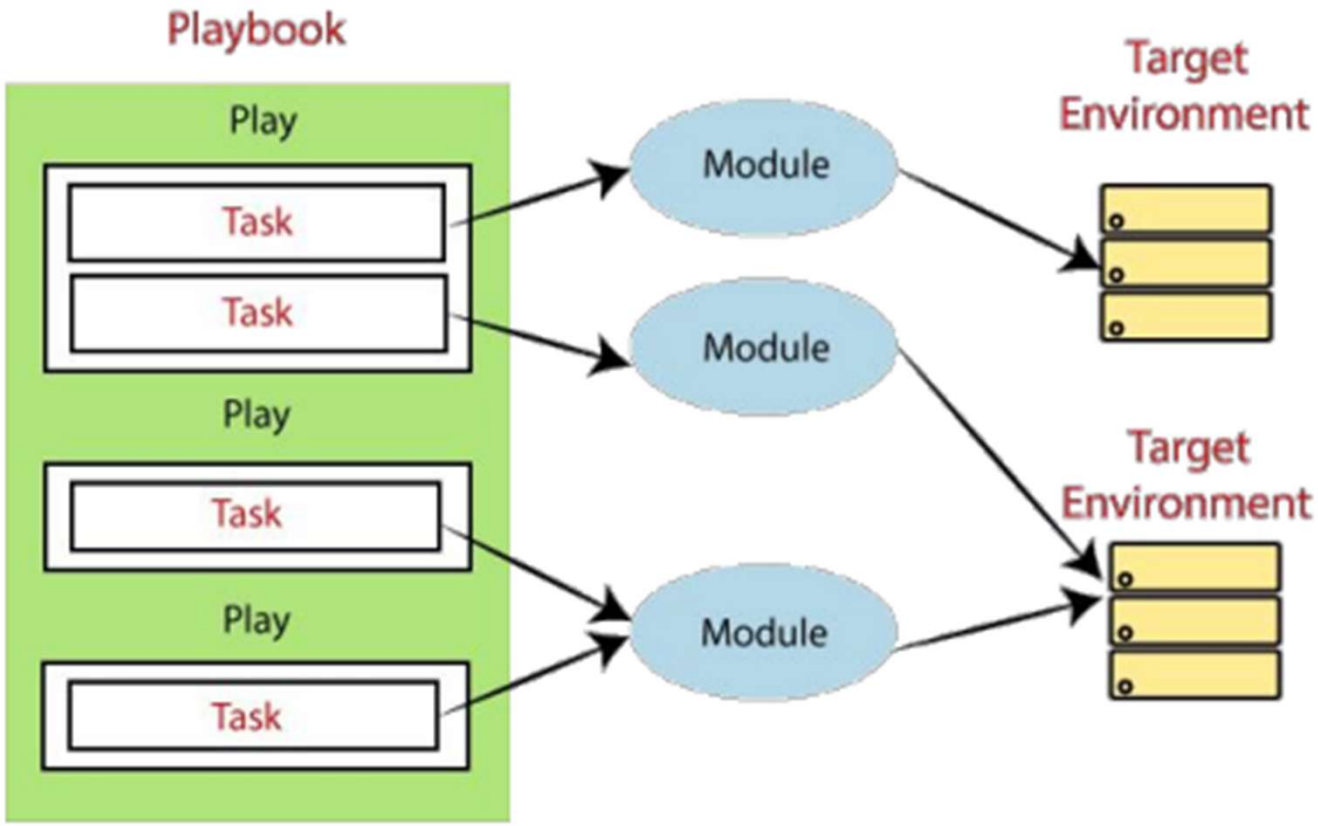


Tasks

• Each play contains a list of tasks. Tasks are executed in order, one at a time, against all machines matched by the host pattern, before moving on to the next task.
• The goal of each task is to execute a module, with very specific arguments. Variables can be used in arguments to modules.



Modules


Playbook
Play
Task
Task
Play
Task
Play
Task
Module
Module
Module
Target Environment
Target Environment

Modules

- Modules (also referred to as “task plugins” or “library plugins”) are discrete units of code that can be used from the command line or in a playbook task.
- Ansible executes each module, usually on the remote target node, and collects return values.
- Modules should be **idempotent**, and should avoid making any changes if they detect that the current state matches the desired final state.

