Aim -

1. **Using Terraform** - Master node is created based on master node list .
2. **Using Terraform - Multiple Worker** nodes are ceated as dependent on master node .
3. **Using Terraform - null resource** is creatd to start script execution.

Using Script -

1. Set up master node for ssh .
2. Download Ansible on Master
3. Loop through Worker node.
4. Set up worker node for ssh .
5. update /etc/hosts of Master & Worker
6. update ansible /etc/ansible/hosts of Master & Worker
7. Execute Ansible playbook.

==========

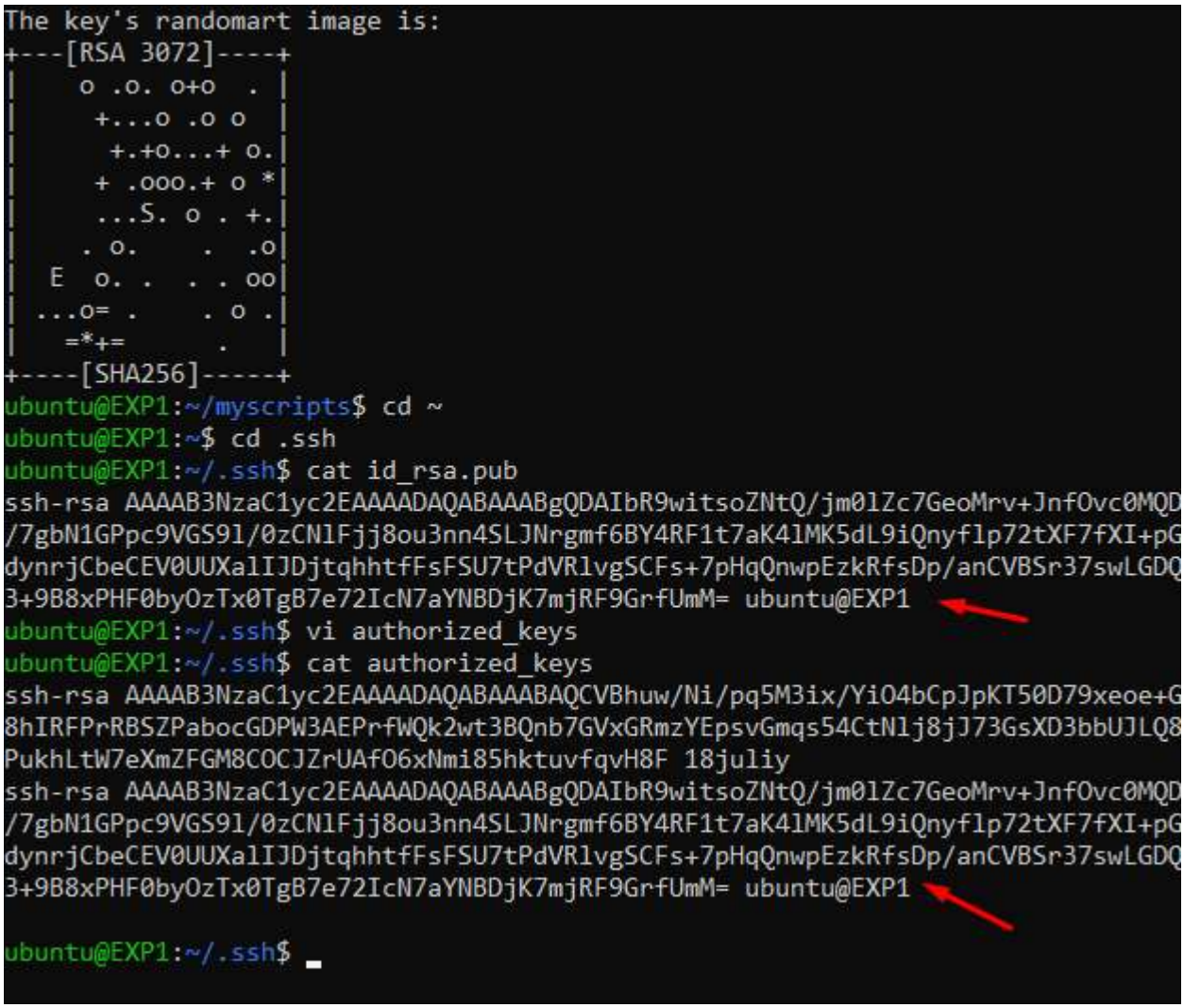
Teraform script -

To create Master and Worker nodes

Invoke shell scripts .

Install configuatio in Master and Worker nodes.

==========


The key's randomart image is:
+---[RSA 3072]----+
| o .o. o+o . |
| +...o .o o |
| +.+o...+ o.|
| + .ooo.+ o *|
| ...S. o . +.|
| . o.   . .o|
| E o. . . . oo|
| ...o= .   . o .|
| =*+=   . |
+----[SHA256]-----+
ubuntu@EXP1:~/myscripts$ cd ~
ubuntu@EXP1:~$ cd .ssh
ubuntu@EXP1:~/.ssh$ cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDAIbR9witsoZNtQ/jm0lZc7GeoMrv+JnfOvc0MQD
/7gbN1GPpc9VGS9l/0zCNlFjj8ou3nn4SLJNrgmf6BY4RF1t7aK4lMK5dL9iQnyflp72tXF7fXI+pG
dynrjCbeCEV0UUXalIJDjtqhhtfFsFSU7tPdVRlvgSCFs+7pHqQnwpEzkRfsDp/anCVBSr37swLGDQ
3+9B8xPHF0byOzTx0TgB7e72IcN7aYNBDjK7mjRF9GrfUmM= ubuntu@EXP1
ubuntu@EXP1:~/.ssh$ vi authorized_keys
ubuntu@EXP1:~/.ssh$ cat authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCVBhuw/Ni/pq5M3ix/YiO4bCpJpKT50D79xeoe+G
8hIRFPrRBSZPabocGDPW3AEPrfWQk2wt3BQnb7GVxGRmzYEpsvGmqs54CtNlj8jJ73GsXD3bbUJLQ8
PukhLtW7eXmZFGM8COCJZrUAfO6xNmi85hktuvfqvH8F 18juliy
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDAIbR9witsoZNtQ/jm0lZc7GeoMrv+JnfOvc0MQD
/7gbN1GPpc9VGS9l/0zCNlFjj8ou3nn4SLJNrgmf6BY4RF1t7aK4lMK5dL9iQnyflp72tXF7fXI+pG
dynrjCbeCEV0UUXalIJDjtqhhtfFsFSU7tPdVRlvgSCFs+7pHqQnwpEzkRfsDp/anCVBSr37swLGDQ
3+9B8xPHF0byOzTx0TgB7e72IcN7aYNBDjK7mjRF9GrfUmM= ubuntu@EXP1
ubuntu@EXP1:~/.ssh$


ubuntu@EXP1:~/mytf$
ubuntu@EXP1:~/mytf$ terraform destroy


ubuntu@EXP1:~/mytf$
ubuntu@EXP1:~/mytf$ terraform apply

```
# null_resource.health_check will be created
+ resource "null_resource" "health_check" {
    + id = (known after apply)
  }

# time_sleep.wait_10_seconds will be created
+ resource "time_sleep" "wait_10_seconds" {
    + create_duration = "10s"
    + id              = (known after apply)
  }
```

1 Master

2 Worker - 0

3 Worker -1

4 null_resource

```
185
186 ####=======================Master Start=====================
187
188
189 resource "aws_instance" "ansibleM" {
190 count = 1
191  ami = lookup(var.ec2_ami,var.region)
192  instance_type = "t2.micro"
193
194  #key_name = var.key_name
195  key_name = aws_key_pair.my_blog_keyM.key_name
196
197  security_groups =["instance_sg"]
198  tags = { Name = "Ansible-Master-${count.index}" }
199  #associate_public_ip_address = true
200
201
```

```
provisioner "local-exec" {
        command = <<EOF
          echo "Inside master node......."


          rm ~/myscripts/masternode
          rm   ~/myscripts/iplist

          touch     ~/myscripts/masternode
          chmod 0777 ~/myscripts/masternode

          touch     ~/myscripts/iplist
          chmod 0777 ~/myscripts/iplist

          echo "========================"
          echo " Master - public_ip : ${self.public_ip} "

          echo "========================"

          echo "${self.public_ip}"   | sudo -S tee -a ~/myscripts/masternode

           echo "========================"
          echo "After masternode"
          cat ~/myscripts/masternode

           echo " Done master node......."
"
```

```
260
261 ####=========================Worker Start============================
262
263 resource "aws_instance" "ansibleW" {
264 count = 2
265  ami = lookup(var.ec2_ami,var.region)
266  instance_type = "t2.micro"
267  #key_name = var.key_name
268  key_name = aws_key_pair.my_blog_keyM.key_name
269  #key_name = aws_key_pair.kpW.key_name
270  security_groups =["instance_sgW"]
271  associate_public_ip_address = true
272  tags = { Name = "Ansible-Worker-${count.index}" }
273
274  depends_on = [aws_instance.ansibleM]
275
276  connection {
```

```
provisioner "local-exec" {

    command = <<EOF
          echo "Inside worker node......."
          sleep 10

          echo "========================"
          echo "Before - iplist"
          cat ~/myscripts/iplist

          echo "========================"
          echo " Worker - public_ip : ${self.public_ip} "

          echo "========================"

          echo "${self.public_ip}"   | sudo -S tee -a ~/myscripts/iplist

          echo "After - iplist"
          cat ~/myscripts/iplist

           echo " Done worker node......."


    EOF
```

