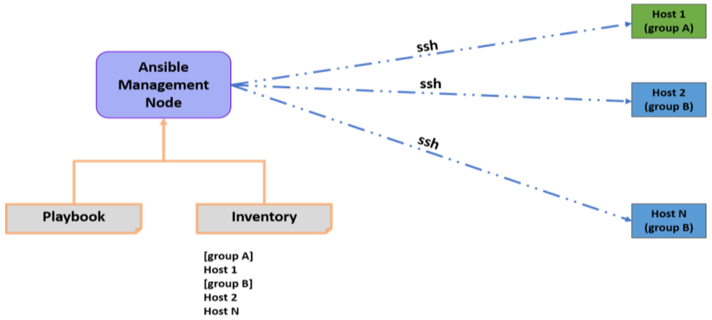
ANSIBLE CHEAT SHEET

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, yumpkg, 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 hostngroup 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
Transfering 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=httpd-1.8 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 YAMl 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.