Handlers

• Handlers are lists of tasks, not really any different from regular tasks, that are referenced by a globally unique name, and are notified by notifiers. If nothing notifies a handler, it will not run.

```
- hosts: webservers1
  user: root
  tasks:
  - name: test copy
    copy: src=/root/a.txt dest=/mnt
    notify: test handlers
  handlers:
  - name: test handlers
    shell: echo "abcd" >> /mnt/a.txt
```

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Inventory File

- Ansible works against multiple managed nodes or “hosts” in your infrastructure at the same time, using a list or group of lists know as inventory.
- The default location for inventory is a file called /etc/ansible/hosts.
- You can specify a different inventory file at the command line using the -i < path > option.

Inventory Files

```
$ app.inv
[webservers]
www1.example.com
www2.example.com

[appservers]
app1.example.com
app2.example.com

[memcached]
memcached.example.com

[redis]
redis.example.com

[dbservers]
db0.example.com
```

Variables

- **Variables** are used to store values that varies with different items.

```
[webservers]
web1 ansible_host=3.85.110.235 ansible_user=ec2-user ansible_shh_pass=P@abcd
web2 ansible_host=3.88.62.253 ansible_user=ec2-user ansible_shh_pass=P@1234

[dbservers]
db1 ansible_host=3.85.110.235 ansible_user=ec2-user ansible_shh_pass=P@Defne
```

Playbook.yml

```
-
  name: Add DNS server to resolv.conf
  hosts: webservers
  vars:
    dns_server: 10.1.250.10

  tasks:
    -lineinfile:
      path: /etc/resolv.conf
      line:'nameserver {{ dns_server }}'_
```

OR

```
#Sample variable file - web.yml

dns_server: 10.1.250.10
```

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Conditionals

```yaml
- name: Install NGNIX
  hosts: webservers
  tasks:
  - name: Install NGNIX on Redhat
    yum:
      name: ngnix
      state: present
    when: ansible_os_family == "RedHat"

  - name: Install NGINIX on Debian
    apt:
      name: nginx
      state: present
    when: ansible_os_family == "Debian" and ansible_distribution_version == "16.04"
```

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Loops

```
- name: 'Install required packages'
  hosts: webservers
  tasks:
    -
      yum:
          name: '{{ item }}'
          state: present
      loop:
        - httpd
        - binutils
        - glibc
        - sysstat
        - unixODBC
        - mongodb
        - nodejs
        - grunt
```

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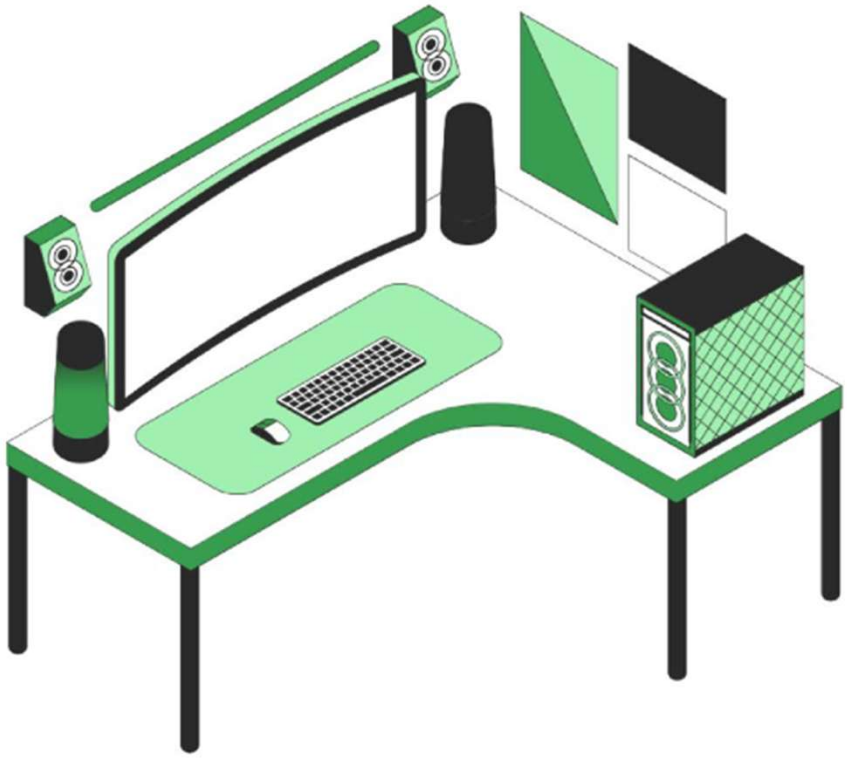

Do you have any questions?

Send it to us! We hope you learned something new.