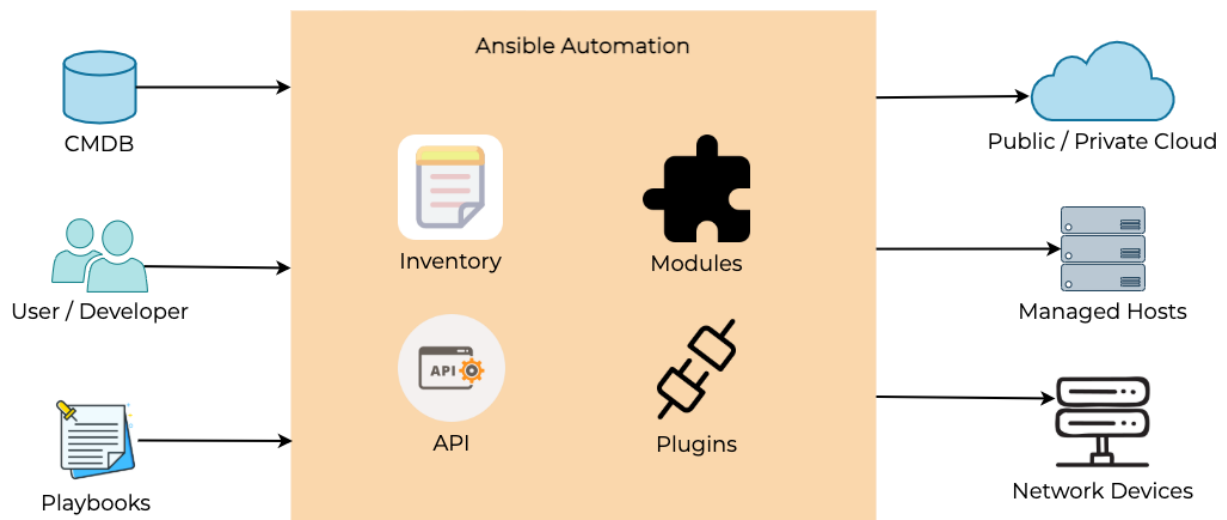
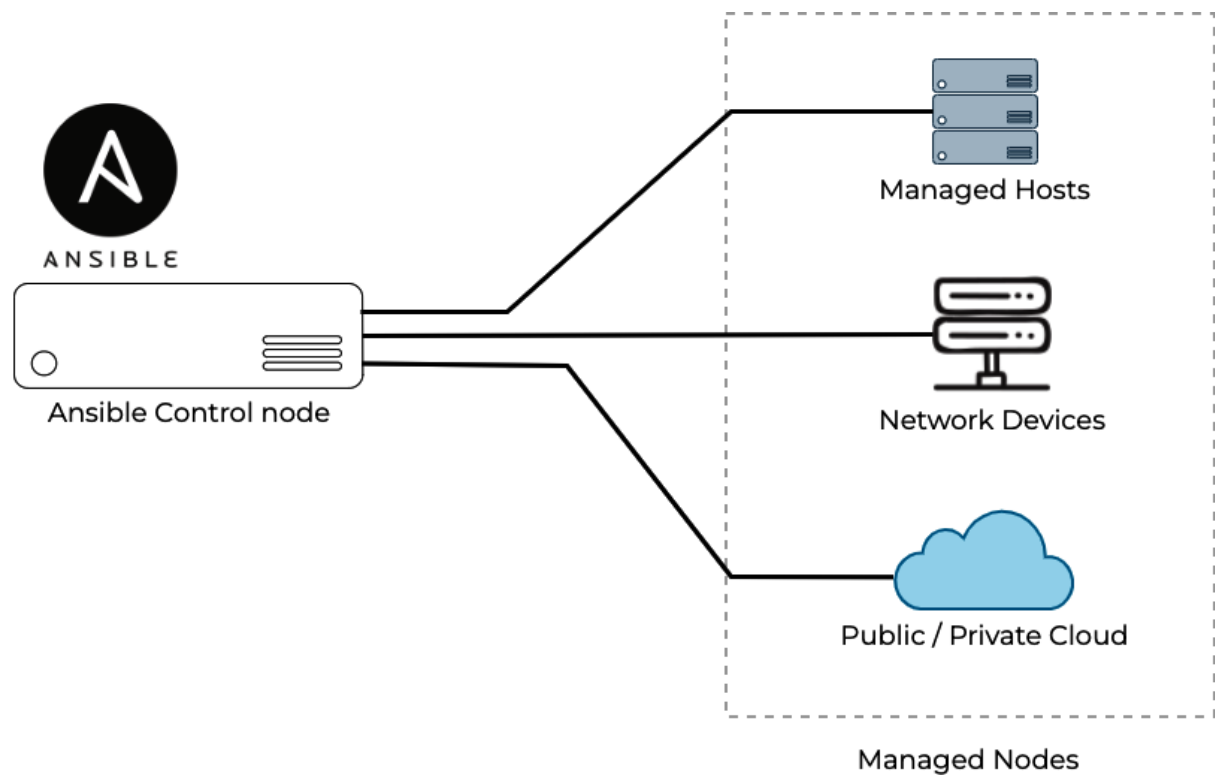


Chapter 1: Ansible Automation – Introduction





```
## Chapter-01/hosts
[nodes]
node1 ansible_host=192.168.56.25

[web]
node1 ansible_host=192.168.56.25
node2 ansible_host=192.168.56.24

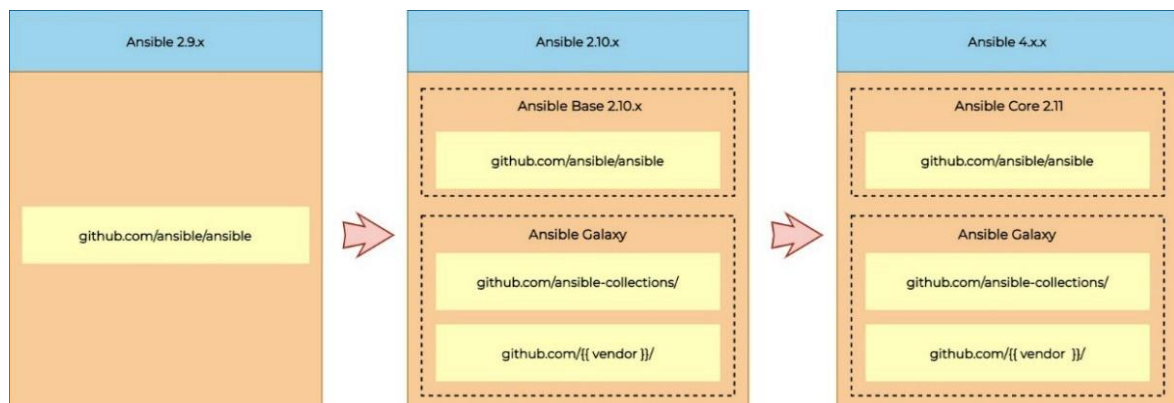
[loadbalancer]
node3 ansible_host=192.168.56.45

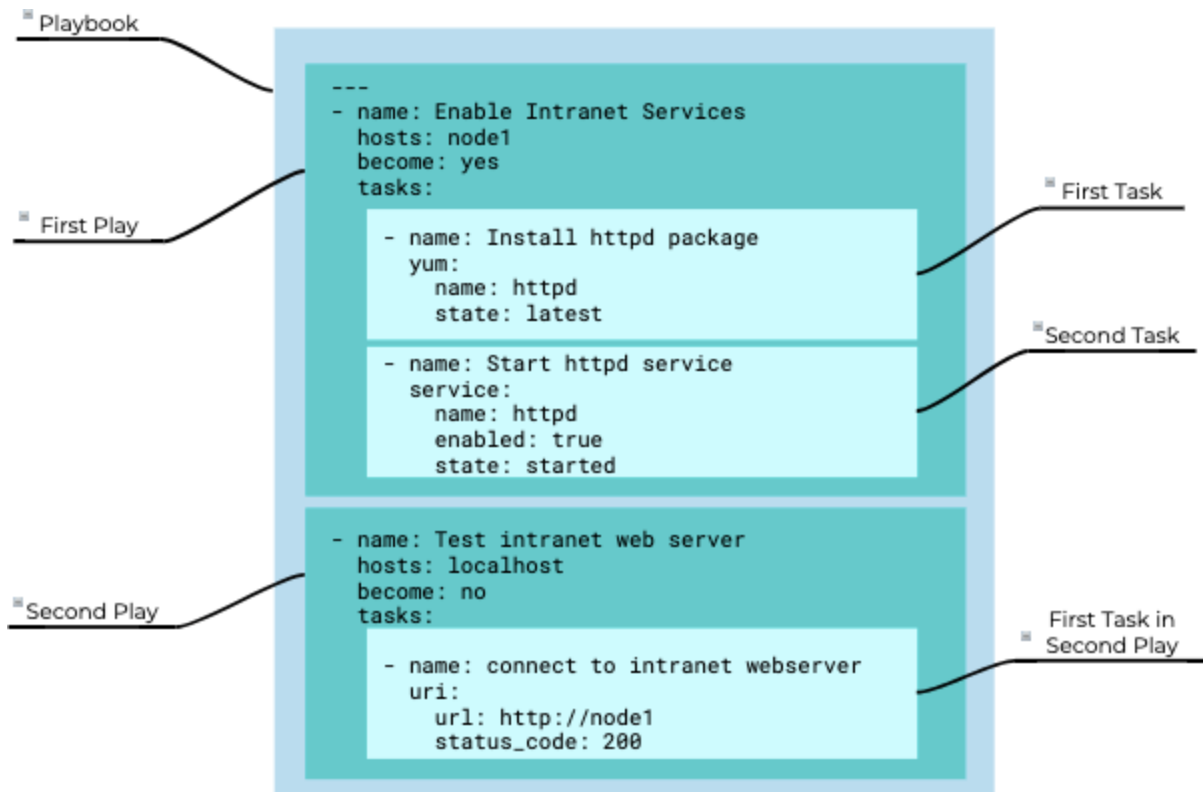
[windows]
win2019 ansible_host=192.168.56.22

[nodes:vars]
ansible_ssh_private_key_file=/home/ansible/.ssh/id_rsa
```



```
- name: Ping to managed node
  ping:
- name: Install httpd package
  yum:
    name: httpd
    state: latest
```





```

[ansible@ansible ~]$ sudo dnf list installed python3*
Updating Subscription Management repositories.
Installed Packages
python3-bind.noarch                32:9.11.26-3.el8                @rhel8-appstream-media
python3-chardet.noarch             3.0.4-7.el8                      @anaconda
.
.
..<output omitted for brevity>..
python36.x86_64                    3.6.8-2.module+el8.1.0+3334+5cb623d7 @rhel8-appstream-media

## Also verify the version of Python
[ansible@ansible ~]$ python3 -V
Python 3.6.8
  
