**What is Ansible?**

* Ansible is capable of handling many powerful automation tasks with the flexibility to adapt to many environments and workflows. With Ansible user can quickly getup and running to do real work
* Ansible does configuration management
* Ansible can also be used for deployment purpose even

**Why Ansible**

* Open Source
* .Provisioning
* Configuration Management.
* Application Deployment
* Simple & Compliance.
* Server Orchestration.
* Have almost lot of modules
* Support from RedHat
* Agentless
* Cross Platform
* Dynamic Inventory

**YAML**

* YAML is a human friendly data serialization standard for all programming languages.
* Data Serialization language: A language used to convert or represent structured data or objects as a series of characters that can be stored on a disk.
* Well Known example are
  + CSV-Comma Separated Values
  + XML - Extensible Markup Language
  + JSON -Java Script Object Notation
  + YAML-Yet Another Markup Language
* Unlike XML which is not easily readable by humans, YAML was created to be human-friendly and integrate easily with modern programming languages.
* Unlike with XML, YAML was intended to simplify the viewing and understanding of config files, log files, object persistence and messaging, it allow the programmer more time programming and less worrying about formatting data.

**Basic YAML Syntax Rules**

* Document begins with -- -and end with …
* Indentation of lines denotes the structure within the document
* Comments begin with #
* Members of lists begin with -
* Key value pairs use the following syntax.
  + <key>:<value>

**Basic YAML Example******

**Ansible Installation**

1. Create a new file called 'ansible.repo' in

cd /etc/yum.repos.d

vi ansible.repo

2. Copy the following content into it:

[Ansible]

name = ansible

baseurl = https://releases.ansible.com/ansible/rpm/release/epel-7-x86\_64/

enabled = 1

gpgcheck = 0

3. Run 'yum update'

rpm -Uvh https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm

yum -y install ansible

ansible --version

**-----------------Redhat 8----------------------------------------**

yum update -y

yum install python2

dnf install python2-pip

pip2 install ansible

**Ansible Terminology**

* **Inventory:** A list of hosts, groups and variables
* **Module:** Actually do the work
* **Plugins:** Call back, Actions and other hooks
* **Facts:** Data gathered from target hosts
* **Playbooks**: A collection of plays
* **Plays:** Loops over a list of tasks mapped to a list of hosts
* **Tasks:** Invokes a module to do the work

**Ansible Configuration File**

Changes can be made and used in a configuration file which will be processed in the following order:

* ANSIBLE\_CONFIG (an environment variable)
* ansible.cfg (in the current directory)
* .ansible.cfg (in the home directory)
* /etc/ansible/ansible.cfg

**Ansible Host Inventory Parameter**

* ansible
* ansible\_user=admin
* ansible ssh private\_key\_file=/opt/ec2.pem
* ansible\_python\_interpreter=/usr/local/bin/python

**Ansible PlayBook**

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**Ansible Playbook With Roles**

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

roles:

- webserver #Role which should be installed on the server

...

**Ansible Commonly Used Facts**

* "ansible\_distribution"
* "ansible distribution\_version"
* "ansible-distribution-major-version"
* "ansible\_os family"
* "ansible\_kernel"
* "ansible\_domain"
* "ansible\_architecture"

**Ansible Variables**

---

- hosts: web #group name from the inventory

user: ec2-user #Server Auth

become: true

vars:

pack\_name: httpd

serv\_name: httpd

tasks:

- name: Install {{ pack\_name }}

yum: pkg={{ pack\_name }} state=installed

- name: Start {{ serv\_name }}

service: name={{ serv\_name }} state=started

...

**Ansible Variable Files**

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

vars:

pack\_name: httpd

vars\_files:

- web\_vars.yml

tasks:

- name: Install {{ pack\_name }}

yum: pkg={{ pack\_name }} state=installed

- name: Start {{ serv\_name }}

service: name={{ serv\_name }} state=started

...

**Ansible Variables from Prompt**

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

vars:

pack\_name: httpd

vars\_prompt:

- name: web\_pass

prompt: Web Server Password:

tasks:

- name: Install {{ pack\_name }}

yum: pkg={{ pack\_name }} state=installed

- name: Start {{ serv\_name }}

service: name={{ serv\_name }} state=started

...

**Ansible Install Package PlayBook**

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

vars\_prompt:

- name: pack\_name

prompt: Enter the Package Name

tasks:

- name: Install {{ pack\_name }}

yum: pkg={{ pack\_name }} state=installed

...

With more parameters

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

vars\_prompt:

- name: pack\_name

prompt: Enter the Package Name

default: telnet

private: no

tasks:

- name: Install {{ pack\_name }}

yum: pkg={{ pack\_name }} state=installed

...

**Ansible Task Handlers**

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

vars:

pack\_name: httpd

tasks:

- name: Install {{ pack\_name }}

yum: pkg={{ pack\_name }} state=installed

notify: Restart HTTPD

handlers:

- name: Restart HTTPD

action: service name=httpd state=restarted

...

**Ansible Playbook Loops**

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

tasks:

- name: Add a list of users

user: name={{ item }} state=present

with\_items:

- user1

- user2

- user3

...

**Ansible PlayBook Conditions**

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

tasks:

- name: Install httpd redhat

yum: name=httpd state=installed

when: ansible\_distribution == "RedHat"

- name: Install httpd ubuntu

apt: name=apache2 state=installed

when: ansible\_distribution == "Ubuntu"

- name: Start httpd

service: name=httpd state=started

when: ansible\_distribution == "RedHat"

- name: Start httpd

service: name=apache2 state=started

when: ansible\_distribution == "Ubuntu"

...

**Ansible PlayBook until**

---

- hosts: web #group name from the inventory

user: ec2-user Server Auth

sudo: true

vars:

pack\_name: httpd

tasks:

- name: Install {{ pack\_name }}

yum: pkg={{ pack\_name }} state=latest

- name: Verify Service Status

shell: systemctl status httpd

register: result

until: result.stdout.find("active (running)") !=-1

retries: 5

delay: 5

...