==========

```
resource "null_resource" "health_check" {

  ########################################
  depends_on = [aws_instance.ansibleM , aws_instance.ansibleW]
  ########################################

  provisioner "local-exec" {


      command = <<EOF
    cat id_rsa
     sleep 10
     echo  "============================Null resource  Begin ==================="
```

```
rm  ~/myscripts/ansiconf
touch  ~/myscripts/ansiconf

 echo "============="
echo "[web]" >>  ~/myscripts/ansiconf
cat  ~/myscripts/masternode >>  ~/myscripts/ansiconf

echo "[app]" >>  ~/myscripts/ansiconf
cat ~/myscripts/iplist >>  ~/myscripts/ansiconf

 echo "============="
cat ~/myscripts/ansiconf
 echo "============="


 cp ~/mytf/my_tf_keyW.pem  ~/myscripts/
 cp ~/mytf/my_tf_keyP.pem  ~/myscripts/

echo "====Execution start of shell script ========="

/bin/bash   ssh_ubuntu_t.sh  ~/myscripts/id_rsa    masternode

echo  "============================Null resource  End ==================="
```

```
echo   "============ 12 End of .tf file ============="

cat   ~/myscripts/masternode
cat   ~/myscripts/iplist
cmd1=''
 cmd1='/bin/bash ~/myscripts/ssh_ubuntu_m.sh '
 cmd1+=$pemfile
 cmd1+='  ~/myscripts/iplist'

  echo    $cmd1
  echo     $mnip

  /bin/bash doexec.sh $mnip $pemfile  "$cmd1"
echo   "============ 12 End of .tf file ============="


 cat   ~/myscripts/iplist
```

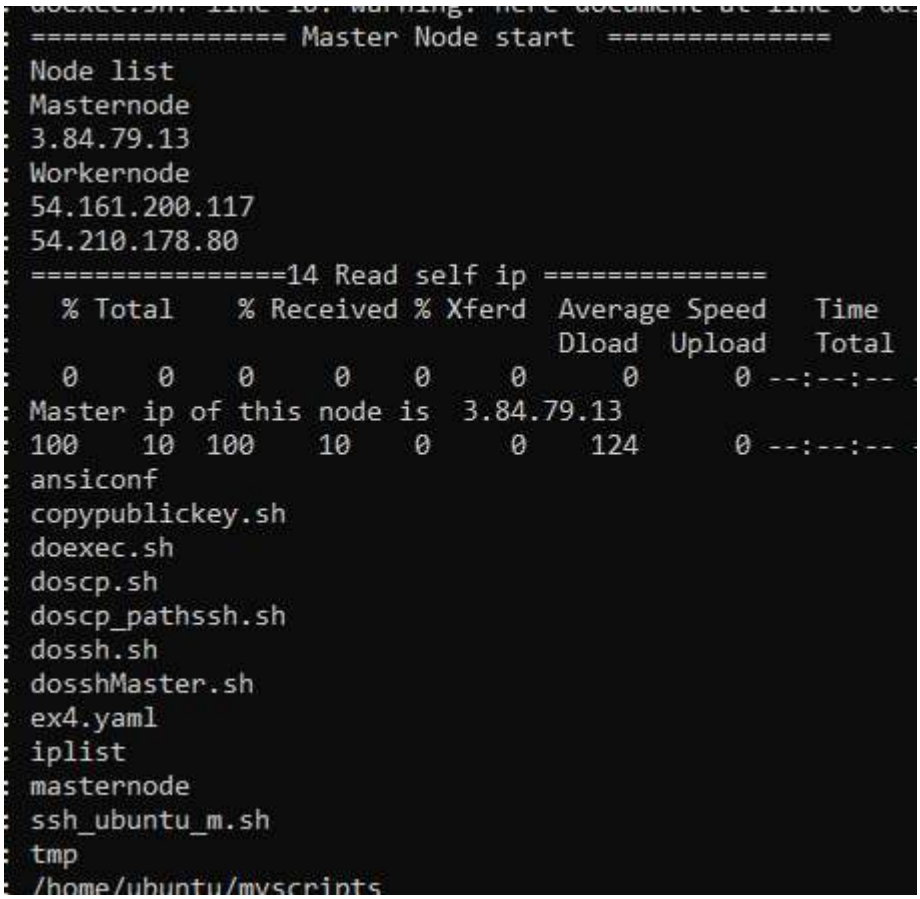
```
): Inside master node.......
): ========================
):  Master - public_ip : 3.84.79.13
): ========================
): 3.84.79.13
): ========================
): After masternode
): 3.84.79.13
):  Done master node.......
omplete after 42s [id=i-0e56932e68a86f010]
.
```

```
ec): Inside worker node.......
eating... [50s elapsed]
ec): ========================
ec): Before - iplist
ec): 54.161.200.117
ec): ========================
ec):  Worker - public_ip : 54.210.178.80
ec): ========================
ec): 54.210.178.80
ec): After - iplist
ec): 54.161.200.117
ec): 54.210.178.80
ec):  Done worker node.......
 complete after 52s [id=i-0b682eaa8633cc7cb]
```

```
: ubuntu@ip-172-31-82-221:~/myscripts$ exit
:
: logout
: Connection to 3.84.79.13 closed.
: 7.2
: ============7.2 Master : do sshkeygen . update authorized_keys . ==========
: 3.84.79.13
: pemfilename=  /home/ubuntu/myscripts/id_rsa
: dosshMaster.sh: line 24: warning: here-document at line 9 delimited by end-of
ing... [40s elapsed]
```

```
): ubuntu@ip-172-31-82-221:~/.ssh$
):
):
): ubuntu@ip-172-31-82-221:~/.ssh$ ssh-keygen -q -t rsa -N '' -f ~/.ssh/id_rsa <<<y >/dev/null 2>&1
):
ting... [50s elapsed]
```

```
xec): =================15 Install Ansible============
xec): Master ip of this node is  3.84.79.13 3.84.79.13
reating... [1m40s elapsed]
xec): Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
xec): Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]
xec): Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]
xec): Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
```