```

```

## on RHEL/Fedora/CentOS systems
[ansible@ansible ~]$ sudo dnf install ansible

## For an Ubuntu system, you can use the apt command as follows:
$ sudo apt install ansible
  
```



```
[ansible@ansible ~]$ ansible --version
ansible 2.9.27
config file = /etc/ansible/ansible.cfg
configured module search path = ['/home/ansible/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
ansible python module location = /usr/lib/python3.6/site-packages/ansible
executable location = /usr/bin/ansible
python version = 3.6.8 (default, Mar 18 2021, 08:58:41) [GCC 8.4.1 20200928 (Red Hat 8.4.1-1)]
```



```
## download and install Python pip
$ curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py
$ python get-pip.py --user

## If pip is already installed, then make sure it is upgraded to the latest supported version.
$ python -m pip install --upgrade pip

## Then, install Ansible using pip:
$ python -m pip install --user ansible
```



```
## Installing old ansible version (ansible + modules)
$ python -m pip install ansible==2.9.25 --user

## Installing Ansible package (ansible-core + Ansible collections)
$ python -m pip install ansible==4 --user

## Installing ansible-base (ansible-base only; you need to install required collections separately)
$ python -m pip install ansible-base==2.10.13 --user

## Installing ansible-core (ansible-core only; you need to install required collections separately)
$ python -m pip install ansible-core==2.11.4 --user
```



```
[ansible@ansible ~]$ ansible --version
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible
2.12. Current version: 3.6.8 (default, Mar 18 2021, 08:58:41) [GCC 8.4.1 20200928 (Red Hat 8.4.1-1)]. This
feature will be removed from ansible-core in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
ansible [core 2.11.6]
config file = None
configured module search path = ['/home/ansible/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
ansible python module location = /home/ansible/.local/lib/python3.6/site-packages/ansible
ansible collection location = /home/ansible/.ansible/collections:/usr/share/ansible/collections
executable location = /home/ansible/.local/bin/ansible
python version = 3.6.8 (default, Mar 18 2021, 08:58:41) [GCC 8.4.1 20200928 (Red Hat 8.4.1-1)]
jinja version = 3.0.3
libyaml = True
```



```

[ansible@ansible ~]$ mkdir ansible-demo
[ansible@ansible ~]$ cd ansible-demo/
[ansible@ansible ansible-demo]$ vim ansible.cfg

```

```

[Defaults]
inventory = ./hosts
remote_user = devops
ask_pass = false

```

```

ansible@ansible ansible-demo]$ ansible --version
ansible [core 2.11.6]
config file = /home/ansible/ansible-demo/ansible.cfg
.
..<output omitted for brevity>..

```

```

[ansible@ansible ansible-demo]$ cat ansible.cfg
[Defaults]
inventory = ./hosts
remote_user = devops
ask_pass = false

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

```

```

## switch to project directory
[ansible@ansible ~]$ cd ansible-demo/

## Open the file in text editor
[ansible@ansible ansible-demo]$ vim hosts

```



```
[local]
localhost

[dev]
192.168.100.4
```



```
[ansible@ansible ansible-demo]$ cat hosts
[local]
localhost ansible_connection=local

[dev]
node01 ansible_host=192.168.100.4
```



```
[ansible@ansible ansible-demo]$ ansible all --list-hosts
hosts (2):
  localhost
  node01
```



```
[ansible@ansible ansible-demo]$ cat myinventory
[myself]
localhost

[intranetweb]
servera.techbeatly.com
serverb.techbeatly.com

[database]
db101.techbeatly.com

[everyone:children]
myself
intranetweb
database
```



```
[ansible@ansible ansible-demo]$ ls -l
total 12
-rw-rw-r--. 1 ansible ansible 181 Nov 19 15:40 ansible.cfg
-rw-rw-r--. 1 ansible ansible 90 Nov 19 15:33 hosts
-rw-rw-r--. 1 ansible ansible 162 Nov 19 15:44 myinventory
```



```
[ansible@ansible ansible-demo]$ ansible all --list-hosts -i myinventory
hosts (4):
  localhost
  servera.techbeatly.com
  serverb.techbeatly.com
  db101.techbeatly.com
```



```
[ansible@ansible ansible-demo]$ ansible --help
.
.

-h, --help            show this help message and exit
-i INVENTORY, --inventory INVENTORY, --inventory-file INVENTORY
                        speciy inventory host path or comma separated host
                        list. --inventory-file is deprecated
-l SUBSET, --limit SUBSET
                        further imit selected hosts to an additional pattern
-m MODULE_NAME, --module-name MODULE_NAME
                        Name of the actionto execute (default=command)
-o, --one-line         condense output
-t TREE, --tree TREE  log output to this directory
-v, --verbose          verbose mode (-vvv for more, -vvvv to enable
                        connection debugging)
.
...<output omitted for brevity>...
```



```
[ansible@ansible ansible-demo]$ ansible --list-hosts -i myinventory *techbeatly.com
hosts (3):
  servera.techbeatly.com
  serverb.techbeatly.com
  db101.techbeatly.com

## Print only db servers:
[ansible@ansible ansible-demo]$ ansible --list-hosts -i myinventory db*
hosts (1):
  Db101.techbeatly.com
```



```
## create a new user - devops
[root@node01 ~]# useradd devops

## set password for the new user
[root@node01 ~]# passwd devops
Changing password for user devops.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
```



```
[root@node01 ~]# echo "devops ALL=(ALL) NOPASSWD: ALL" > /etc/sudoers.d/devops
```



```
[ansible@ansible ansible-demo]$ ssh-keygen -t rsa -b 4096 -C "ansible@ansible.lab.local"
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ansible/.ssh/id_rsa):
Created directory '/home/ansible/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ansible/.ssh/id_rsa.
Your public key has been saved in /home/ansible/.ssh/id_rsa.pub.
..<output omitted>..
+-----[SHA256]-----+
```



```
[ansible@ansible ansible-demo]$ ls -la ~/.ssh/
total 8
drwx-----. 2 ansible ansible  38 Nov 19 16:14 .
drwx-----. 7 ansible ansible 175 Nov 19 16:14 ..
-rw-----. 1 ansible ansible 3389 Nov 19 16:14 id_rsa
-rw-r--r--. 1 ansible ansible  751 Nov 19 16:14 id_rsa.pub
```



```
[ansible@ansible ansible-demo]$ ssh-copy-id -i ~/.ssh/id_rsa devops@node01
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ansible/.ssh/id_rsa.pub"
The authenticity of host 'node01 (192.168.100.4)' can't be established.
RSA key fingerprint is SHA256:UEQ72EtSvn+0/tuEDbec1QuhHNTtp/uPf+VVvKkuB6k.
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

/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new
keys
devops@node01's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'devops@node01'"
and check to make sure that only the key(s) you wanted were added.
```

```

[ansible@ansible ansible-demo]$ ssh devops@node01node-1
Last login: Fri Nov 19 16:23:25 2021
[devops@node01node-1 ~]$

## check sudo access
[devops@node01node-1 ~]$ sudo -i
[root@node01node-1 ~]# hostname
Node01Node-1.lab.local

```

```

[dev]
node01 ansible_host=192.168.100.4 ansible_ssh_private_key_file=/home/ansible/.ssh/id_rsa ansible_user=devops

## Or, you can configure the variable details
## separately in the inventory file:
[dev]
node01 ansible_host=192.168.100.4

[dev:vars]
ansible_ssh_private_key_file=/home/ansible/.ssh/id_rsa
ansible_user=devops

```

```

[ansible@ansible ansible-demo]$ ansible all -m ping
localhost | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/libexec/platform-python"
  },
  "changed": false,
  "ping": "pong"
}
node01 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/libexec/platform-python"
  },
  "changed": false,
  "ping": "pong"
}

```

```

[ansible@ansible ansible-demo]$ ansible all -m shell -a "whoami"
localhost | CHANGED | rc=0 >>
ansible
node01 | CHANGED | rc=0 >>
devops

```



```
[ansible@ansible ansible-demo]$ ansible all -m shell -a "hostname;uptime;date;cat /etc/*release| grep ^NAME;uname -a"
localhost | CHANGED | rc=0 >>
ansible
16:58:15 up 1:37, 1 user, load average: 0.00, 0.00, 0.00
Fri Nov 19 16:58:15 UTC 2021
NAME="Red Hat Enterprise Linux"
Linux ansible 4.18.0-305.el8.x86_64 #1 SMP Thu Apr 29 08:54:30 EDT 2021 x86_64 x86_64 x86_64 GNU/Linux
node01 | CHANGED | rc=0 >>
node01.lab.local
16:58:15 up 1:43, 2 users, load average: 0.24, 0.05, 0.02
Fri Nov 19 16:58:15 UTC 2021
NAME="Red Hat Enterprise Linux"
Linux node01.lab.local 4.18.0-305.el8.x86_64 #1 SMP Thu Apr 29 08:54:30 EDT 2021 x86_64 x86_64 x86_64 GNU/Linux
```



```
[ansible@ansible ansible-demo]$ ansible all -m setup -a "filter=ansible_distribution*"

```



```
[ansible@ansible ansible-demo]$ ansible node01 -m dnf -a 'name=vim state=latest'
node01 | FAILED! => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/libexec/platform-python"
  },
  "changed": false,
  "msg": "This command has to be run under the root user.",
  "results": []
}
```

