

Ansible nədir?

Ansible automation tooldur. Biz onu həmçinin configuration management tool, Infrastructure as Code olaraq da görə bilərik. Configuration management tool arasında ən çox istifadə olunan Ansibledir. Ansible istifadə çox asandır. Hər hansısa agentdən istifadə etmir. Ansible üçün sadəcə SSH olmağı yetərlidir. Və Ansible Python dilində yazıldığı üçün PIP commandasıyla install edəcəyik. Ansible daha çox deploy məsələləri üçün, məsələn 100 virtual maşına eyni anda hər-hansısa paketi yükləmək üçün, 100 virtual maşını restart etmək üçün, 100 virtual maşında user, group qurmaq üçün, firewalla port əlavə etmək üçün istifadə olunur.

Install Ansible

RHEL distrosunda subscription-manager register etmək lazımdır. CentOS -da isə buna ehtiyac yoxdur. On exam just type: yum install ansible.

```
curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py
```

```
python get-pip.py
```

```
sudo python -m pip install ansible
```

```
ansible --version
```

```
[root@master ~]# ansible --version
ansible [core 2.15.10]
  config file = None
  configured module search path = ['/root/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/local/lib/python3.9/site-packages/ansible
  ansible collection location = /root/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/local/bin/ansible
  python version = 3.9.18 (main, Sep  7 2023, 00:00:00) [GCC 11.4.1 20230605 (Red Hat 11.4.1-2)] (/usr/bin/python)
  jinja version = 3.1.3
  libyaml = True
```

Configure Ansible

Ansible config etmək üçün ansible.cfg config faylı qurmaq lazımdır. Bunu 3 yerdə qurmaq olur:

- 1) /etc/ansible/ansible.cfg, the default config file. (ən az privilege olan fayldır)
- 2) ~/.ansible.cfg if it's in the user's home directory. (1-ci də olmasa burdakı configə baxır)
- 3) ansible.cfg if it's in the current directory.

Və ən yüksək priority sahip fayl: \$ANSIBLE_CONFIG if the environment variable is set.

```
vim ~/.ansible.cfg
```

```
[defaults]
inventory = /root/ansible/ingress
remote_user = root
forks = 7
ask_pass = false

[privilege_escalation]
become = true
become_method = sudo
become_user = root
become_ask_pass = false
```

[defaults]

inventory – neçə hosta qoşulacığıq, serverlərin siyahısı

remote_user – SSH-la hansı userə qoşulacağımızı göstərir

?forks – maximum neçə hosta qoşula biləcəyimizi göstərir, default 5-dir, 5-5 maşınlarda run edir

?ask_pass – SSH qoşulanda parol soruşun ya yox, default false-dir

?private_key – secure baxımında private key fərqli yerdə saxlanılırsa burda bildirilir

[privilege_escalation]

become – user özünü necə aparsın

become_method – hansı üsuldən istifadə etsin, sudo və su ola bilər, su-da parol istəyir

become_user – özünü kim kimi idarə etsin

become_ask_pass – sudo-ya keçərkən parolu istəyib istəməyəcəyini təyin edir

Configure Inventory

Bütün serverlərin ip-si txt şəklində yazılır.

```
vim /root/ansible/ingresss
```

```
[prod]
192.168.149.136

[test]
192.168.149.128
192.168.149.129

[webserver:children]
prod
```

prod qrupu webserver qrupunun subgroupudur. Yeni webserverdə run etsən bu proddə da run edəcək.

```
ansible-inventory --list
```

```
[root@master ~]# ansible-inventory --list
{
  "_meta": {
    "hostvars": {}
  },
  "all": {
    "children": [
      "ungrouped",
      "test",
      "webserver"
    ]
  },
  "prod": {
    "hosts": [
      "192.168.149.136"
    ]
  },
  "test": {
    "hosts": [
      "192.168.149.128",
      "192.168.149.129"
    ]
  },
  "webserver": {
    "children": [
      "prod"
    ]
  }
}
```

Configure SSH

ssh-keygen

```
[root@master ~]# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:TsnilzXLqpvmxSK3JKQs8A1C+J3dj3a+R2qqEUu50LI root@master
The key's randomart image is:
+---[RSA 3072]-----+
|
|..
|..
|.. . + + .
|o + = B S
|o= o B O + .
|o.+ E B X oo
|. =. * =0 .
| o*oo.oooo
+---[SHA256]-----+
```

for i in 136 128 129; do ssh-copy-id 192.168.149.\$i; done

```
[root@master ~]# for i in 136 128 129 ; do ssh-copy-id 192.168.149.$i ; done
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
The authenticity of host '192.168.149.136 (192.168.149.136)' can't be established.
ED25519 key fingerprint is SHA256:/XUoK9QuWY0p9l9yiM1wy0HmLq/WCcNqHGbgojDtyf0.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
d
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new k
eys
root@192.168.149.136's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh '192.168.149.136'"
and check to make sure that only the key(s) you wanted were added.

/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
The authenticity of host '192.168.149.128 (192.168.149.128)' can't be established.
ED25519 key fingerprint is SHA256:aqWBAhtwtr75+SN7JjmGNQxtxdYWh1hQ632ljY5/0eUs.
This host key is known by the following other names/addresses:
~/ssh/known_hosts:4: localhost
Are you sure you want to continue connecting (yes/no/[fingerprint])? █
```