doexec.sh: line 10: warning: here-document at line 0 de
================ Master Node start ==============
Node list
Masternode
3.84.79.13
Workernode
54.161.200.117
54.210.178.80
================14 Read self ip ==============
  % Total   % Received % Xferd Average Speed   Time
                                 Dload Upload   Total
  0   0   0   0   0   0   0   0 --:--:--
Master ip of this node is 3.84.79.13
100   10 100   10   0   0   124   0 --:--:--
ansiconf
copypublickey.sh
doexec.sh
doscp.sh
doscp_pathssh.sh
dossh.sh
dosshMaster.sh
ex4.yaml
iplist
masternode
ssh_ubuntu_m.sh
tmp
/home/ubuntu/myscripts

```
: -----END OPENSSH PRIVATE KEY-----
ing... [10s elapsed]
: ==============================Null resource  Begin ====================
: =============
: 3.84.79.13
: =============
: 54.161.200.117
: 54.210.178.80
: =============
: -----BEGIN OPENSSH PRIVATE KEY-----
: b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAABAAABlwAAAAdzc2gtcn
: NhAAAAAwEAAQAAAYEA7oL1e9P3wHQ/VQEh6pc/tB9/ZAMfMSTeQS9mz0WAeHae/a23KEq7
: rPuMOu9M1tkKuLpYqLK+epv+58sqUf/E+Di9Ey7G9nSah7SLu2xqks3jeyfZM5b7YV8Vjm
: il+pr4tFCsLsj+C9qL0aoC1zitD3Qlp+LGxTwE6ok0ivVX65JvLqh3bugrMrjYC6LoQujH
```

```
: =============
: =============
: [web]
: 3.84.79.13
: [app]
: 54.161.200.117
: 54.210.178.80
: =============
```

```
=============7.1 Master :Make backup of authorized_keys ================
7.1
sudo scp -o StrictHostKeyChecking=no  -i /home/ubuntu/myscripts/id_rsa  /home/ubuntu/.ssh/authorized_keys  ubuntu@3.84.79.13:~

Warning: Permanently added '3.84.79.13' (ECDSA) to the list of known hosts.
3.84.79.13
```

```
ubuntu@ip-172-31-82-221:~$ mkdir -p  ~/myscripts

ubuntu@ip-172-31-82-221:~$ chmod 777 ~/myscripts

ubuntu@ip-172-31-82-221:~$

ubuntu@ip-172-31-82-221:~$ cd ~/myscripts

ubuntu@ip-172-31-82-221:~/myscripts$ mkdir -p   tmp

ubuntu@ip-172-31-82-221:~/myscripts$ chmod 777 tmp

ubuntu@ip-172-31-82-221:~/myscripts$

ubuntu@ip-172-31-82-221:~/myscripts$ exit

logout
Connection to 3.84.79.13 closed.
7.2
```

```
cat  ~/.ssh/id_rsa.pub | sudo -S tee -a ~/.ssh/authorized_keys
cat ~/.ssh/authorized_keys
cd ~/myscripts
exit
Welcome to Ubuntu 22.04 LTS (GNU/Linux 5.15.0-1011-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage
```

```
Connection to 44.204.68.64 closed.
====================21.6=====================================
---
- hosts: web
  become: true
  tasks:
  - name: Install Package
    apt: name=apache2 state=present
  - name: Start apache2 service
    service: name=apache2 state=started
ansible-playbook ~/myscripts/ex3.yaml

PLAY [web] *********************************************************************

TASK [Gathering Facts] *********************************************************
ok: [44.204.68.64]

TASK [Install Package] *********************************************************
changed: [44.204.68.64]

TASK [Start apache2 service] ***************************************************
ok: [44.204.68.64]

PLAY RECAP *********************************************************************
44.204.68.64               : ok=3    changed=1    unreachable=0    failed=0    skipped=0

- hosts: web
```

```
- hosts: web
  become: true
  tasks:
  - name: Create a file
    file: path=/var/www/html/index.html state=touch
  - name: Append file
    lineinfile:
     path: /var/www/html/index.html
     line: 'Hello World'
     owner: ubuntu
     group: ubuntu
     mode: '0777'
ansible-playbook ~/myscripts/ex4.yaml

PLAY [web] *********************************************************************

TASK [Gathering Facts] *********************************************************
ok: [44.204.68.64]

TASK [Create a file] ***********************************************************
changed: [44.204.68.64]

TASK [Append file] *************************************************************
changed: [44.204.68.64]

PLAY RECAP *********************************************************************
44.204.68.64               : ok=3    changed=2    unreachable=0    failed=0    skippe

================22  End of iplist file ============
Connection to 44.204.68.64 closed.
============ 12 End of .tf file =============
3.86.35.41
44.205.244.129
ubuntu@EXP1:~/myscripts$
```

==========

TFNode node contain Terraform script.

It create Master node and Worker nodes .

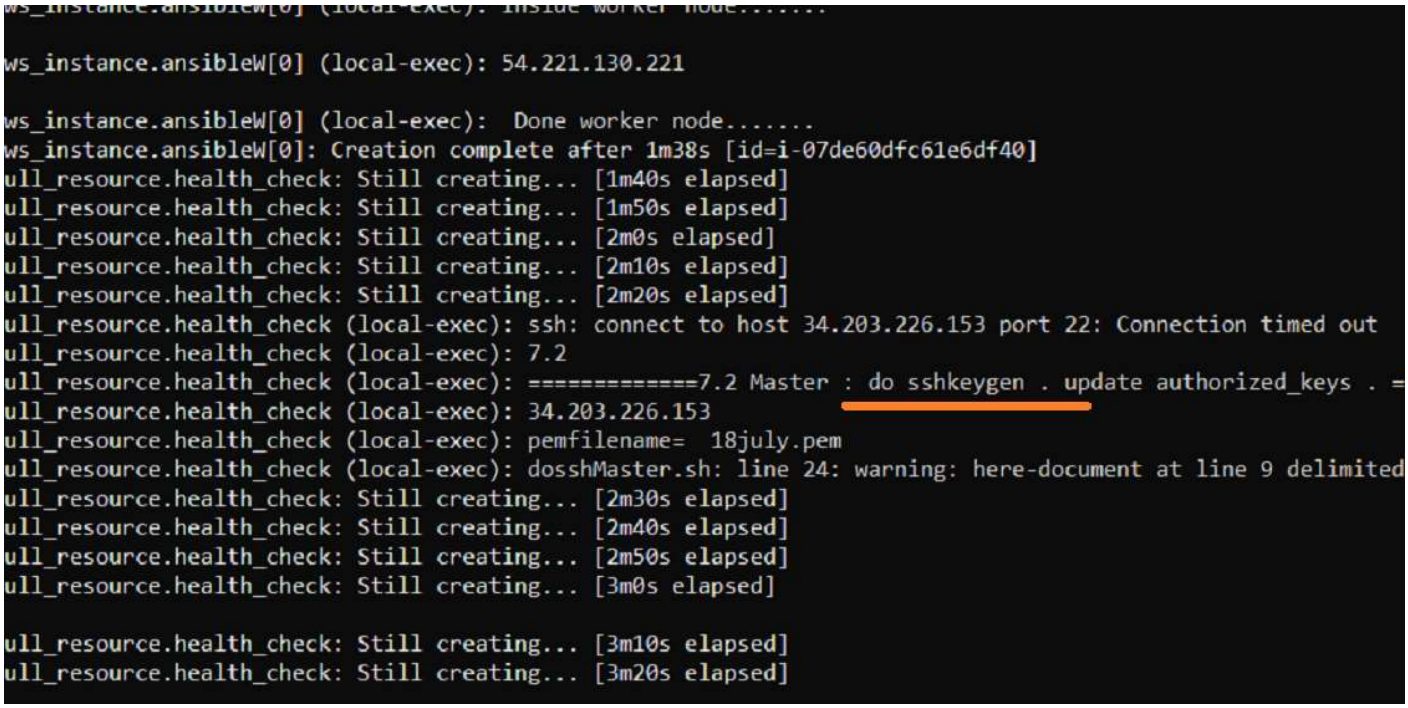
Name	Public DNS (IPv4)	IPv4 Public IP	Instance State
Ansible-Master-0	ec2-3-86-111-231.comp...	3.86.111.231	running
Ansible-Worker-0	ec2-54-167-50-8.comp...	54.167.50.8	running
TFNode	ec2-54-152-237-223.co...	54.152.237.223	running
Ansible-Worker-1	ec2-54-236-218-77.co...	54.236.218.77	running

```
aws_instance.ansibleM[0] (local-exec): Inside master node.......
aws_instance.ansibleM[0] (local-exec): ========================
aws_instance.ansibleM[0] (local-exec):  Master - public_ip : 3.86.111.231
aws_instance.ansibleM[0] (local-exec): ========================
aws_instance.ansibleM[0] (local-exec): 3.86.111.231
aws_instance.ansibleM[0] (local-exec): ========================
aws_instance.ansibleM[0] (local-exec): After masternode
aws_instance.ansibleM[0] (local-exec): 3.86.111.231
aws_instance.ansibleM[0] (local-exec):  Done master node.......
aws_instance.ansibleM[0]: Creation complete after 32s [id=i-05495eed3a18f685d]
```

```
aws_instance.ansibleW[0] (local-exec): ========================
aws_instance.ansibleW[0] (local-exec):  Worker - public_ip : 54.167.50.8
aws_instance.ansibleW[0] (local-exec): ========================
aws_instance.ansibleW[0] (local-exec): 54.167.50.8
aws_instance.ansibleW[0] (local-exec): After - iplist
aws_instance.ansibleW[0] (local-exec): 54.167.50.8
aws_instance.ansibleW[0] (local-exec):  Done worker node.......
aws_instance.ansibleW[0]: Creation complete after 51s [id=i-097340d9de4449238]
aws_instance.ansibleW[1] (local-exec): ========================
aws_instance.ansibleW[1] (local-exec): Before - iplist
aws_instance.ansibleW[1] (local-exec): 54.167.50.8
aws_instance.ansibleW[1] (local-exec): ========================
aws_instance.ansibleW[1] (local-exec):  Worker - public_ip : 54.236.218.77
aws_instance.ansibleW[1] (local-exec): ========================
aws_instance.ansibleW[1] (local-exec): 54.236.218.77
aws_instance.ansibleW[1] (local-exec): After - iplist
aws_instance.ansibleW[1] (local-exec): 54.167.50.8
aws_instance.ansibleW[1] (local-exec): 54.236.218.77
aws_instance.ansibleW[1] (local-exec):  Done worker node.......
```

```
null_resource.health_check (local-exec): ============================Null resource  Begin ==================
null_resource.health_check (local-exec): =============
null_resource.health_check (local-exec): 3.86.111.231
null_resource.health_check (local-exec): =============
null_resource.health_check (local-exec): 54.167.50.8
null_resource.health_check (local-exec): 54.236.218.77
null_resource.health_check (local-exec): =============
null_resource.health_check (local-exec): -----BEGIN OPENSSH PRIVATE KEY-----
null_resource.health_check (local-exec): b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAABAAABlwAAAAdzc2gtcn
null_resource.health_check (local-exec): NhAAAAAwEAAQAAAYEAqAYJ8rA/c8ZgGHBHJge9v0KA2ce6Y5kwZjmyoBfJwF2oRu98urjC
```