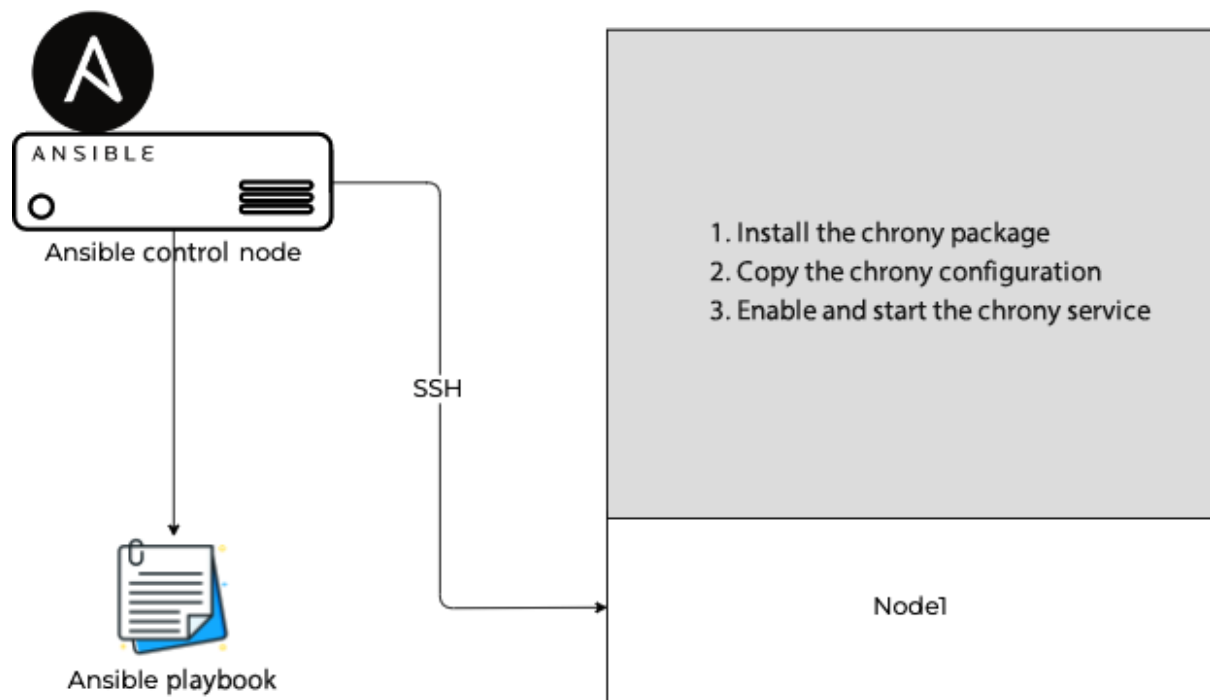


```
[ansible@ansible ansible-demo]$ ansible node01 -m dnf -a 'name=vim state=latest' -b
node01 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/libexec/platform-python"
  },
  "changed": true,
  "msg": "",
  "rc": 0,
  "results": [
    "Installed: vim-common-2:8.0.1763-16.el8.x86_64",
    "Installed: vim-enhanced-2:8.0.1763-16.el8.x86_64",
    "Installed: gpm-libs-1.20.7-17.el8.x86_64"
  ]
}
```

```
## Chapter-01/site.yaml
---
- name: Install Vim Package
  hosts: node1
  become: true
  tasks:
    - name: Ensure vim package is installed
      ansible.builtin.dnf:
        name: vim
        state: latest
```

```
[ansible@ansible ansible-demo]$ ansible node01 -m dnf -a 'name=vim state=absent' -b
node01 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/libexec/platform-python"
  },
  "changed": true,
  "msg": "",
  "rc": 0,
  "results": [
    "Removed: vim-enhanced-2:8.0.1763-16.el8.x86_64"
  ]
}
```

Chapter 2: Starting with Simple Automation



```
[defaults]
inventory = ./hosts
remote_user = devops
ask_pass = false

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

```
.
.
[nodes]
node1 ansible_host=192.168.56.25

[nodes:vars]
ansible_ssh_private_key_file=/home/ansible/.ssh/id_rsa
ansible_user=devops
```




```
---
- name: Install Chrony Package
  hosts: node1
  become: true
  tasks:
    - name: Ensure chrony package is installed
      ansible.builtin.dnf:
        name: chrony
        state: latest
```



```
[ansible@ansible Chapter-02]$ ansible-playbook install-package.yaml

PLAY [Install Chrony Package] *****

TASK [Gathering Facts] *****
ok: [node1]

TASK [Ensure Chronry package is installed] *****
changed: [node1]

PLAY RECAP *****
dev-rhel8-55node1      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0
ignored=0
```



```
TASK [Ensure Chronry package is installed] *****
changed: [node1]
```



```
[devops@node-1 ~]$ sudo yum list installed chrony
Updating Subscription Management repositories.
Installed Packages
chrony.x86_64                4.1-1.el8                @rhel-8-for-x86_64-baseos-rpms
```



```
server 0.sg.pool.ntp.org
server 1.sg.pool.ntp.org
server 2.sg.pool.ntp.org
server 3.sg.pool.ntp.org
driftfile /var/lib/chrony/drift
makestep 1.0 3
rtcsync
keyfile /etc/chrony.keys
leapsectz right/UTC
logdir /var/log/chrony
```

```

---
# Chapter-02/install-package.yml
- name: Install Chrony Package
  hosts: node1
  become: true
  tasks:
    - name: Ensure chrony package is installed
      ansible.builtin.dnf:
        name: chrony
        state: latest

    - name: Copy chrony configuration to node
      ansible.builtin.copy:
        src: chrony.conf.sample
        dest: /etc/chrony.conf
        mode: 644
        owner: root
        group: root

    - name: Enable and start chrony Service
      ansible.builtin.systemd:
        name: chronyd
        state: started
        enabled: yes
        masked: no

```

```

[ansible@ansible Chapter-02]$ ansible-playbook install-package.yml

PLAY [Install Chrony Package] *****

TASK [Gathering Facts] *****
ok: [dev-rhel8-55]

TASK [Ensure chrony package is installed] *****
ok: [dev-rhel8-55]

TASK [Copy chrony configuration to node] *****
changed: [node1]

TASK [Enable and start chrony Service] *****
changed: [node1]

PLAY RECAP *****
node1                : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

```

[devops@node-1 ~]$ cat /etc/chrony.conf
server 0.sg.pool.ntp.org
server 1.sg.pool.ntp.org
server 2.sg.pool.ntp.org
server 3.sg.pool.ntp.org
driftfile /var/lib/chrony/drift
makestep 1.0 3
rtcsync
keyfile /etc/chrony.keys
leapsectz right/UTC
logdir /var/log/chrony[devops@node-1 ~]$

[devops@node-1 ~]$ sudo systemctl status chronyd
● chronyd.service - NTP client/server
   Loaded: loaded (/usr/lib/systemd/system/chronyd.service; enabled; vendor preset: enabl>
   Active: active (running) since Sun 2022-07-24 07:58:06 UTC; 1h 8min ago
     Docs: man:chronyd(8)
           man:chrony.conf(5)
   ...output omitted...

```

```

[ansible@ansible Chapter-02]$ ansible-doc -l
add_host                                Add a host ...
amazon.aws.aws_az_facts                 Gather info...
amazon.aws.aws_az_info                  Gather info...
amazon.aws.aws_caller_facts             Get informa...
amazon.aws.aws_caller_info              Get informa...
amazon.aws.aws_s3                       manage obje...
amazon.aws.cloudformation               Create or d...
amazon.aws.cloudformation_facts         Obtain info...
amazon.aws.cloudformation_info          Obtain info...
...output omitted...

```

```

[ansible@ansible Chapter-02]$ ansible-doc -s dnf
- name: Manages packages with the 'dnf' package manager
  dnf:
    allow_downgrade:    # Specify if the named package and version is allowed to downgrade
                        a maybe already installed higher
                        version of that package. Note
                        that setting allow_downgrade=True
                        can make this module behave in a
                        non-idempotent way. The task
                        could end up with a set of
                        packages that does not match the
...output omitted...

```



```
[ansible@ansible Chapter-02]$ ansible-doc dnf
> ANSIBLE.BUILTIN.DNF (/home/ansible/.local/lib/python3.6/site-packages/ansible/modules/dnf.>
```

Installs, upgrade, removes, and lists packages and groups with the
`dnf` package manager.

OPTIONS (= is mandatory):

```
- allow_downgrade
    Specify if the named package and version is allowed to downgrade a
    maybe already installed higher version of that package. Note that
    setting allow_downgrade=True can make this module behave in a non-
    idempotent way. The task could end up with a set of packages that
    ...output omitted...
VERSION_ADDED_COLLECTION: ansible.builtin
```

EXAMPLES:

```
- name: Install the latest version of Apache
  dnf:
    name: httpd
    state: latest

- name: Install Apache >= 2.4
  dnf:
    name: httpd>=2.4
    state: present
...output omitted...
```



```
add_host
ansible.netcommon.cli_command
ansible.netcommon.cli_config
ansible.netcommon.cli_parse
ansible.netcommon.net_banner
ansible.netcommon.net_get
ansible.netcommon.net_interface
ansible.netcommon.net_l2_interface
ansible.netcommon.net_l3_interface
ansible.netcommon.net_linkagg
ansible.netcommon.net_lldp
ansible.netcommon.net_lldp_interface
ansible.netcommon.net_logging
ansible.netcommon.net_ping
ansible.netcommon.net_put
ansible.netcommon.net_static_route
ansible.netcommon.net_system
ansible.netcommon.net_user
/dnf
```

```
Add a host (a...
Run a cli com...
Push text bas...
Parse cli out...
(deprecated, ...
Copy a file f...
(deprecated, ...
(deprecated, ...
(deprecated, ...
(deprecated, ...
(deprecated, ...
(deprecated, ...
(deprecated, ...
(deprecated, ...
Tests reachab...
Copy a file f...
(deprecated, ...
(deprecated, ...
(deprecated, ...
```

```
dnf
dpkg_selections
expect
f5networks.f5_modules.bigip_apm_acl
f5networks.f5_modules.bigip_apm_network_access
f5networks.f5_modules.bigip_apm_policy_fetch
f5networks.f5_modules.bigip_apm_policy_import
f5networks.f5_modules.bigip_asm_advanced_settings
f5networks.f5_modules.bigip_asm_dos_application
f5networks.f5_modules.bigip_asm_policy_fetch
f5networks.f5_modules.bigip_asm_policy_import
f5networks.f5_modules.bigip_asm_policy_manage
f5networks.f5_modules.bigip_asm_policy_server_technology
f5networks.f5_modules.bigip_asm_policy_signature_set
f5networks.f5_modules.bigip_cgnat_lsn_pool
f5networks.f5_modules.bigip_cli_alias
f5networks.f5_modules.bigip_cli_script
f5networks.f5_modules.bigip_command
/dnf
```