AdHoc Commands

AdHoc daha çox əmərlərin tez bir şəkildə run edilməsi üçün istifadə olunur.

ansible prod -m command -a 'lsblk' (modul default olaraq command-dır)

```
[root@master ~]# ansible prod -m command -a 'lsblk'
192.168.149.136 | CHANGED | rc=0 >>
NAME          MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
sr0            11:0    1   9.6G  0 rom
nvme0n1       259:0    0    20G  0 disk
├─nvme0n1p1   259:1    0     1G  0 part /boot
├─nvme0n1p2   259:2    0    19G  0 part
└─cs-root     253:0    0    17G  0 lvm /
   └─cs-swap   253:1    0     2G  0 lvm [SWAP]
```

prod qrupuna command modulundan istifadə edərək lsblk argumentini yerinə yetir.

```
ansible test -m command -a 'df -h' -i /root/ansible/ingressss -kk
```

```
[root@master ~]# ansible test -m command -a 'df -h' -i ansible/ingress -kk
SSH password:
BECOME password[defaults to SSH password]:
```

/root/ansible/ingressss inventorysindəki test qrupuna command modulundan istifadə edərək df -h argumentini yerinə yetir. -k – SSH qoşulma üçün parol, -K sudo üçün parol.

```
ansible prod -m shell -a 'cat /etc/passwd | grep root'
```

```
[root@master ~]# ansible prod -m shell -a 'cat /etc/passwd | grep root'
192.168.149.136 | CHANGED | rc=0 >>
root:x:0:0:root:/root:/bin/bash
operator:x:11:0:operator:/root:/sbin/nologin
[root@master ~]#
```

prod qrupuna shell modulundan istifadə edərək argumenti argumentini yerinə yetir. Ancaq pipe olduğu üçün shell modulundan istifadə edirik.

```
ansible prod -m user -a 'name=linda,uid=1432'
```

```
[root@master ~]# ansible prod -m user -a 'name=linda,uid=1432'
```

prod qrupuna user modulundan istifadə edərək linda adında, uid-si 1432 olan user qur.

Ansible-Doc

```
ansible-doc -l | less
```

```
amazon.aws.s3_object      ...
amazon.aws.s3_object.info  Gather informati...
ansible.builtin.add_host  Add a host (and alternatively a group) to the ansible
  -playbo...
ansible.builtin.apt        ...
ansible.builtin.apt_key    Ad...
ansible.builtin.apt_repository Add and r...
ansible.builtin.assemble  Assemble configuratio...
ansible.builtin.assert    Asserts give...
ansible.builtin.async_status Obtain statu...
ansible.builtin.blockinfile Insert/update/remove a text block surr...
ansible.builtin.command   Execu...
ansible.builtin.copy      Copy fil...
ansible.builtin.cron      Manage cron...
ansible.builtin.deb822_repository Add and remove deb822 ...
ansible.builtin.debconf   Co...
ansible.builtin.debug     Print state...
ansible.builtin.dnf       Manages packages with the...
ansible.builtin.dnf5      Manages packages with the ...
ansible.builtin.dpkg_selections Dpkg packag...
ansible.builtin.expect    Executes a command a...
ansible.builtin.fail      Fa...
ansible.builtin.fetch     Fetch f...
ansible.builtin.file      Manage fil...
ansible.builtin.find      Return a list of files base...
ansible.builtin.gather_facts Gathers fa...
ansible.builtin.get_url   Downloads files from HTTP,...
ansible.builtin.getent    A wrapper to t...
ansible.builtin.git       Deploy software (or fil...
ansible.builtin.group     ...
ansible.builtin.group_by  Create Ansible...
```

amazon.aws bir collectiondur. Daha sonra gələn işə moduludur.

```
ansible-doc user → /EXAMPLE
```

```
EXAMPLES:
```

```
- name: Add the user 'johnd' with a specific uid and a primary group of 'admin'
  ansible.builtin.user:
    name: johnd
    comment: John Doe
    uid: 1040
    group: admin
```