null_resource.health_check (local-exec): ====Execution start of shell script =========
null_resource.health_check (local-exec): ==============T-node start ===============
null_resource.health_check (local-exec): ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQCoBgnysD9zxmAYcEcmB7
2/QoDZx7pjmTBmObKgF8nAXahG73y6uMIrFWO1jlmmdIVcT1exWvkojhDcLB7J/XmOglN7Q3Vb30npfyPWvJZtM57a/sYAofq9x
RwesQuoX3AVcwONHa4KG7MfU2Y9Ve8xAc6OR059DfY97NhAZ/6/wgZkUwg39WST8QaG/ZeinCZCSgJakrW3CRK/zpWCiS0Sh1xn
LqzL4m48bD0+qcSkThCMms1qBVGFB79ycGbRC30oZpx1s8tcWqi/LkHN2HucpbNRO2jc1uAinpByr59+y72PjilQHW9ZefAHbcQ
8rY8+3c8KKgk2o8a9nwYTC4kiFyMZ0FTPgq+Nyi8B0asmeW0Wv7bDV0JNmfSjesJ1YF/KISB+EjW2oc5+qqyxX/t6l60QAarXx5
yYVQcV/CEQO4+l/X5rpN7Kvx3pdK2OXWoXhWxxRbZ7RI8XFVE56bWT9BK5j5EcnBoL+2zQvCCQYiExw05B6cCRmdQynNvGno0=
ubuntu@EXP1
null_resource.health_check (local-exec): ==============1 Read authorized_keys==============
null_resource.health_check (local-exec): ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCVBhuw/Ni/pq5M3ix/Yi
O4bCpJpKT50D79xeoe+GZnXsQMmHJrHaLLVf1D5canoM5XtUEC0A0avSQItGpIVLHf8kZrRMvhRKBvAJOn2fSOlWRvEXUa9UIKh
mQKJgJMnMDZ8hIRFPrRBSZPabocGDPW3AEPrfWQk2wt3BQnb7GVxGRmzYEpsvGmqs54CtNlj8jJ73GsXD3bbUJLQ8ureGsykb5M
+eEcrIgBVDhUI/5U+9AKbhehS0fgE0/AV57uapBhXt1RfX3qRR4VvBK/RVQ8j+3MywDiNSYLUH20aMXxPukhLtW7eXmZFGM8COC
JZrUAfO6xNmi85hktuvfqvH8F 18july
null_resource.health_check (local-exec): ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQCoBgnysD9zxmAYcEcmB7
2/QoDZx7pjmTBmObKgF8nAXahG73y6uMIrFWO1jlmmdIVcT1exWvkojhDcLB7J/XmOglN7Q3Vb30npfyPWvJZtM57a/sYAofq9x
RwesQuoX3AVcwONHa4KG7MfU2Y9Ve8xAc6OR059DfY97NhAZ/6/wgZkUwg39WST8QaG/ZeinCZCSgJakrW3CRK/zpWCiS0Sh1xn
LqzL4m48bD0+qcSkThCMms1qBVGFB79ycGbRC30oZpx1s8tcWqi/LkHN2HucpbNRO2jc1uAinpByr59+y72PjilQHW9ZefAHbcQ
8rY8+3c8KKgk2o8a9nwYTC4kiFyMZ0FTPgq+Nyi8B0asmeW0Wv7bDV0JNmfSjesJ1YF/KISB+EjW2oc5+qqyxX/t6l60QAarXx5
yYVQcV/CEQO4+l/X5rpN7Kvx3pdK2OXWoXhWxxRbZ7RI8XFVE56bWT9BK5j5EcnBoL+2zQvCCQYiExw05B6cCRmdQynNvGno0=
ubuntu@EXP1


ws_instance.ansibleW[0] (local-exec): 54.221.130.221
ws_instance.ansibleW[0] (local-exec): Done worker node.......
ws_instance.ansibleW[0]: Creation complete after 1m38s [id=i-07de60dfc61e6df40]
ull_resource.health_check: Still creating... [1m40s elapsed]
ull_resource.health_check: Still creating... [1m50s elapsed]
ull_resource.health_check: Still creating... [2m0s elapsed]
ull_resource.health_check: Still creating... [2m10s elapsed]
ull_resource.health_check: Still creating... [2m20s elapsed]
ull_resource.health_check (local-exec): ssh: connect to host 34.203.226.153 port 22: Connection timed out
ull_resource.health_check (local-exec): 7.2
ull_resource.health_check (local-exec): ==========7.2 Master : do sshkeygen . update authorized_keys . =
ull_resource.health_check (local-exec): 34.203.226.153
ull_resource.health_check (local-exec): pemfilename= 18july.pem
ull_resource.health_check (local-exec): dosshMaster.sh: line 24: warning: here-document at line 9 delimited
ull_resource.health_check: Still creating... [2m30s elapsed]
ull_resource.health_check: Still creating... [2m40s elapsed]
ull_resource.health_check: Still creating... [2m50s elapsed]
ull_resource.health_check: Still creating... [3m0s elapsed]
ull_resource.health_check: Still creating... [3m10s elapsed]
ull_resource.health_check: Still creating... [3m20s elapsed]

```
ubuntu@EXP1:~/myscripts$ ssh -i "my_tf_keyM.pem" ubuntu@ec2-3-86-111-231.compute-1.amazonaws.com
Warning: Identity file my_tf_keyM.pem not accessible: No such file or directory.
The authenticity of host 'ec2-3-86-111-231.compute-1.amazonaws.com (172.31.95.54)' can't be establi
ECDSA key fingerprint is SHA256:CvEGV7WwAZsIH6Xzlean6U6ot5ybQTQ8YSQPZbXQIRM.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-86-111-231.compute-1.amazonaws.com,172.31.95.54' (ECDSA) to the l
Welcome to Ubuntu 22.04 LTS (GNU/Linux 5.15.0-1011-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage
```

```
null_resource.health_check (local-exec): echo 54.80.196.192 Worker2.example.com | sudo -S tee -a /etc/hosts
null_resource.health_check (local-exec): echo 54.80.196.192 Worker2.example.com | sudo -S tee -a /etc/hosts
null_resource.health_check (local-exec): ssh -o StrictHostKeyChecking=no  -i id_rsa  ubuntu@54.234.35.230 'echo
  | sudo -S tee -a /etc/hosts' <<EOF
null_resource.health_check (local-exec): doexec.sh: line 10: warning: here-document at line 8 delimited by end-o
null_resource.health_check (local-exec): 54.80.196.192 Worker2.example.com
null_resource.health_check (local-exec): Copying done at worker nodes.
null_resource.health_check (local-exec): ==============20  End of iplist file ============
null_resource.health_check (local-exec): ============ 12 End of .tf file ==============
null_resource.health_check (local-exec): 34.204.53.42
null_resource.health_check (local-exec): 54.80.196.192
null_resource.health_check (local-exec): ============================Null resource  End ====================
null_resource.health_check: Creation complete after 3m0s [id=4888554464124874900]
```

==========

Create a seperate **myscript folder** to keep our files .