Manages packa...
Dpkg package ...
Executes a co...
Manage user-d...
Manage APM Ne...
Exports the A...
Manage BIG-IP...
Manage BIG-IP...
Manage applic...
Exports the A...
Manage BIG-IP...
Manage BIG-IP...
Manages Serve...
Manages Signa...
Manage CGNAT ...
Manage CLI al...
Manage CLI sc...
Run TMSH and ...

```
[ansible@ansible Chapter-02]$ ansible-doc -t become -l
ansible.netcommon.enable      Switch to elevated permissions on a network device
community.general.doas        Do As user
...output omitted...
runas                          Run As user
su                             Substitute User
sudo                           Substitute User DO
```

```
[ansible@ansible Chapter-02]$ ansible-doc -t connection -l
ansible.netcommon.httpapi     Use httpapi to run command on network appliances
ansible.netcommon.libssh      (Tech preview) Run tasks using libssh for ssh connection
...output omitted...
community.docker.docker       Run tasks in docker containers
community.docker.docker_api   Run tasks in docker containers
...output omitted...
community.kubernetes.kubectl  Execute tasks in pods running on Kubernetes
community.libvirt.libvirt_lxc Run tasks in lxc containers via libvirt
community.libvirt.libvirt_qemu Run tasks on libvirt/qemu virtual machines
community.okd.oc               Execute tasks in pods running on OpenShift
community.vmware.vmware_tools Execute tasks inside a VM via VMware Tools
containers.podman.buildah      Interact with an existing buildah container
containers.podman.podman       Interact with an existing podman container ...output omitted...
```

```

1 ---
2 - name: Install Chrony Package
3   hosts: node1
4   become: true
5   tasks:
6     - name: Ensure chrony package is installed
7       ansible.builtin.dnf:
8         name: chrony
9         state: latest
10
11     - name: Copy chrony configuration to node
12       ansible.builtin.copy:
13         src: chrony.conf.sample
14         dest: /etc/chrony.conf
15         mode: 644
16         owner: root
17         group: root
18
19     - name: Enable and start chrony Service
20       ansible.builtin.systemd:
21         name: chronyd
22         state: started
23         enabled: yes
:set nu

```

```

[ansible@ansible Chapter-02]$ cat ~/.vimrc
autocmd FileType yaml setlocal et ts=2 ai sw=2 nu sts=0
colorscheme desert

```

```

1 ---
2 - name: Install Chrony Package
3   hosts: dev-rhel8-55
4   become: true
5   tasks:
6     - name: Ensure chrony package is installed
7       ansible.builtin.dnf:
8         name: chrony
9         state: latest
10
11     - name: Copy chrony configuration to node
12       ansible.builtin.copy:
13         src: chrony.conf.sample
14         dest: /etc/chrony.conf
15         mode: 644
16         owner: root
17         group: root
18
19     - name: Enable and start chrony Service
20       ansible.builtin.systemd:
21         name: chronyd
22         state: started
23         enabled: yes
24         masked: no

```

```
[ansible@ansible Chapter-02]$ tree inventories/
inventories/
├── development
│   └── hosts
├── production
│   └── hosts
└── staging
    └── hosts

3 directories, 3 files
```

```
[ansible@ansible Chapter-02]$ ansible-doc -t connection -l |grep winrm
winrm                                Run tasks over Microsoft's WinRM
```

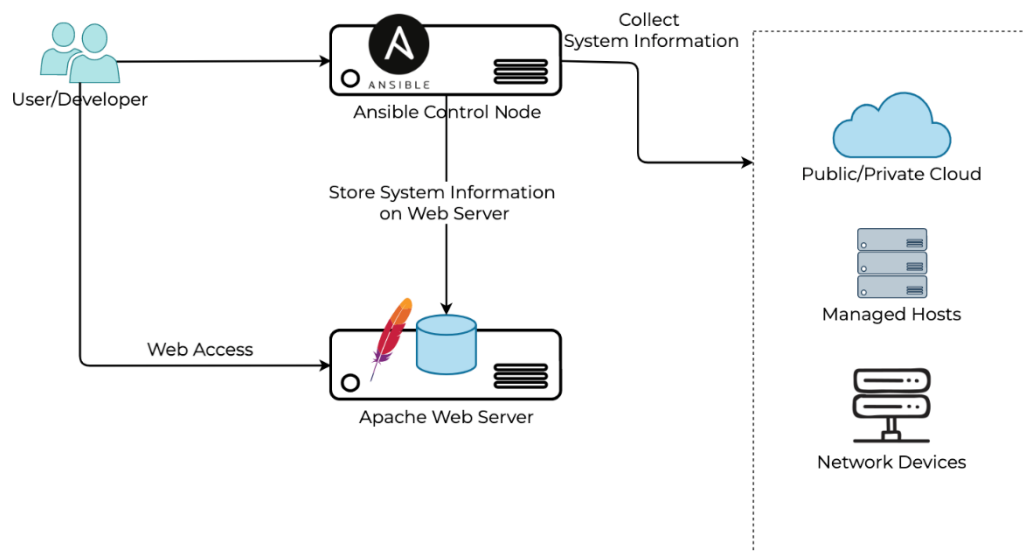
```
[ansible@ansible Chapter-02]$ cat inventories/production/hosts
[win2019]
prod-db-101 ansible_host=192.168.110.10

[win2019:vars]
ansible_connection=winrm
```

```
---
- name: Install Package
  hosts: win2019
  become: true
  connection: local
```

```
[ansible@ansible Chapter-02]$ ansible-playbook playbook.yml --connection=local
```

Chapter 3: Automating Your Daily Jobs



```
[ansible@ansible Chapter-02]$ ansible-playbook install-package.yaml
```

```
PLAY [Install Chrony Package] *****
```

```
TASK [Gathering Facts] *****
```

```
ok: [dev-rhel8-55]
```

```
...output omitted...
```



```
[ansible@ansible Chapter-03]$ tree ./
./
├── ansible.cfg
├── deploy-web.yml
├── hosts
├── node1-ansible-facts
├── README.md
├── roles
│   ├── deploy-web-server
│   │   ├── defaults
│   │   │   └── main.yml
│   │   ├── handlers
│   │   │   └── main.yml
│   │   ├── meta
│   │   │   └── main.yml
│   │   ├── README.md
│   │   ├── tasks
│   │   │   └── main.yml
│   │   ├── tests
│   │   │   ├── inventory
│   │   │   └── test.yml
│   │   └── vars
│   │       └── main.yml
│   └── security-baseline-rhel8
│       ├── defaults
│       │   └── main.yml
│       └── files
...<output omitted>...
```

```
Welcome to {{ ansible_facts.hostname }}
(IP Address: {{ ansible_facts.default_ipv4.address }})

Access is restricted; if you are not authorized to use it
please logout from this system

If you have any issues, please contact {{ system_admin_email }}.
Phone: {{ system_admin_phone | default('1800 1111 2222') }}

-----
This message is configured by Ansible
-----
```

```
tasks:
  - name: Deploy motd
    template:
      dest: /etc/motd
      src: motd.j2
```

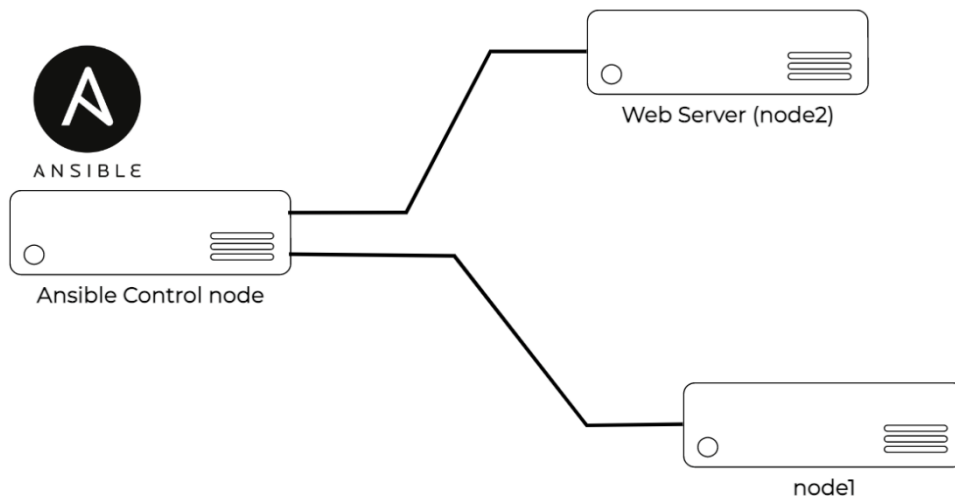


```
Welcome to node1
(IP Address: 10.1.10.25)

Access is restricted; if you are not authorized to use it
please logout from this system

If you have any issues, please contact sysops@lab.local.
Phone: 1800 1111 2222

-----
This message is configured by Ansible
-----
```



```
[defaults]
inventory = ./hosts
remote_user = devops
ask_pass = false

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



```
[nodes]
node1 ansible_host=192.168.56.25

[web]
webserver1 ansible_host=192.168.56.24

[all:vars]
ansible_ssh_private_key_file=/home/ansible/.ssh/id_rsa
```



```
[ansible@ansible roles]$ ansible-galaxy role init deploy-web-server
- Role deploy-web-server was created successfully
```



```
[ansible@ansible roles]$ tree deploy-web-server/
deploy-web-server/
├── defaults
│   └── main.yml
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── README.md
├── tasks
│   └── main.yml
├── tests
│   ├── inventory
│   └── test.yml
└── vars
    └── main.yml

6 directories, 8 files
```



```
---
# tasks file for deploy-web-server

- name: Create directory
  ansible.builtin.file:
    state: directory
    path: /var/www/html
    mode: '0755'

- name: Install httpd and firewalld
  ansible.builtin.yum:
    name:
      - httpd
      - firewalld
    state: latest
```



