2 Ways ansible can
1) adhoc commands
2) playbooks

adhoc commands

Important modules in ansible
1) command - This module is used for executing basic linux commands on managed nodes.
2) shell - This module is used to execute commands which involved redirection and piping and to execute shell scripts on managed nodes.
3) ping -- This module is used to check if the remote server is pingable or not.
4) user -- This module is used for user management like create user, setting password, assign home directory etc

5) copy -- This module is used to copy the files and folders from controller to managed nodes

6) fetch -- This module is used to copy files and folder from managed nodes to controller

7) file -- This module is used for creating or deleting files and folders on managed nodes.

8) stat -- Used to capture detailed information about files and folders present in managed nodes.

9) debug -- Used to display output of any module

10) apt   -- Used for performing package management on managed nodes ie installing softwares / upgrading repositories etc . It works on

ubuntu, debain flavours of linux.

11) yum -- similar to apt module. It works on Red hat linux, centos etc

12) git -- used to perform git version controlling on managed nodes

13) replace -- This is used to replace specific text in configuration file with some other text.

14) service -- used for starting / stoping / restarting services on managed nodes.

15) include -- Used for calling child play books from parent play book

16) uri   -- useful in checking if remote url is reachable or not.

17) docker_container -- used to execute docker commands related to container management on managed nodes

18) docker_image -- used to execute commands related to docker images on managed nodes.

19) docker_login -- used to login to docker hub from managed nodes.

20) setup   -- used to capturing system information related to the managed nodes.

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```
$ ansible all -i /etc/ansible/hosts -m command -a 'free'
```

```
$ ansible all -i /etc/ansible/hosts -m command -a 'touch file1'
```

To check the file which is created

```
$ ssh 172.31.10.243    ( this command will go that machine  )
$  ls
$  exit    ( to come back to controller )
```

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To install docker in all managed nodes

```
$ ansible all -i /etc/ansible/hosts
-m shell -a 'curl  -fsSL
https://get.docker.com  -o
get-docker.sh'

$ ansible all -i /etc/ansible/hosts
-m shell -a 'sh get-docker.sh'
```

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To check docker is installed or not

```
$ ssh 172.31.10.243
$ docker  --version
$  exit  (  to come back to
controller )
```

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Notes:

Ansible performs remote configurations in 2 ways
1) using adhoc commands
2) using play books

Syntx of adhoc commands

```
$ ansible  all/group_name/ipaddress
-i  path_of_inventory_file -m
modulename  -a  'arguments'
```

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Ansible command module to check the memory info on all managed nodes

```
$ ansible all -i /etc/ansible/hosts
-m command -a 'free'
```

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To open the default inventory file

```
$ sudo vim  /etc/ansible/hosts
```

(Observation: 3 ip address are available)

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Now, I copy the first two IP address
(in a new notepad file)
quit the inventory file

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Create my own inventory file

```
$ vim  myinventory
```

go to insert mode

paste two ip address
save and quit

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To check the inventory file

```
$ cat myinventory
```

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```
$ ansible all -i myinventory -m
```

```
command -a 'free'
```

Observation: free command works on only two machines

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If you do not mention the inventory file, it takes default inventory file.

ex:

```
$ ansible all  -m command -a 'free'
```

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command module is the default module in ansible

```
$ ansible all  -a 'free'
```

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Note:
The defualt inventory file is /etc/ansible/hosts and when using this inventory file, we need not use -i option.
ex:

```
$ ansible all  -m command -a 'free'
```

The default module is module. When using command module we need not use -m option
ex:

```
$ ansible all  -a 'free'
```

Shell Module

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ansible command to execute ls -la and store the output into file1 on all the managed nodes.

```
$ ansible  all  -m  shell -a 'ls -la
> file2'
```

To check the file which is created

```
$ ssh 172.31.10.243
$ ls
$ exit   ( to come back to
controller )
```