Few other script files are also there

Comple collection of script -

Add .pem file file also in this folder.

==========

>>>>> /bin/bash **ssh_ubuntu_t.sh** **~/myscripts/18july.pem** **masternode**

Step 1] Terraform Node will set up masternode .

Step 2] Master node will install ansible and set up ansible config.

Ste 3] Master node will read iplist and set up Worker nodes.

Step 4] Master node will execute ansible playbook file on self as well as on Workers.

==========

Automated script Process flow

==========

/bin/bash **ssh_ubuntu_t.sh** **18july.pem** **masternode**

1.. Teraform node will read own id_rsa.pub file as well as authorize_key file

2. Detect self public ip

ssh to self ip (by using -i pem file stored in local dir)

```
==============2 Get self public ip==============
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100    13  100    13    0     0    236      0 --:--:-- --:--:-- --:--:--   240
==============3 dossh on self ip==============
52.201.222.93
pemfilename=  18july.pem
dossh.sh: line 18: warning: here-document at line 8 delimited by end-of-file (wan
Warning: Permanently added '52.201.222.93' (ED25519) to the list of known hosts.
```

3. If not exist , create required dir structre in self node .

```
cd ~
mkdir -p  ~/myscripts
chmod 777 ~/myscripts

cd ~/myscripts
mkdir -p   tmp
chmod 777 tmp

exit
```

5. Copy / update self public key using ssh-copy-id

```
==============4 copy .pub file on self==============
keyname =  18july.pem
sudo ssh-copy-id  -i /home/ubuntu/.ssh/id_rsa.pub  ubuntu@52.2
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed:
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new

/usr/bin/ssh-copy-id: WARNING: All keys were skipped because t
               (if you think this is a mistake, you may want
```

6. Keep ready few files to execute **ssh_ubuntu_m.sh** script on master node.

```
copypublickey.sh          100%  205    236.5KB/s   00:00
doscp.sh                  100%  292    298.5KB/s   00:00
dossh.sh                  100%  286    295.2KB/s   00:00
dosshMaster.sh            100%  471    543.7KB/s   00:00
dosshWorker.sh            100%  506    315.0KB/s   00:00
doscp_pathssh.sh          100%  268    310.8KB/s   00:00
doexec.sh                 100%  210    258.0KB/s   00:00
18july.pem-cpy.pem        100% 1675     1.5MB/s   00:00
18july.pem-cpy.pem        100% 1675     1.9MB/s   00:00
ssh_ubuntu_m.sh           100% 5043     5.1MB/s   00:00
iplist                    100%   26    30.0KB/s   00:00
masternode                100%   15    17.2KB/s   00:00
ansiconf                  100%   52    67.4KB/s   00:00
```

7. Create a copy of .pem file and it will **be used on master node .**

```
-r-------- 1 ubuntu ubuntu 1675 Jul 17 23:18 18july.pem
-rwxrwxrwx 1 root   root   1675 Jul 20 18:32 18july.pem-cpy.pem
Master node file name - masternode
```

8. Search master node. In Masternode , save copy of autorize_keys file of Terraform node .

```
Master node file name - masternode
==============7 Loop through master file ===============
7.1
44.202.164.221

==============7.1 Master :Make backup of authorized_keys ================
7.1
sudo scp -o StrictHostKeyChecking=no  -i ~/myscripts/18july.pem  /home/ubuntu/.ssh/authorized_keys  ubuntu@44.202.164.22
1:~/.ssh/authorized_keys_bkp1
```

9. In Masternode , prepare required directory structure

```
ubuntu@Master:~$
ubuntu@Master:~$ cd ~
ubuntu@Master:~$ mkdir -p  ~/myscripts
ubuntu@Master:~$ chmod 777 ~/myscripts
ubuntu@Master:~$
ubuntu@Master:~$ cd ~/myscripts
ubuntu@Master:~/myscripts$ mkdir -p   tmp
ubuntu@Master:~/myscripts$ chmod 777 tmp
ubuntu@Master:~/myscripts$
ubuntu@Master:~/myscripts$ exit
logout
```

10. Execute ssh-keygen on master node

Append own public key in own authorize_key file .

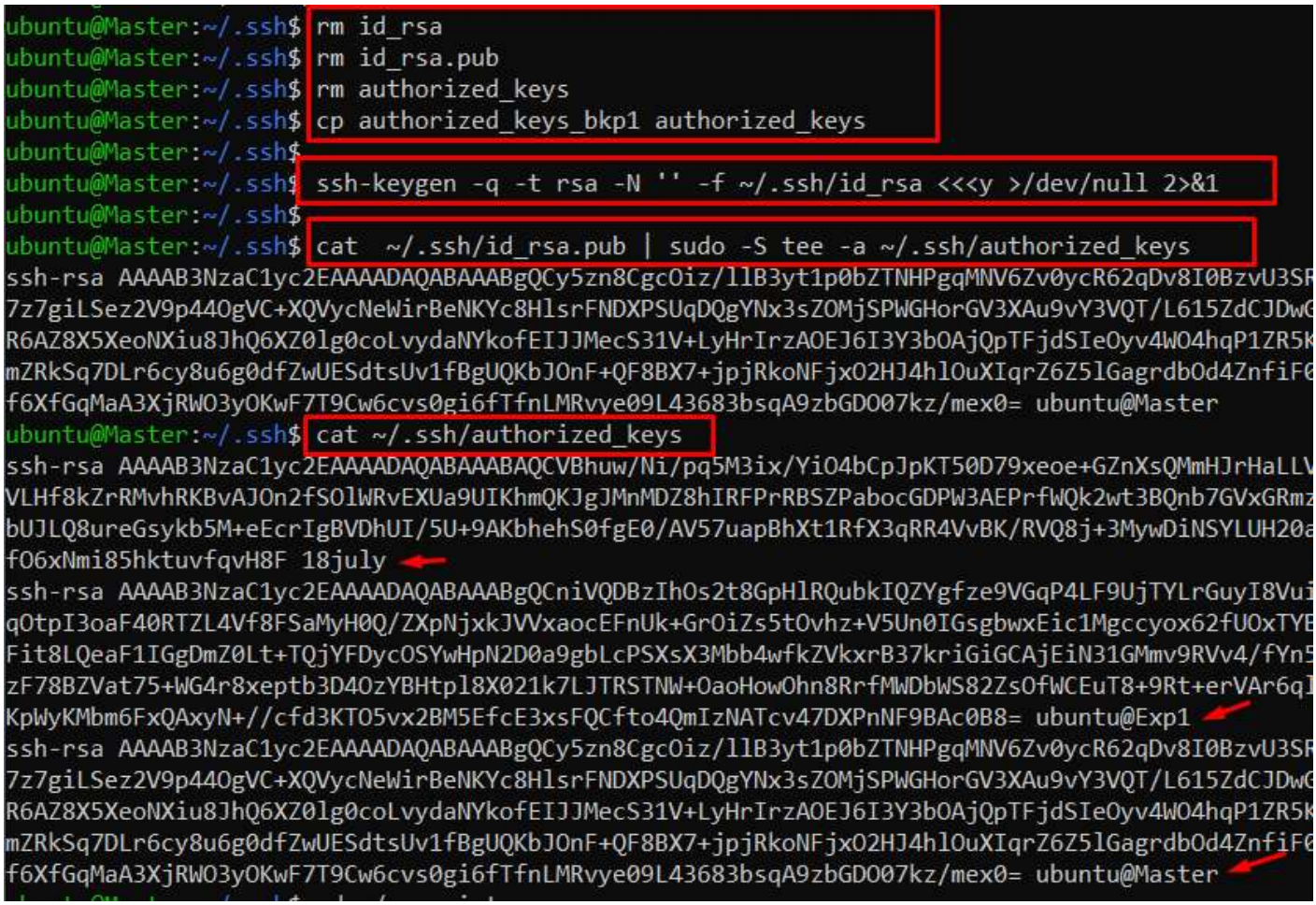
```
while read -r line; do
        echo   -e "$line\n"
        echo   "=============7.1 Master :Make backup of authorized_keys ================"

      echo "7.1"
           /bin/bash doscp_pathssh.sh $line $pemfile ~/.ssh/authorized_keys  .ssh/authorized_keys_bkp1
           /bin/bash dossh.sh $line ubuntu
         echo "7.2"
          echo   "=============7.2 Master : do sshkeygen . update authorized_keys . ================"
          /bin/bash dosshMaster.sh $line ubuntu

        echo   "==============7.3 Master : Change self host name ==============="
((i=i+1))
      sudo  ssh -i $pemfile -o StrictHostKeyChecking=no    ubuntu@$line   'sudo hostnamectl  set-hostname Master$i'
     /bin/bash doexec.sh $line  $pemfile 'cat /home/ubuntu/.ssh/authorized_keys'


   #ssh -i $pemfile  ubuntu@line  <<EOF
   /bin/bash doscp.sh $line  $pemfile  $pemfile-cpy.pem  $pemfile
```

```
=============7.2 Master : do sshkeygen . update authorized_keys . ==
44.202.164.221
pemfilename=  18july.pem
dosshMaster.sh: line 22: warning: here-document at line 9 delimited
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.15.0-1015-aws x86_64)
```