```
---
# tasks file for deploy-web-server
.
.
- name: Enable and Run Firewalld
  ansible.builtin.service:
    name: firewalld
    enabled: true
    state: started

- name: Firewalld permit httpd service
  ansible.posix.firewalld:
    service: http
    permanent: true
    state: enabled
    immediate: yes
```

```

---
# tasks file for deploy-web-server
.
.
- name: httpd enabled and running
  ansible.builtin.service:
    name: httpd
    enabled: true
    state: started

```

```

# Chapter-03/deploy-web.yml

- name: Deploy Webserver using apache
  hosts: web
  become: true
  tasks:
    - name: Deploy Web service
      include_role:
        name: deploy-web-server

```

```

[ansible@ansible Chapter-03]$ ls -l
total 16
-rw-rw-r--. 1 ansible ansible 209 Jan  8 14:16 ansible.cfg
-rw-rw-r--. 1 ansible ansible 158 Jan  9 09:41 deploy-web.yml
-rw-rw-r--. 1 ansible ansible 159 Jan  8 14:17 hosts
-rw-rw-r--. 1 ansible ansible 1249 Jan  8 13:45 README.md
drwxrwxr-x. 3 ansible ansible 31 Jan  9 09:24 roles

```

```

[ansible@ansible Chapter-03]$ ansible-playbook deploy-web.yml

PLAY [Deploy Webserver using apache] *****

TASK [Gathering Facts] *****
ok: [webserver1]

TASK [Deploy Web service] *****

TASK [deploy-web-server : Create directory] *****
changed: [webserver1]

TASK [deploy-web-server : Install httpd and firewall] *****
changed: [webserver1]

TASK [deploy-web-server : Enable and Run Firewall] *****
changed: [webserver1]

TASK [deploy-web-server : Firewall permit httpd service] *****
ok: [webserver1]

TASK [deploy-web-server : httpd enabled and running] *****
changed: [webserver1]

PLAY RECAP *****
webserver1                : ok=6    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

```

[ansible@ansible Chapter-03]$ ansible-playbook deploy-web.yml

PLAY [Deploy Webserver using apache] *****

TASK [Gathering Facts] *****
ok: [webserver1]

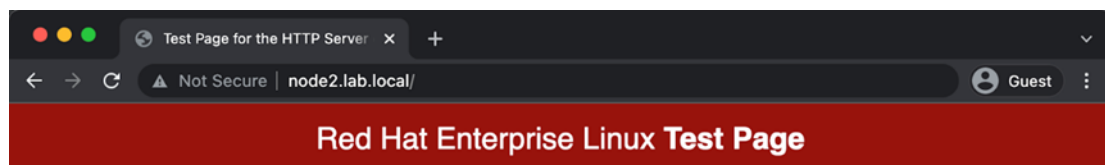
...<output omitted>...

TASK [deploy-web-server : Firewalld permit httpd service] *****
ok: [webserver1]

TASK [deploy-web-server : httpd enabled and running] *****
ok: [webserver1]

PLAY RECAP *****
webserver1                : ok=6    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```



This page is used to test the proper operation of the HTTP server after it has been installed. If you can read this page, it means that the HTTP server installed at this site is working properly.

If you are a member of the general public:

The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting www.example.com, you should send e-mail to "webmaster@example.com".

For information on Red Hat Enterprise Linux, please visit the [Red Hat, Inc. website](http://www.redhat.com). The documentation for Red Hat Enterprise Linux is [available on the Red Hat, Inc. website](http://www.redhat.com).

If you are the website administrator:

You may now add content to the webroot directory. Note that until you do so, people visiting your website will see this page, and not your content.

For systems using the Apache HTTP Server: You may now add content to the directory `/var/www/html/`. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file `/etc/httpd/conf.d/welcome.conf`.

For systems using NGINX: You should now put your content in a location of your choice and edit the `root` configuration directive in the `nginx` configuration file `/etc/nginx/nginx.conf`.



Apache™ is a registered trademark of the Apache Software Foundation in the United States and/or other countries.
NGINX™ is a registered trademark of FS Networks, Inc.

```
[ansible@ansible Chapter-03]$ ansible node1 -m setup |less
node1 | SUCCESS => {
  "ansible_facts": {
    "ansible_all_ipv4_addresses": [
      "192.168.100.101",
      "192.168.56.25",
      "10.0.2.15"
    ],
    "...output omitted..."

    "ansible_date_time": {
      "date": "2022-01-10",
      "day": "10",
      "...output omitted..."
    },
    "module_setup": true
  },
  "changed": false
}
```

```
[ansible@ansible Chapter-03]$ cd roles/
[ansible@ansible roles]$ ansible-galaxy role init system-report
- Role system-report was created successfully
```

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "https://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="https://www.w3.org/1999/xhtml">
<head>
<title>{{ ansible_hostname }} - System Information | Ansible Automation</title>

...<output omitted>...

<body style="margin:0px; padding:0px; width: 700px; text-align: center;" >
<table valign="top" width="100%" cellspacing="0" cellpadding="0" border="0" align="center">
<tbody><tr>
...<output omitted>...
<tr>
<td valign="top" align="center"><h2>System Information for {{ ansible_hostname }}</h2></td>
</tr>
<tr>
<td style="min-width:700px;background-color:#ffffff; text-align: center;" text-align="center">
<table valign="top" width="100%" cellspacing="0" cellpadding="0" border="1" align="center" >
<tr>
<td valign="top" align="left">System Name</td>
<td valign="top" align="left">{{ ansible_hostname }}</td>
</tr>
<tr>
<td valign="top" align="left">IP Address</td>
<td valign="top" align="left">{{ ansible_all_ipv4_addresses }}</td>
</tr>

...<output omitted>...

</table>
</td>
</tr>
<tr>
<td style="font-size:12px; line-height:18px; color:#999999; padding: 20px;">
If you find any mismatch in report, please report to <a href="mailto:{{ report_admin_email }}"
target="_blank" style="text-decoration:none; color:#999999;">{{ report_admin_email }}</a>
</td>
</tr>
</tbody>
</table>
</body></html>

```

```

---
# tasks file for system-report
- name: Generate and save system report in html format
  template:
    dest: /var/www/html/{{ inventory_hostname }}.html
    src: system-information.html.j2
  delegate_to: node2

```

```

# Chapter-03/system-info.yml

- name: Collect System Information
  hosts: nodes
  become: true
  vars:
    report_admin_email: admin@lab.local
  tasks:
    - name: Generate System Report
      include_role:
        name: system-report

```

```
[ansible@ansible Chapter-03]$ ansible-playbook system-info.yml

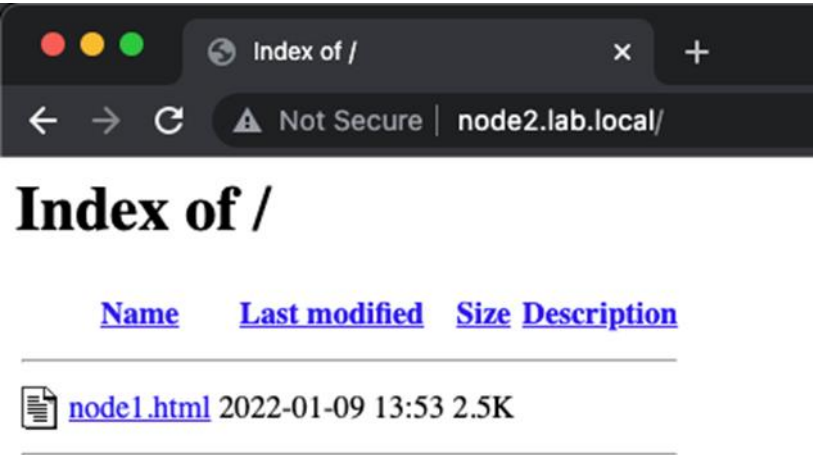
PLAY [Collect System Information] *****

TASK [Gathering Facts] *****
ok: [node1]

TASK [Generate System Report] *****

TASK [system-report : Generate and save system report in html format] *****
changed: [node1 -> node2]

PLAY RECAP *****
node1                : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

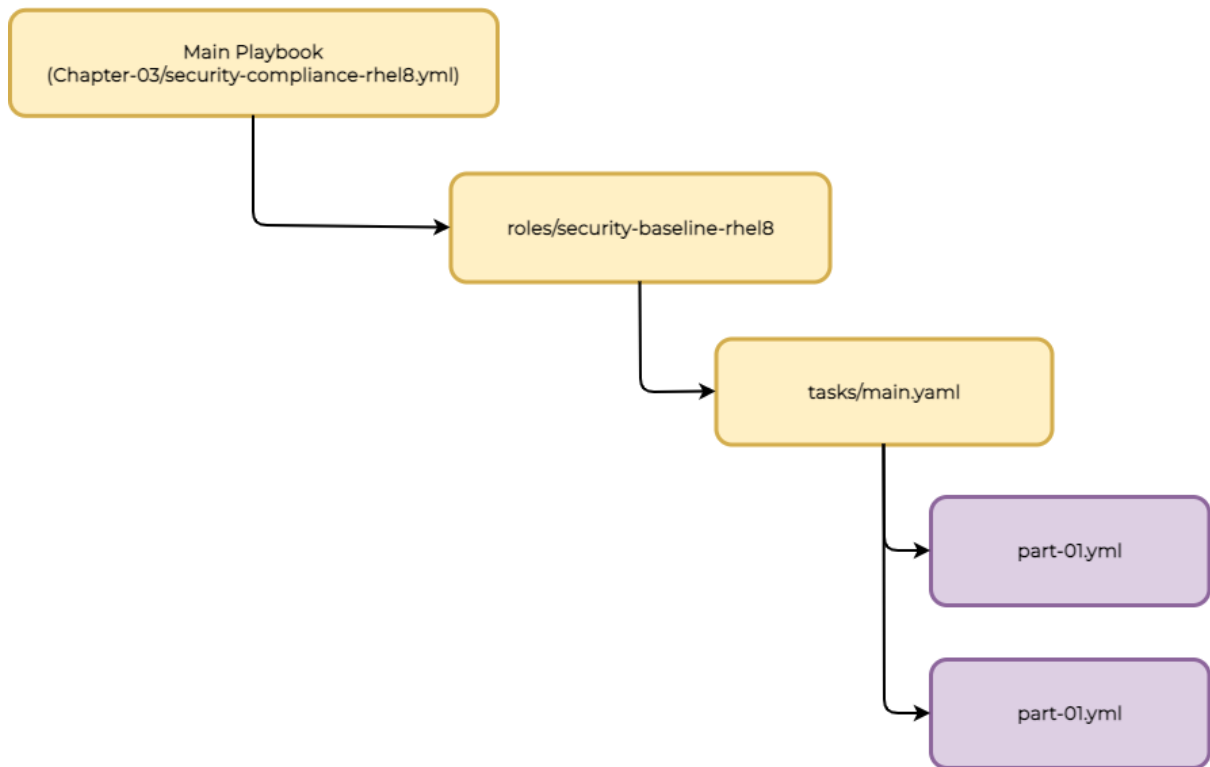


This report is generated by Ansible Automation

System Information for node-1

System Name	node-1
IP Address	['192.168.100.101', '192.168.56.25', '10.0.2.15']
Network Interfaces	['eth0', 'eth2', 'eth1', 'lo']
Architecture	x86_64
Operating System	RedHat 8.4

If you find any mismatch in report, please report to admin@lab.local