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command to install docker on all managed nodes

```
$ ansible all  -m shell -a 'curl
-fsSL  https://get.docker.com  -o
get-docker.sh'
```

```
$ ansible all -m shell -a 'sh
```

get-docker.sh'

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User Module:
(From controller)
To create new user

```
$ sudo  useradd sai
$ vim /etc/passwd     (  User will be created in this file )
```

To set the password

```
$ sudo passwd  sai      ( sai is the username)
```

All users information is present in passwd file.

```
$ cd /etc
ls
```

```
$ vim  /etc/passwd
```

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Now, i want to create user in all managed nodes

```
$ ansible  all -m user  -a
'name=kiran  password=welcome'
```

(we ger error : permission denied)

```
$ ansible  all -m user  -a
'name=kiran  password=welcome'  -b
```

(become , for higher privileges on managed nodes)

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To check if user is create or not

```
$  ssh 172.31.7.62
$ vim  /etc/passwd
$  exit
```

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Command to create user and set home directory, user id, default working shell etc

Another example

```
$ ansible all -m user  -a 'name=Ravi
password=freefree uid=1234
comment="A regular user"
home=/home/ubuntu/Ravi
shell=/bin/bash' -b
```

To check for the new user

```
$  ssh 172.31.4.54
$ vim  /etc/passwd
```

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Install git in all managed nodes

```
$ ansible all -m apt  -a 'name=git
state=present' -b
```

Observation:
We get "changed": false
(That means git is already installed on it. The command has no effect in the nodes)

Now , run the below command

```
$ ansible all -m apt  -a 'name=git
state=absent' -b
```

(absent means - uninstall)

output, we get in yellow color
(scroll up) we get
"changed":true
(The command is effected the instance)

Now if we run the below command (with present option)

```
$ ansible all -m apt  -a 'name=git state=present' -b
```

we get "changed":true

Notes:
apt module -- This is used for package management.

```
1)  ansible all -m apt  -a 'name=git
 state=present' -b
```

state=present is for installation
state=latest for upgradation

state=absent   for uninstallation

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I wan to update apt-repositoty and install tomcat8

```
ansible all -m  apt -a 'name=tomcat8 state=present  update_cache=yes' -b
```

The above command will update apt repository and install tomcat8
To update apt-repository on managed nodes update_cache=yes is used

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File module

This is used to create files and folder on managed nodes

```
  ansible all  -m  file -a
'name=/tmp/file5  state=touch'
```

To check the file which is create

```
$ ssh 172.31.3.106
$ cd  /tmp
$ ls
$ exit
```

TO create a directory

```
   ansible all  -m  file -a
'name=/tmp/dir1  state=directory'
```

To check the directory

```
$  ssh 172.31.39.33
$ cd  /tmp
$ ls
$ exit
```

To delete the file

```
ansible all  -m  file -a
'name=/tmp/file5  state=absent'
```

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Notes:

Command to create a file on all managed nodes

```
ansible all  -m  file -a
'name=/tmp/file1  state=touch'
```

state=touch   is to create files
state=directory is to create directory
state=absent is for deleting file/directory

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Now,

To know the current user

```
$ whoami
$  ansible all  -m  file -a
'name=file1  state=touch'
```

Now go to managed nodes and check the permission of the file

```
$ ssh 172.31.3.106
$ ls -l file1
```

Observe the permissions are rw-rw-r--

Now, I want to change the permissions from controller

```
$ exit   ( will come back to controller )
```

```
$  ansible all  -m  file -a 'name=file1  state=touch owner=Anu group=Ravi  mode=700'  -b
```

The above command will execute only if Anu user and Ravi group is available in all nodes.

Notes:
File module can be used to change the ownership, group ownership and permissions on the file.

Copy Module

This is used for copying the files from controller into managed nodes.

We know in the file /etc/passwd we have all the information about users

Now I want to copy the file into all nodes

```
$ ansible all -m  copy  -a
'src=/etc/passwd     dest=/tmp'
```

To check the file which is copies

```
$ ssh 172.31.3.106
$ cd /tmp
$ ls
$ exit
```

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