11. Master node - Change self host name

Change self .pem file chmo to 400

Remove unwanted .pem file

Move required required .sh files from Terraform node to Master node .

```
==============7.3 Master : Change self host name ================
cat /home/ubuntu/.ssh/authorized_keys
cat /home/ubuntu/.ssh/authorized_keys
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@44.202.164.221 'cat /home/ubuntu/.ssh/authorized_keys' <<EOF
```

```
==============7.4 Master : Change self .pem chmod to 400  ================
sudo chmod 0400 ~/t3/18july.pem
sudo chmod 0400 ~/t3/18july.pem
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@44.202.164.221 'sudo chmod 0400 ~/t3/18july.pem' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
```

```
==============7.3 remove  nwanted .pem file backup ================
-r-------- 1 ubuntu ubuntu 1675 Jul 17 23:18 18july.pem
```

```
============9 Master : Take backup of sh files from Terraform ==>  Master .==========
copypublickey.sh         100%  205   249.9KB/s   00:00
doscp.sh                 100%  292   318.4KB/s   00:00
dossh.sh                 100%  286   371.4KB/s   00:00
dosshMaster.sh           100%  471   602.3KB/s   00:00
dosshWorker.sh           100%  506   586.8KB/s   00:00
doscp_pathssh.sh         100%  268   326.0KB/s   00:00
doexec.sh                100%  210   263.0KB/s   00:00
iplist                   100%   26    31.4KB/s   00:00
masternode               100%   15    21.1KB/s   00:00
ansiconf                 100%   52    71.1KB/s   00:00
```

12. Switch to Master node .

Invoke the master script .

Master node script -

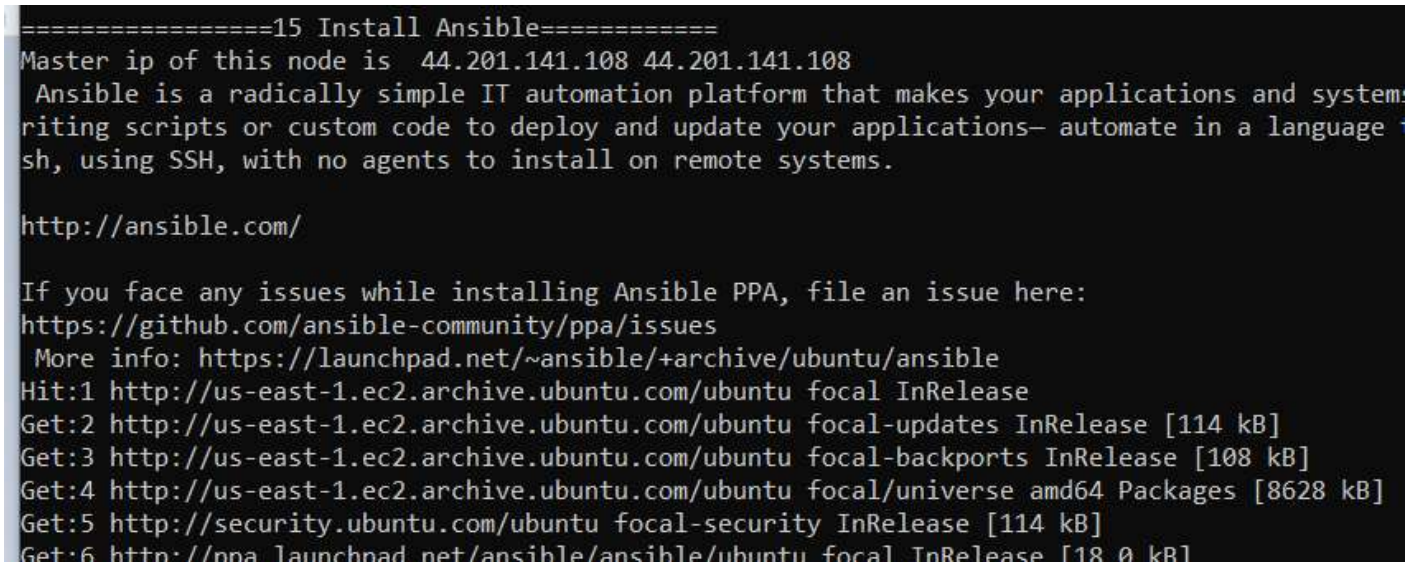
It will read all worker nodes by reading iplist file

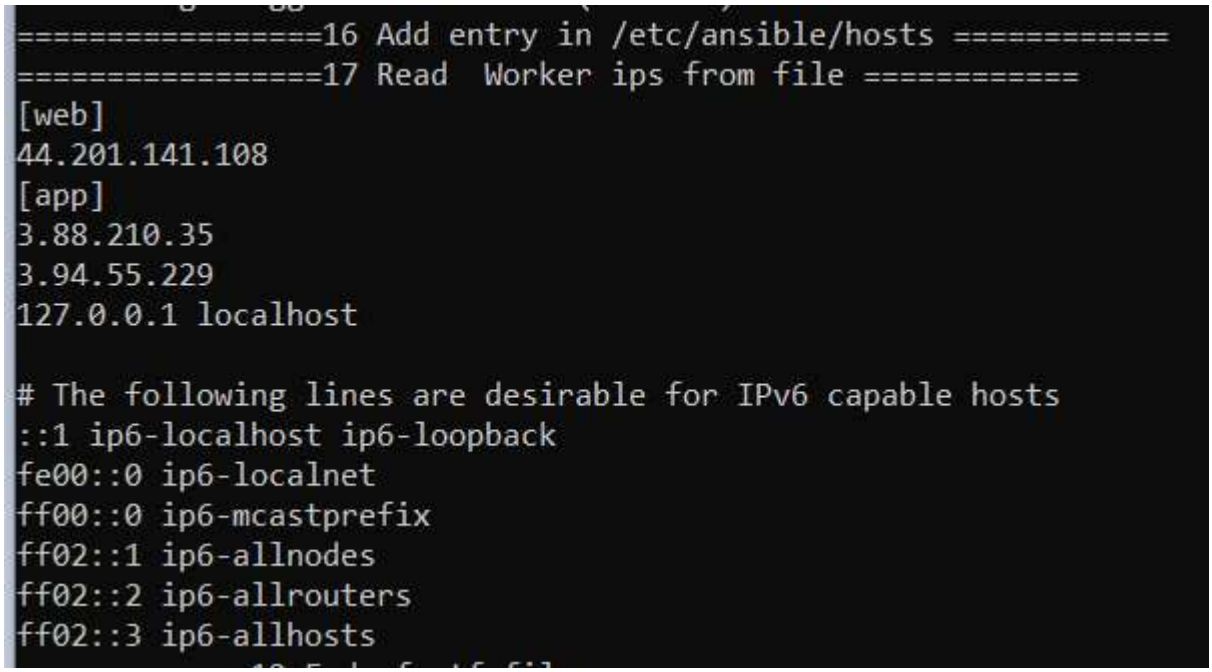
It will install ansible

Add ansible config file /etc/ansible/hosts

```
============ 12 End of .tf file =============
44.201.141.108
3.88.210.35
3.94.55.229
/bin/bash /home/ubuntu/myscripts/ssh_ubuntu_m.sh 18july.pem ~/myscripts/iplist
44.201.141.108
/bin/bash /home/ubuntu/myscripts/ssh_ubuntu_m.sh 18july.pem ~/myscripts/iplist
/bin/bash /home/ubuntu/myscripts/ssh_ubuntu_m.sh 18july.pem ~/myscripts/iplist
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@44.201.141.108 '/bin/bash
18july.pem  ~/myscripts/iplist' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wa
================ Master Node start  ==============
Node list
Masternode
44.201.141.108
Workernode
3.88.210.35
3.94.55.229
```

```
==============14 Read self ip ==============
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100    14  100    14    0     0    153      0 --:--:-- --:--:-- --:--:--   153
Master ip of this node is  44.201.141.108
Master ip of this node is  44.201.141.108
18july.pem
ansiconf
copypublickey.sh
doexec.sh
doscp.sh
doscp_pathssh.sh
dossh.sh
dosshMaster.sh
dosshWorker.sh
iplist
masternode
ssh_ubuntu_m.sh
tmp
/home/ubuntu/myscripts
keyname =  18july.pem
ip = 44.201.141.108
sudo ssh-copy-id  -i /home/ubuntu/.ssh/id_rsa.pub  ubuntu@44.201.141.108
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ubuntu/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that
```





==========

13 .