```
[ansible@ansible Chapter-03]$ cd roles/
[ansible@ansible roles]$ ansible-galaxy role init security-baseline-rhel8
- Role security-baseline-rhel8 was created successfully
```

```
---
# tasks file for security-baseline-rhel8

- name: "Running Part 01 checks"
  include_tasks: "part-01.yml"
  when: "'01.01' not in baseline_exclusions"

- name: "Running Part 02 checks"
  include_tasks: "part-02.yml"
  when: "'02.01' not in baseline_exclusions"
```

```

# part-01.yml

- name: "Ensure sudo is installed"
  dnf:
    name: sudo
    state: present

- name: "Ensure sudo log file exists"
  lineinfile:
    path: /etc/sudoers
    regexp: '^Defaults\s*logfile="{{ sudo_log }}"'
    line: 'Defaults logfile="{{ sudo_log }}"'
    insertafter: '^# Defaults specification'
    validate: /usr/sbin/visudo -cf %s
```

```

# part-02.yml

- name: "Ensure message of the day is configured properly"
  copy:
    src: "{{ motd_file }}"
    dest: /etc/motd
    owner: root
    group: root
    mode: 0644

- name: "Ensure local login warning banner is configured properly"
  copy:
    src: "{{ issue_file }}"
    dest: /etc/issue
    owner: root
    group: root
    mode: 0644
```

```

[ansible@ansible Chapter-03]$ cat roles/security-baseline-rhel8/files/banner
Authorized uses only. All activities will be monitored and reported.

[ansible@ansible Chapter-03]$ cat roles/security-baseline-rhel8/files/issue
Authorized uses only. All activities will be monitored and reported.
```

```
[ansible@ansible Chapter-03]$ tree roles/security-baseline-rhel8/
roles/security-baseline-rhel8/
├── defaults
│   └── main.yml
├── files
│   ├── banner
│   └── issue
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── README.md
├── tasks
│   ├── main.yml
│   ├── part-01.yml
│   └── part-02.yml
├── tests
│   ├── inventory
│   └── test.yml
└── vars
    └── main.yml

7 directories, 12 files
```

```
[ansible@ansible Chapter-03]$ cat vars/common.yml
sudo_log: "/var/log/sudoers"
motd_file: "banner"
issue_file: "issue"
```

```
# vars/baseline_exclusions.yml

baseline_exclusions:
  #- '01.01'
  # Ensure sudo is installed
  #- '01.02'
  # Ensure sudo log file exists
  #- 02.01
  # Ensure message of the day is configured properly
  #- 02.02
  # Ensure local login warning banner is configured properly
  - '100.100'
```

```
---
# defaults file for security-baseline-rhel8
sudo_log: "/var/log/sudoers"
motd_file: "banner"
issue_file: "issue"
```

```

---
# Chapter-03/security-compliance-rhel8.yml

- name: Performing Security Scanning and Configuration - RHEL8
  hosts: "{{ NODES }}"          # give NODES during playbook.
                                # eg: -e "NODES=webservers"

  become: true

  vars_files:
    - vars/common.yml          # common variables
    - vars/baseline_exclusions.yml # exclusion list

  tasks:
    - name: 'Starting Scanning'
      include_role:
        name: security-baseline-rhel8

```

```

[ansible@ansible Chapter-03]$ ansible-playbook security-compliance-rhel8.yml -e "NODES=nodes"

PLAY [Performing Security Scanning and Configuration - RHEL8] *****

...<output omitted>...

TASK [security-baseline-rhel8 : Running Part 01 checks] *****
included: /home/ansible/ansible-book-packt/Chapter-03/roles/security-baseline-rhel8/tasks/part-01.yml for node1

TASK [security-baseline-rhel8 : Ensure sudo is installed] *****
ok: [node1]

TASK [security-baseline-rhel8 : Ensure sudo log file exists] *****

...<output omitted>...

PLAY RECAP *****
node1                : ok=6    changed=2    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0

```

```

[ansible@ansible Chapter-03]$ ssh devops@node1
Authorized uses only. All activities will be monitored and reported.
Last login: Mon Jan 10 08:09:50 2022 from 192.168.56.23
[devops@node-1 ~]$

```

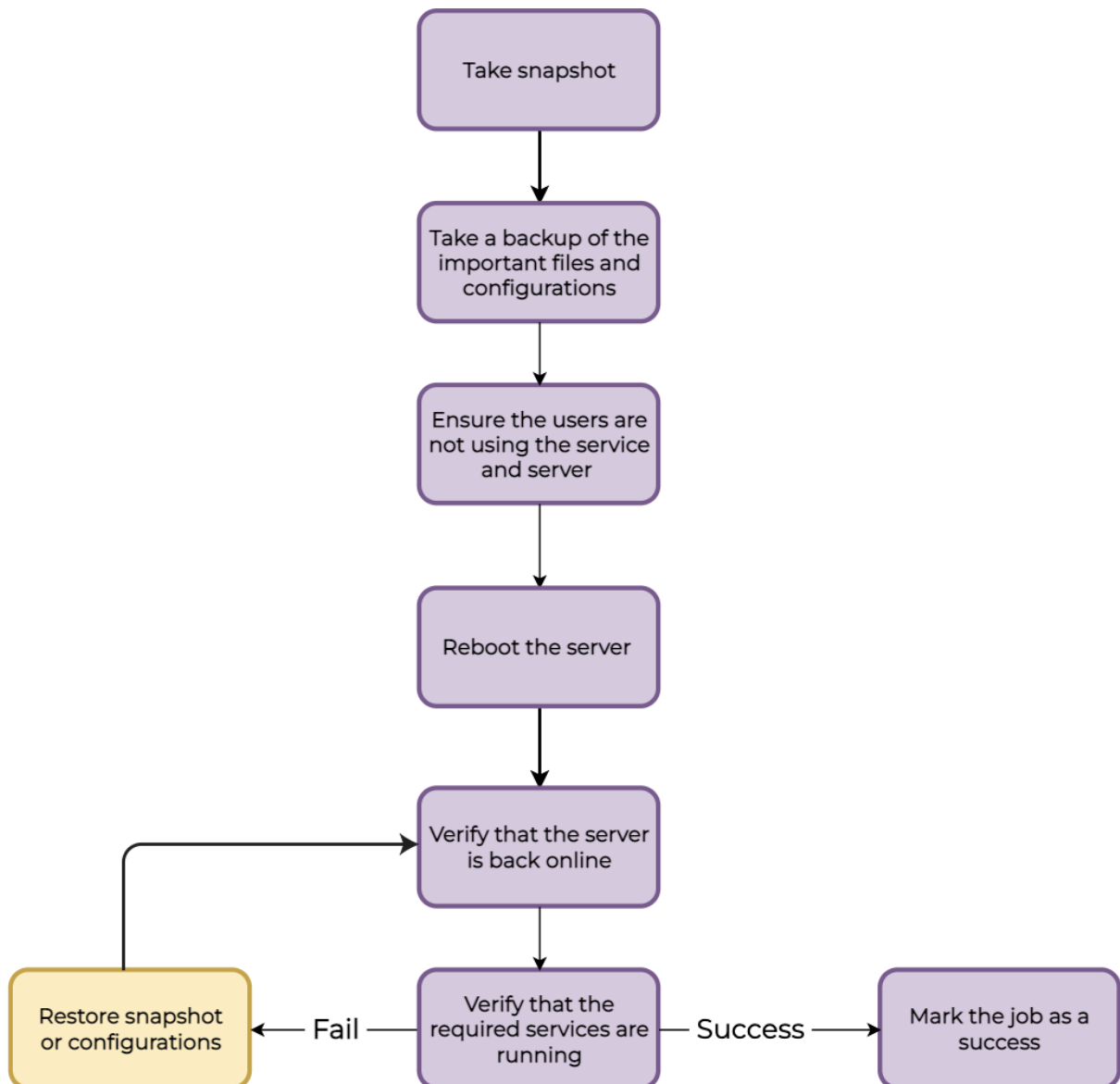
```

$ ansible-playbook site.yml --extra-vars "version=1.23.45 other_variable=foo"

$ ansible-playbook site.yml --extra-vars '{"version":"1.23.45","other_variable":"foo"}'

$ ansible-playbook site.yml --extra-vars "@vars_file.json"

```



```
---
# Chapter-03/system-reboot.yml

- name: System Reboot Linux
  hosts: "{{ NODES }}"
  gather_facts: no
  become: true
  tasks:
    - name: Running Pre-reboot tasks
      debug:
        msg: "Taking backup and snapshot"
        # you can include your backup and other jobs here.

