

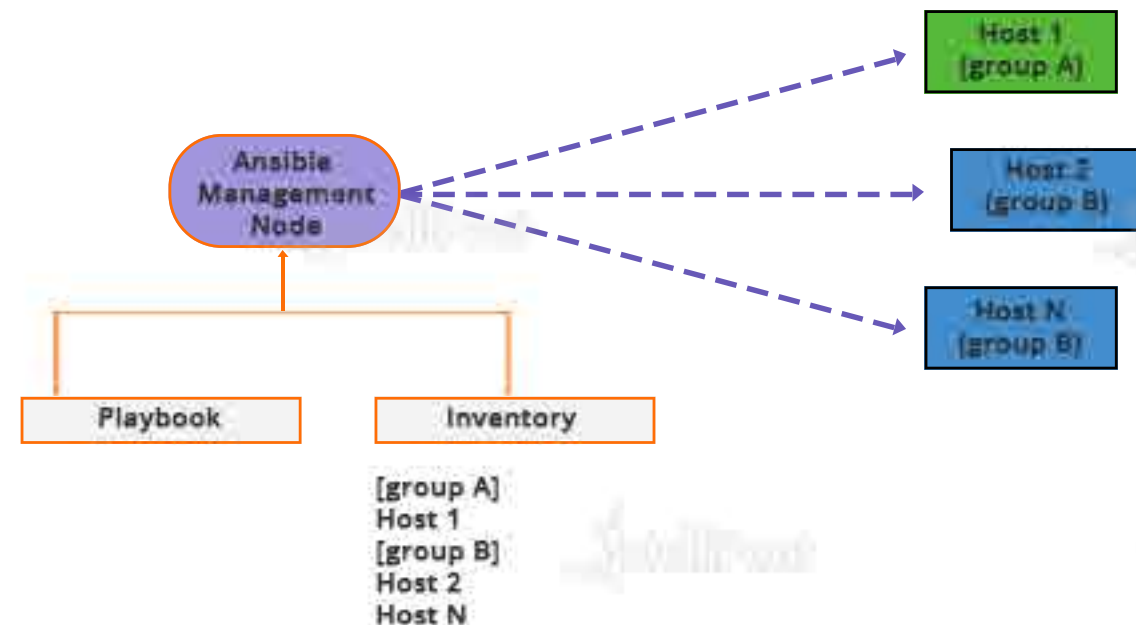
ANSIBLE CHEAT SHEET

Ansible

- It is an open source engine that automates deployment, orchestration, cloud provisioning and other tools.
- It uses a playbook to describe jobs and uses YAML which is human readable
- It is designed for multi-tier deployment. It is agentless and works by connecting nodes through ssh.

How Does it Work?

- Connects nodes and pushes small programs called modules to them and are removed when they are done.
- The management node controls whole execution of the playbook.
- The inventory file provides the list of hosts where the modules need to be run.
- The management node does an 'ssh' connection and executes the modules and installs the software.



Troubleshooting

- Common strategies to debug playbooks are
- Debug and register
- Use verbosity (verbosity level)
- Playbook issues:
- Quoting
- Indentation
- Some drawbacks are:
- OS restrictions: is OS dependent so code on one OS will not work for another
- Once playbook is running, adding of hosts is not possible
- Error reporting is mediocre.

Environment Setup

- Types of machines:
- Control machine : manages other machines
 - Remote machine: controlled by other machines
- Multiple remote systems can be handled by one machine.
- Remote machine managing is done by ansible by default.
 - Ansible doesn't leave any software running on them. Therefore there is no need of an upgrade when moving to a newer version.
 - Install it through apt, yum, pip, OpenCSW
 - installing it through apt :

```

$ sudo apt-get update
$ sudo apt-get install software-properties-common
$ sudo apt-add-repository ppa:ansible/ansible
$ sudo apt-get update
$ sudo apt-get install ansible
• Run ansible version to make sure it was installed properly.
  
```

YAML

- YAML syntax is used to express ansible playbooks
- **Key-value pair:** Dictionary is represented in key value pair
Ex: james:
name: james john
rollNo: 34
div: B
sex: male
- **Representing lists:**
 - Each element has to be written in a new line with "-" as the prefix
 - countries:
 - America
 - Iceland
- **Lists inside the dictionary:**
 - name: james john
 - rollNo: 34
 - div: B

- sex: male
- likes:
 - english
- Boolean terms are also used in YAML

Advantages of Ansible

- It is free and open source.
- Agentless. No master client model.
- System requirements.
- Developed in python.
- Lightweight and quick deployment.
- Ansible uses YAML syntax in config files.
- Large community base.

Ad - hoc Commands

- General syntax of ad-hoc command:
Command hostgroup module/options[arguments]

| FUNCTION | COMMANDS |
|--------------------------------------------------|--------------------------------------------------------------------------|
| Check connectivity of hosts | #ansible <group> -m ping |
| Rebooting hosts | #ansible <group> -a "/bin/reboot" |
| Check host system's info | #ansible<group> -m steup less |
| Transferring files | #ansible <group> -m copy -a "src=home/ansible dest=/tmo/home" |
| Create new user | #ansible<group> -m user -a "name=ansible password= <encrypted password>" |
| Deleting user | #ansible<group> -m user -a "name=ansible state= absent" |
| Check if package is installed and update it | #ansible<group> -m yum -a "name=httpd state=latest" |
| Check if package is installed and dont update it | #ansible<group> -m yum -a "name=httpd state=present" |
| Check if package is s specific version | #ansible<group> -m yum -a "name=httpd1.8 state=latest" |
| Check if package is not installed | #ansible <group> -m yum -a "name= httpd state= absent" |
| Starting a service | #ansible<group> -m service -a "name= httpd state="started" |
| Stopping a service | #ansible<group> -m service -a "name= httpd state="stopped" |
| Restarting a service | #ansible<group> -m service -a "name=httpd state="restarted" |

Terms

- Service/server- a process that provides service
- Machine - physical machine, Vm or a container
- Target machine - end machine to be configured by ansible
- Task- an action
- Playbook - location where YAMI files are written and executed

Playbooks

- It is the place where all YAML files are stored and executed. Acts like a to-do list
 - YAML- yet another markup language
 - A playbook can have more than one plays. Plays map the instructions defined against a particular host
 - Typically written in a text editor like notepad or notepad++
- Sample playbook/YAML file:
name: install and configure DB
hosts: testServer
become: yes
vars: oracle_db_port_value : 1521
tasks:
-name: Install the Oracle DB
yum: <code to install the DB>
-name: Ensure the installed service is enabled
service:
name: <your service name>
- Tags of YAML:
 - **Name:** name of the playbook
 - **Hosts:** specifies the list of hosts. Tasks can be on the same machine or a different one.
 - **Vars:** defines the variables which you can use
 - **Tasks:** it is the list of action that needs to be performed. A task is always linked to a module.

Variables

- Same as using variables in programming languages
Ex: - hosts : <your hosts>
- tomcat_port : 8080
- Here tomcat_port is assigned to 8080
- Keywords used:
 - **Block-** ansible syntax to execute a block
 - **Name-** name of the block
 - **Action-** the code that is to be executed
 - **Register-** registers the output
 - **Always-** states that below word will be run
 - **Msg-** displays the message

- Exception handling:
- Similar to any other programming language
- Keywords : rescue and always
- The code is written in block
- It goes to the rescue phase and gets executed if the command in the block fails.
- Thereby block is the same as "try block ", catch block is like " rescue" and always performs the same function as we know.