Test commands on master before applying on Worker nodes.

```
=============== 18 Test commands on master node ================
 sudo ssh -i ~/myscripts/18july.pem ubuntu@ 'sudo hostnamectl  set-hostname Master'
 sudo ssh -i ~/myscripts/18july.pem ubuntu@ 'sudo cat /etc/hostname'
Master
```

```
=================19.1 Copy Master's authorization file to Worker node 1 - 54.175.92.197 ============
sudo scp -o StrictHostKeyChecking=no  -i ~/myscripts/18july.pem  /home/ubuntu/.ssh/authorized_keys  ubun
tu@54.175.92.197:~/.ssh/authorized_keys_bkp1
54.175.92.197
pwd/home/ubuntu/myscripts
pemfilename=  18july.pem
```

Master is now able to copy authorization_keys **to Worker nodes in while loop.**

```
ubuntu@ip-172-31-93-213:~$
ubuntu@ip-172-31-93-213:~$ cd ~
ubuntu@ip-172-31-93-213:~$ mkdir -p  ~/myscripts
ubuntu@ip-172-31-93-213:~$ chmod 777 ~/myscripts
ubuntu@ip-172-31-93-213:~$
ubuntu@ip-172-31-93-213:~$ cd ~/myscripts
ubuntu@ip-172-31-93-213:~/myscripts$ mkdir -p   tmp
ubuntu@ip-172-31-93-213:~/myscripts$ chmod 777 tmp
ubuntu@ip-172-31-93-213:~/myscripts$
ubuntu@ip-172-31-93-213:~/myscripts$ exit
logout
Connection to 54.175.92.197 closed.
cat /home/ubuntu/.ssh/authorized_keys
cat /home/ubuntu/.ssh/authorized_keys
```

==========

Read Worker nodes from iplist file

append master public key in Worker's authorization_Key file

Set hostname of master

We can compare - original file and our Masters _bkp copied file .

.pem file section is identical in both of them.

_bkp file contain section of Master's .pub file.

```
echo   "================ 18 Worker node file name - $wfile ================"
while read -r linew; do
 echo  -e "$linew\n"
 ((i=i+1))

echo  "=================19.1 Copy Master's authorization file to Worker node $i - $linew ============"

   cat /home/ubuntu/.ssh/authorized_keys

  /bin/bash doscp_pathssh.sh $linew $pemfile "/home/ubuntu/.ssh/authorized_keys" ".ssh/authorized_keys_bkp1"
  /bin/bash dossh.sh $linew ubuntu
  /bin/bash doexec.sh $linew $pemfile 'cat /home/ubuntu/.ssh/authorized_keys'
 /bin/bash doexec.sh $linew $pemfile 'cat /home/ubuntu/.ssh/authorized_keys_bkp1'
  /bin/bash doexec.sh $linew $pemfile 'sudo cp .ssh/authorized_keys_bkp1   /home/ubuntu/.ssh/authorized_keys'
  /bin/bash doexec.sh $linew $pemfile 'cat /home/ubuntu/.ssh/authorized_keys'
  /bin/bash dossh.sh $linew ubuntu
  sudo ssh -i ~/myscripts/$pemfile  -o StrictHostKeyChecking=no  ubuntu@$linew </dev/null

  echo  "=================19 Set hostname of Worker node $i - $linew ============"
   echo "i = "
  /bin/bash doexec.sh $linew $pemfile "sudo hostnamectl  set-hostname Worker-${i}"
  /bin/bash doexec.sh $linew $pemfile 'cat /etc/hostname'
```

After copy in Worker node 1

```
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@54.175.92.197 'sudo cp .ssh/authorized_keys bkp1'  /home/ubuntu/.ssh/authorized_keys' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
cat /home/ubuntu/.ssh/authorized_keys
```

```
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@54.175.92.197 'cat /home/ubuntu/.ssh/authorized_keys' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCVBhuw/Ni/pq5M3ix/YiO4bCpJpKT50D79xeoe+GZnXsQMmHJrHaLLVf1D5canoM5XtUEC0A0avSQItGpIVLHf
XUa9UIKhmQKJgJMnMDZ8hIRFPrRBSZPabocGDPW3AEPrfWQk2wt3BQnb7GVxGRmzYEpsvGmqs54CtNlj8jJ3GsXD3bbUJLQ8ureGsykb5M+eEcrIgBVDhUI/5U+
1RfX3qRR4VvBK/RVQ8j+3MywDiNSYLUH20aMXxPukhLtW7eXmZFGM8COCJZrUAfO6xNmi85hktuvfqvH8F 18july
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQCniVQDBzIhOs2t8GpHlRQubkIQZYgfze9VGqP4LF9UjTYLrGuyI8VuiqKSbD0zA6FxTSRkFwsKKh3H1H01qOtp
XpNjxkJVVxaocEFnUk+GrOiZs5tOvhz+V5Un0IGsgbwxEic1Mgccyox62fUOxTYB532WQZG/HctN879n3hjvGET0I5iFit8LQeaF1IGgDmZ0Lt+TQjYFDycOSYwH
VkxrB37kriGiGCAjEiN31GMmv9RVv4/fYn5VpYJSAB8UH8XYC5RC9iGoLDTWsizF78BZVat75+WG4r8xeptb3D4OzYBHtp18X021k7LJTRSTNW+OaoHowOhn8Rrf
VAr6qlsPZQ9R2NuAa5EmxevrgSaJsfEowKpWyKMbm6FxQAxyN+//cfd3KTO5vx2BM5EfcE3xsFQCfto4QmIzNATcv47DXPnNF9BAc0B8= ubuntu@Exp1
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDfLSMBUzAtM7DhhjZpNod0jqhynyAO5nQQWHKt+Akdjml5fuuMnE5zxJRIhYzp5mo/dE9OL87E9QFuN18LNy0p
oFas0Y+LHFKtQvsh3qgn5TMJn8m+5hsthj+O3gSUZNHneePhK7Ie/Yv7lwYAeU2j/HyFZjwzriT9xOAwi9+6lEx2xQThc8QIgmZLipHvKNC2J139GBx/THzkXgKu
j5/h+GiaQFPazNPkTE4ETWjXcP/6+PsaYc0vMYl8hwt2BHVKDVQxqHwrwTequ5PLvNGVH9ENWxYZw6Iv25mCwXcFMnE0ayNwYc5XJYGVZSU3kRPRb6oKGBgkJPdR
1fJPfd4ZupZMOYWcd2NeST78tTN9eIHe8nWtmnO5Tnc8dp4Meg2AGhKEh74znxuXfUkQvN06HZQg9jpbhmYYT1fJwTuI3d0b/OUA6K+E= ubuntu@Master
54.175.92.197
```