    - name: Reboot node and wait for 5 min
      reboot:
        reboot_timeout: 300

    - name: Running Post-reboot tasks
      debug:
        msg: "Verifying services and filesystem"
        # you can include your verification tasks here.
```



```
[devops@node-1 ~]$ uptime  
09:03:22 up 0 min, 1 user, load average: 0.76, 0.24, 0.08
```



```
[ansible@ansible Chapter-03]$ ansible-vault create vars/secrets  
New Vault password:  
Confirm New Vault password:
```



```
[ansible@ansible Chapter-03]$ cat vars/secrets  
$ANSIBLE_VAULT;1.1;AES256  
38393063373031356638353866353937306462663565366266323166363130356435326564343735  
3061663831326237356430353361646235396661663538310a373337376339383561353762356265  
39363830316465346166303666373064353061343563613734343336653630656533393739643238  
3136306130633761610a646138326130333435373836303832343335373737303535353665616430  
32323537303765356366383930623631666561393661626535663135316362326134623066623234  
31373138616137346132626230626464343034306637316636633539663530303338396163666131  
383237626162626334376133663039366331
```



```
[ansible@ansible Chapter-03]$ ansible-vault view vars/secrets  
Vault password:  
mysecretusername: username  
mysecretpassword: password
```



```
[ansible@ansible Chapter-03]$ cd roles/  
[ansible@ansible roles]$ ansible-galaxy role init send-email  
- Role send-email was created successfully
```

```

---
# roles/send-email/tasks/main.yml

- name: Sending notification email
  mail:
    host: "{{ email_smtp_server }}"
    port: "{{ email_smtp_server_port }}"
    secure: try
    from: "{{ email_smtp_from_address }}"
    to: "{{ email_smtp_to_address }}"
    #cc: "{{ email_smtp_cc_address }}"
    subject: "{{ email_smtp_subject }}"
    body: "{{ email_report_body }}"
    #attach:
    # - "{{ report_file_name }}"
    headers:
      - Reply-To="{{ email_smtp_replyto_address }}"
    username: "{{ email_smtp_username }}"
    password: "{{ email_smtp_password }}"
    delegate_to: localhost

```

```

[ansible@ansible Chapter-03]$ ansible-vault create vars/smtp_secrets.yml
New Vault password:
Confirm New Vault password:

```

```

email_smtp_username: 'ansible-automation@lab.local'
email_smtp_password: 'secretpassword'
~
~
~
~
~
~
~
:wq

```

```

---
# Chapter-03/system-reboot-with-email.yml

- name: System Reboot - Linux with email notification
  hosts: "{{ NODES }}"
  gather_facts: no
  become: true
  vars_files:
    - vars/smtp_secrets.yml
  vars:
    email_smtp_server: 'smtp.mail.com'
    email_smtp_server_port: '587'
    email_smtp_from_address: 'ansible@lab.local (Ansible Automation)'
    email_smtp_to_address:
      #- 'John Doe <john@lab.local>'
      #- 'Linda <linda@lab.local>'
    #email_smtp_cc_address:
    # - 'John Doe <john@gmail.com>'
    email_smtp_replyto_address: 'no-reply@lab.local'

```

```

---
# Chapter-03/system-reboot-with-email.yml

#...<playbook continues>...

tasks:
  - name: Email notification before reboot
    include_role:
      name: send-email
    vars:
      email_report_body: "Alert: {{ inventory_hostname }} is rebooting as per schedule. Please do not use the
server. Notification will be sent after the reboot activity is completed."
      email_smtp_subject: "Weekly System Reboot - {{ inventory_hostname }} - Initiated"

  - name: Running Pre-reboot tasks
    debug:
      msg: "Taking backup and snapshot"           # include your backup and other jobs here.

  - name: Reboot node and wait for 5 min
    reboot:
      reboot_timeout: 300

  - name: Running Post-reboot tasks
    debug:
      msg: "Verifying services and filesystem" # include your verification tasks here.

  - name: Email notification after reboot
    include_role:
      name: send-email
    vars:
      email_report_body: "Alert: {{ inventory_hostname }} reboot activity has been completed."
      email_smtp_subject: "Weekly System Reboot - {{ inventory_hostname }} - completed"

```

```

[ansible@ansible Chapter-03]$ ansible-playbook system-reboot-with-email.yml -e "NODES=nodes"
ERROR! Attempting to decrypt but no vault secrets found

```

```

[ansible@ansible Chapter-03]$ ansible-playbook system-reboot-with-email.yml -e "NODES=nodes" --ask-vault-password
Vault password:






PLAY [System Reboot - Linux with email notification]
*****

TASK [Email notification before reboot]
*****

TASK [send-email : Sending notification email]
*****
*
...<output omitted>...

```


▼ Mail

-  **Inbox** 5
-  Starred
-  Snoozed
-  Important
-  Sent



Primary



Social



Promotions

- ☐  **Ansible Automation** 09:48
- Weekly System Reboot - node1 - completed**
- Alert: node1 reboot activity has been completed. 
-
- ☐  **Ansible Automation** 09:48
- Weekly System Reboot - node1 - Initiated**
- Alert: node1 is rebooting as per schedule. Please do not use t... 

Chapter 4: Exploring Collaboration in Automation Development

```

$ ls -l
total 0
drwxr-xr-x 14 gini staff 448 21 Jan 12:46 ansible-role-pgsql-replication
drwxr-xr-x 12 gini staff 384 21 Jan 12:45 ansible-role-repo-epel
drwxr-xr-x 11 gini staff 352 21 Jan 12:42 ansible-role-setup-user
drwxr-xr-x 14 gini staff 448 21 Jan 12:45 ansible-role-system-facts-report
drwxr-xr-x 15 gini staff 480 21 Jan 12:41 ansible-role-tower-setup

```

```


[ansible@ansible ansible-collections]$ ls -l
total 0
drwxr-xr-x 14 gini staff 448 21 Jan 13:22 ansible-collection-custom-modules
drwxr-xr-x 5 gini staff 160 21 Jan 13:21 ansible-collection-kubernetes_home_lab

```

```

├─ ansible-inventory-development
│   ├── group_vars
│   │   └─ mysqlservers
│   ├── host_vars
│   └─ inventory
├─ ansible-inventory-production
│   ├── group_vars
│   │   ├── mysqlservers
│   │   └─ webservers
│   ├── host_vars
│   └─ inventory
└─ ansible-inventory-staging
    ├── group_vars
    │   ├── mysqlservers
    │   └─ webservers
    ├── host_vars
    └─ inventory

```

Already have an account? [Sign in](#) →

Welcome to GitHub!
Let's begin the adventure

Enter your email
✓ demo1@techbeatly.com



Create a password
✓

Enter a username
→ demouser-2022


Continue

demouser-2022 is available.

By creating an account, you agree to the [Terms of Service](#). For more information about GitHub's privacy practices, see the [GitHub Privacy Statement](#). We'll occasionally send you account-related emails.

 Your GitHub launch code  Inbox x

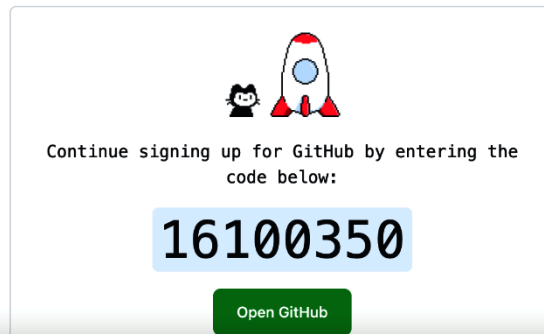


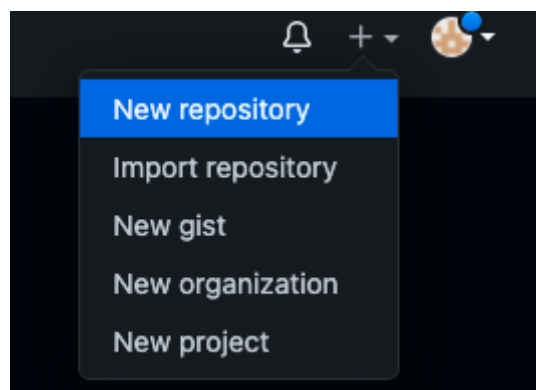
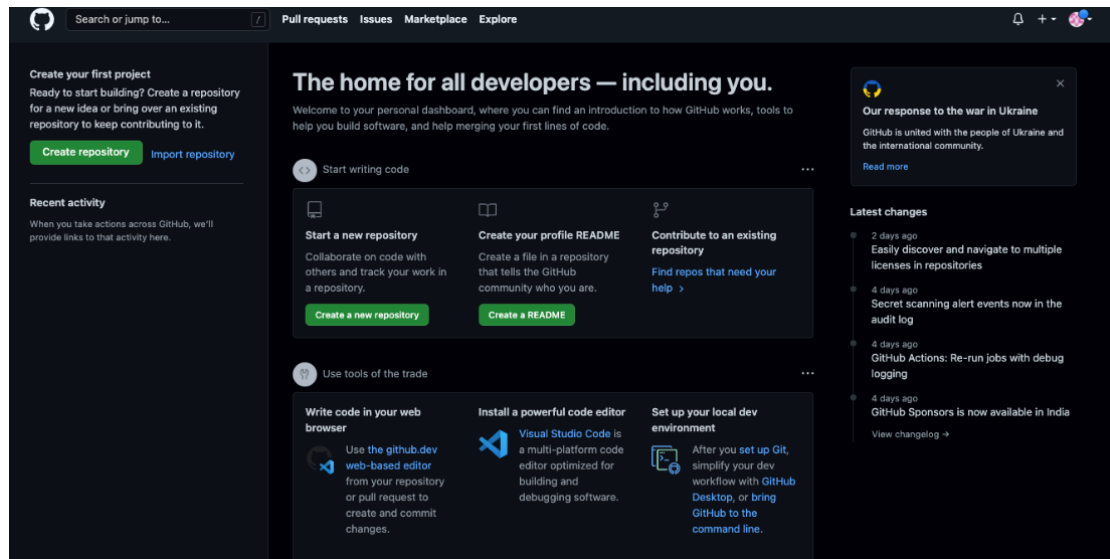
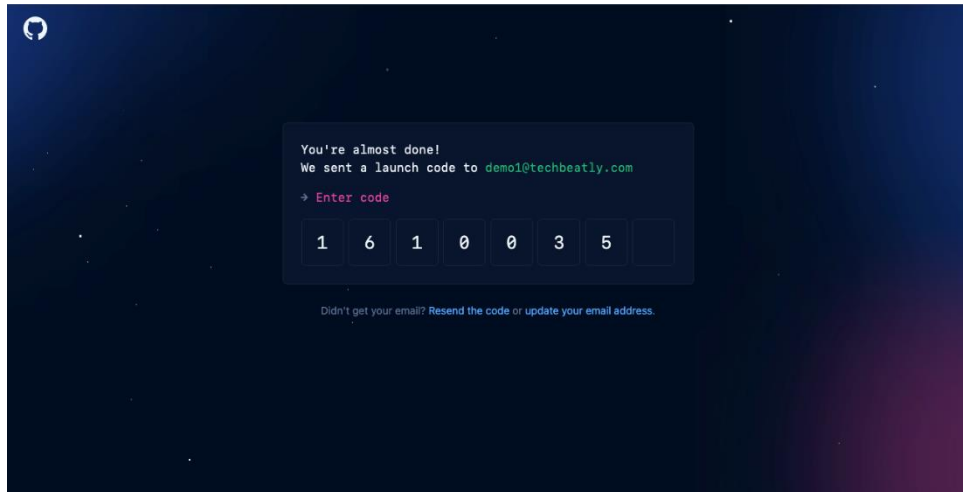
 **GitHub** <noreply@github.com>
to demouser-2022 ▾


19:47 (1 minute ago) ☆ ↶ ⋮



Here's your GitHub launch code, @demouser-2022!










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Create a new repository



A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner

 demouser-2022

/


Repository name

 ansible-package-installation 


Great repository names are short and memorable. Need inspiration? How about [legendary-adventure?](#)

Description (optional)

Ansible playbooks for package installaton

 **Public**

Anyone on the internet can see this repository. You choose who can commit.

 **Private**

You choose who can see and commit to this repository.

Initialize this repository with:

Skip this step if you're importing an existing repository.

☒ **Add a README file**

This is where you can write a long description for your project. [Learn more](#).

Add .gitignore

Choose which files not to track from a list of templates. [Learn more](#).


.gitignore template: None

Choose a license


A license tells others what they can and can't do with your code. [Learn more](#).

License: None

This will set `main` as the default branch. Change the default name in your [settings](#).




 You are creating a public repository in your personal account.

Create repository







Search or jump to...




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demouser-2022 / ansible-package-installation Public

  1   0


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 main  1 branch  0 tags

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 demouser-2022 Initial commit

e82e43b now 1 commit

 README.md Initial commit now


README.md


ansible-package-installation


Ansible playbooks to install packages


About

Ansible playbooks to install packages

 Readme

 0 stars

 1 watching

 0 forks

Releases

No releases published

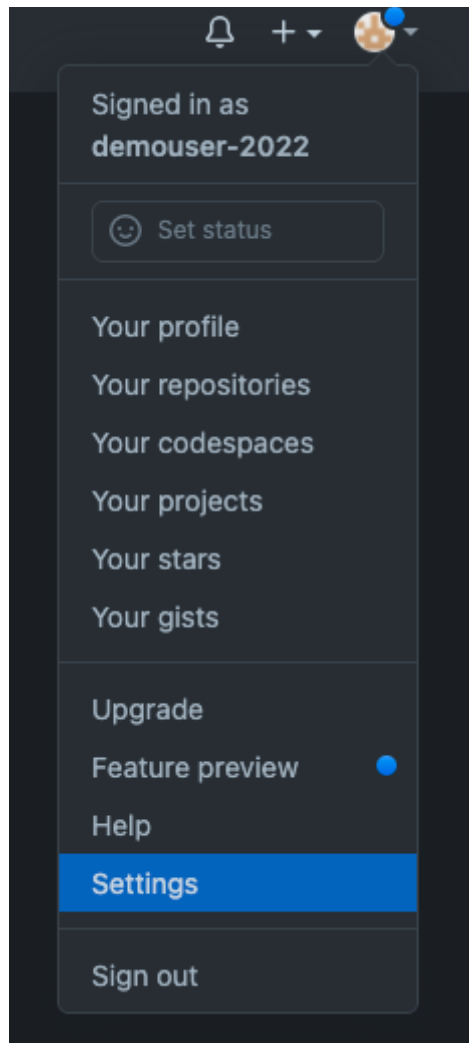
[Create a new release](#)


Packages

No packages published

[Publish your first package](#)