After copy in Worker node 2

```
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@3.82.94.142 'sudo cp .ssh/authorized_keys_bkp1   /home/ubuntu/.ssh/authorized_keys' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
cat /home/ubuntu/.ssh/authorized_keys
```

```
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@3.82.94.142 'sudo cp .ssh/authorized_keys_bkp1   /home/ubuntu/.ssh/authorized_keys' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
cat /home/ubuntu/.ssh/authorized_keys
cat /home/ubuntu/.ssh/authorized_keys
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@3.82.94.142 'cat /home/ubuntu/.ssh/authorized_keys' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCVBhuw/Ni/pq5M3ix/YiO4bCpJpKT50D79xeoe+GZnXsQMmHJrHaLLVf1D5canoM5XtUEC0A0avSQItGpIVLHf8kZrRMvhRKBvAJOn2fSOlWRvE
XUa9UIKhmQKJgJMnMDZ8hIRFPrRBSZPabocGDPW3AEPrfWQk2wt3BQnb7GVxGRmzYEpsvGmqs54CtNlj8jJ73GsXD3bbUJLQ8ureGsykb5M+eEcrIgBVDhUI/5U+9AKbhehS0fgE0/AV57uapBhXt
1RfX3qRR4VvBK/RVQ8j+3MywDiNSYLUH20aMXxPukhLtW7eXmZFGM8COCJZrUAfO6xNmi85hktuvfqvH8F 18july
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQCniVQDBzIhOs2t8GpHlRQubkIQZYgfze9VGqP4LF9UjTYLrGuyI8VuiqKSbD0zA6FxTSRkFwsKKh3H1H01qOtpI3oaF40RTZL4Vf8FSaMyH0Q/Z
XpNjxkJVVxaocEFnUk+GrOiZs5tOvhz+V5Un0IGsgbwxEic1Mgccyox62fUOxTYB532WQZG/HctN879n3hjvGET0I5iFit8LQeaF1IGgDmZ0Lt+TQjYFDycOSYwHpN2D0a9gbLcPSXsX3Mbb4wfkZ
VkxrB37kriGiGCAjEiN31GMmv9RVv4/fYn5VpYJSAB8UH8XYC5RC9iGoLDTWsizF78BZVat75+WG4r8xeptb3D4OzYBHtpl8X021k7LJTRSTNW+OaoHowOhn8RrfMWDbWS82ZsOfWCEuT8+9Rt+er
VAr6qlsPZQ9R2NuAa5EmxevrgSaJsfEowKpWyKMbm6FxQAxyN+//cfd3KTO5vx2BM5EfcE3xsFQCfto4QmIzNATcv47DXPnNF9BAc0B8= ubuntu@Exp1
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDE1KMuxHC9flCv0YjqcoYiP0IJgVJ77G+6goHlPRCQ7Nd59pOYwiJhVReZmLr/Bs5s03a+ecmyhVrBImmwsQ8dtPl7wdSUlYss7wT17vdsT0FPk
wTy3S1M2TPCHLpueUhJLDM8HagnszR32Lq8WjDQOW3Pd7FfkhQN0eAG7uGvWFCzvZ7qfEZx/ldXdXM8V1/xnt7jeDMPKW5oyq7vqxN7k8020q2hnlhxt5Ty6ljFpT22RnqRZ4lcGNXBjxp+WeXF4L
gD0ZG0wtkhQZM6u/oRo6SwAWBYQSm3HQ1ai+Q8pWysitMmBRZrcdar60QfA9pjqgPzEowTYC3PgFh7m1LVtQXkZXjCt3yDVGBeFXdbtmUQyOTjKRWOU+4H9wZb0EP2O0JGsz+6y6fwUeVrRHhlood
waeAwds7Y6fqXbc0fh2BvICVLpKhvkzNWE5p9MWyHNRVZb3dUMXW1iBinGPwwvqA5UKbbaXkTbxLhsHEMHt0izCt/OFBAZFZez9zMCc0= ubuntu@Master
3.82.94.142
```

Set hostname

Output -

```
=================19 Set hostname of Worker node 1 - 54.175.92.197 ============
i =
sudo hostnamectl set-hostname Worker-1
sudo hostnamectl set-hostname Worker-1
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@54.175.92.197 'sudo hostnamectl  set-hostname Worker-1' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
cat /etc/hostname
cat /etc/hostname
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@54.175.92.197 'cat /etc/hostname' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
Worker-1
3.82.94.142
```

```
=================19 Set hostname of Worker node 2 - 3.82.94.142 ============
i =
sudo hostnamectl set-hostname Worker-2
sudo hostnamectl set-hostname Worker-2
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@3.82.94.142 'sudo hostnamectl  set-hostname Worker-2' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
cat /etc/hostname
cat /etc/hostname
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@3.82.94.142 'cat /etc/hostname' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
Worker-2
```

==========

update /etc/hosts file - of Master node

- of each worker nodes

==========

```
echo  "================19.2 Copy Update Master's /etc/hosts file and export to Worker node ============"
i=0
if grep -Fxq "${masterip}   Master.example.com" /etc/hosts
then
    # code if found
    echo "Entry exists."
else
    # code if not found
    /bin/bash doexec.sh $masterip $pemfile "echo   ${masterip}   Master.example.com  | sudo -S tee -a /etc/hosts"

    while read -r linew; do
          echo  -e "$linew\n"
          ((i=i+1))
          /bin/bash doexec.sh $masterip $pemfile "echo   $linew   Worker${i}.example.com  | sudo -S tee -a /etc/hosts"
         ## echo  "row = $linew"

     done <$wfile

fi

  /bin/bash doexec.sh $masterip $pemfile 'cat /etc/hosts'
```

```
ubuntu@Master: ~
  GNU nano 4.8                                  /etc/hosts
127.0.0.1 localhost

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
ff02::3 ip6-allhosts

44.201.141.108 Master.example.com
54.175.92.197 Worker1.example.com
3.82.94.142 Worker2.example.com
```

```
echo 3.82.94.142 Worker2.example.com | sudo -S tee -a /etc/hosts
echo 3.82.94.142 Worker2.example.com | sudo -S tee -a /etc/hosts
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@44.201.141.108 'echo   3.82.94.142   Worker2.example.com
 | sudo -S tee -a /etc/hosts' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
3.82.94.142 Worker2.example.com
cat /etc/hosts
cat /etc/hosts
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@44.201.141.108 'cat /etc/hosts' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
127.0.0.1 localhost
```

```
=================19.2 Copy Update Master's /etc/hosts file and export to Worker node ============
echo 44.201.141.108 Master.example.com | sudo -S tee -a /etc/hosts
echo 44.201.141.108 Master.example.com | sudo -S tee -a /etc/hosts
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@44.201.141.108 'echo   44.201.141.108   Master.example.com  |
sudo -S tee -a /etc/hosts' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
44.201.141.108 Master.example.com
54.175.92.197

echo 54.175.92.197 Worker1.example.com | sudo -S tee -a /etc/hosts
echo 54.175.92.197 Worker1.example.com | sudo -S tee -a /etc/hosts
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@44.201.141.108 'echo   54.175.92.197   Worker1.example.com  |
sudo -S tee -a /etc/hosts' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
54.175.92.197 Worker1.example.com
3.82.94.142

echo 3.82.94.142 Worker2.example.com | sudo -S tee -a /etc/hosts
echo 3.82.94.142 Worker2.example.com | sudo -S tee -a /etc/hosts
ssh -o StrictHostKeyChecking=no  -i 18july.pem  ubuntu@44.201.141.108 'echo   3.82.94.142   Worker2.example.com  | su
do -S tee -a /etc/hosts' <<EOF
doexec.sh: line 10: warning: here-document at line 8 delimited by end-of-file (wanted `EOF')
3.82.94.142 Worker2.example.com
Copying to worker nodes.
54.175.92.197

3.82.94.142

Copying done at worker nodes.
```

```
echo  "=================19.2 Copy Update Master's /etc/hosts file and export to Worker node ============"
i=0
if grep -qF "Master.example.com" /etc/hosts;
then
    # code if found
    echo "Entry exists."
else
    # code if not found
    /bin/bash doexec.sh $masterip $pemfile "echo   ${masterip}   Master.example.com  | sudo -S tee -a /etc/hosts"

    while read -r linew; do
         echo  -e "$linew\n"
         ((i=i+1))
         /bin/bash doexec.sh $masterip $pemfile "echo   $linew   Worker${i}.example.com  | sudo -S tee -a /etc/hosts"

     done <$wfile

fi


echo  "Copying to worker nodes."
while read -r linew; do
     echo  -e "$linew\n"

   sudo scp -o StrictHostKeyChecking=no  -i ~/myscripts/$pemfile "/etc/hosts" ubuntu@$linew:$destpath

done <$wfile
echo  "Copying done at worker nodes."
exit
```

Conclusion -

1. **Using Terraform** - Master node is created based on master node list .
2. **Using Terraform - Multiple Worker** nodes are ceated as dependent on master node .
3. **Using Terraform - null resource** is creatd to start script execution.

Using Script -

1. Set up master node for ssh .
2. Download Ansible on Master
3. Loop through Worker node.
4. Set up worker node for ssh .
5. update /etc/hosts of Master & Worker
6. update ansible /etc/ansible/hosts of Master & Worker
7. Execute Ansible playbook.