```
[ansible@ansible ~]$ cat ~/.ssh/id_rsa.pub
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQgQDgzrPJQ4Vp6FG04XVGUpQNzpT0y01+pS/9whfBqjvY800gfJM2eg/rpcubMsMAamCPzeFmy0RKXIHixAno5Snm9
VcENfobknHb4IQmRq@AT0iG1niyWDJB9fUIm/3Y0Pt+ZxPiUa/iQvc8B4FqLGvBGSwB9GZE40PPFk+sfCrmDrLI+2kgBeRJ3xKqMxoj70aReHdd0/jVN
9VcUiHQ+WrTqBSHyH0bb1SCxWFScj7VKR2BnayyKrS1ED0luPKLwfcEM5s cms6tL8cwnyCvko4W2afIQqSbEdh0esoGh/fQl4c7ycFnkIxaicnReEEDEX
nBso9Ndp3PCTTojoT86RyqDUgpazjMsZkmL52YPcq2aX6RG0rE8eWIEATHNM4nH5tTMf/35j3+3WXA/9NSdvsikGet5FKL21tIy2qo5hKHgMnL9Dlpdoa
i3cnLCD/t4A/Z0bNsAMWdgZSPsmVjdCBealRJYiLJImj8sTjleruah5DlZqfZoTymuMloInxsM= ansible@ansible-controlnode
```





demouser-2022

Your personal account

Go to your personal profile

Account settings

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Account

Appearance

Accessibility

Account security

Billing & plans

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SSH and GPG keys

Repositories

Packages

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Organizations

SSH keys

New SSH key

There are no SSH keys associated with your account.

Check out our guide to [generating SSH keys](#) or troubleshoot [common SSH problems](#).

GPG keys

New GPG key

There are no GPG keys associated with your account.


Learn how to [generate a GPG key and add it to your account](#).

Vigilant mode

☐ Flag unsigned commits as unverified

This will include any commit attributed to your account but not signed with your GPG or S/MIME key.
Note that this will include your existing unsigned commits.

[Learn about vigilant mode.](#)







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Billing and plans

Emails

Password and authentication

SSH and GPG keys

Organizations

Moderation

SSH keys / Add new


Title


ansible@ansible-controlnode

Key

ssh-rsa
AAAAAB3NzaC1yc2EAAAADAQABAAQgQDgzrPJQ4Vp6FGO4XVGUpQNzpTOyO1+pS/9whfBqjvY8OOgfJM2eg/rpcu
bMsMAamCPzeFmy0RKXIHixAno5Snm9VcENfobknHb4IQmRq0ATOiG1niyWDJB9fUlm/3YOPt+ZxpIiUa/iQvc8B4Fq
LGvBGSWB9GZE4OPPFk+sfCrmDrl+2kgBeRJ3xKqMxo70aReHDdOjvN9VcUiHQ+WrtQBSHyHobb1SCxWFScj7VK
R2BnayyKrS1EDOlupKLwfcEM5scms6tL8cwnyCvko4W2afIQqSbEdhOesoGh/fQI4c7ycFnklxaicnReEEDEXnBso9Nd
p3PCTojoT86RyqDUgpazjMsZkmL52YPcq2aX6RGOrE8eWleATHNNM4nH5tTMf/35j3+3WXA/9NSdvsikGet5FKL21t
ly2qo5hKHgMnL9Dipdoi3cniCD/t4A/Z0bNsAMWDgzSPsmVjdDCBealRJYiLJimj8sTJleruah5DIzQfZoTymuMloInxsM
= ansible@ansible-controlnode

Add SSH key

 Search or jump to... Pull requests Issues Marketplace Explore


 **demouser-2022**
Your personal account [Go to your personal profile](#)

[Account settings](#)[Profile](#)[Account](#)[Appearance](#)[Accessibility](#)[Account security](#)[Billing & plans](#)[Security log](#)[Security & analysis](#)[Sponsorship log](#)[Emails](#)

SSH keys

[New SSH key](#)

This is a list of SSH keys associated with your account. Remove any keys that you do not recognize.

 **ansible@ansible-controlnode**
SHA256:VCDCMmYff/1LpGjAQrgm1DsZQ2ygyQ1qs16VQf0V/M
Added on 21 Jan 2022
Never used — Read/write [Delete](#)


Check out our guide to [generating SSH keys](#) or troubleshoot [common SSH problems](#).


GPG keys

[New GPG key](#)

There are no GPG keys associated with your account.


Learn how to [generate a GPG key](#) and add it to your account .


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[main](#) 1 branch 0 tags [Go to file](#) [Add file](#) [Code](#)

 **demouser-2022** Initial commit e02e43b 1 hour ago 1 commit

 **README.md** Initial commit 1 hour ago

README.md

ansible-package-installation

Ansible playbooks to install packages

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Ansible playbooks to install packages

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No packages published

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[main](#) 1 branch 0 tags [Go to file](#) [Add file](#) [Code](#)


 **demouser-2022** Initial commit

 **README.md** Initial commit


README.md

ansible-package-installation


Ansible playbooks to install packages


 **Clone**

HTTPS SSH GitHub CLI [New](#)



Use a password-protected SSH key.

 **Open with GitHub Desktop**

 **Download ZIP**



```
[ansible@ansible ~]$ git clone git@github.com:demouser-2022/ansible-package-installation.git
Cloning into 'ansible-package-installation'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
```



```
[ansible@ansible ~]$ cd ansible-package-installation/
[ansible@ansible ansible-package-installation]$ ls -la
total 4
drwxrwxr-x. 3 ansible ansible 35 Jan 21 14:25 .
drwxrwxrwt. 9 root root 208 Jan 21 14:25 ..
drwxrwxr-x. 8 ansible ansible 163 Jan 21 14:25 .git
-rw-rw-r--. 1 ansible ansible 69 Jan 21 14:25 README.md
```



```
[ansible@ansible ansible-package-installation]$ ls -la
total 24
drwxrwxr-x. 3 ansible ansible 121 Jan 21 14:24 .
drwx----- 13 ansible ansible 4096 May 28 03:26 ..
-rw-rw-r--. 1 ansible ansible 209 Jan 21 14:24 ansible.cfg
-rw-rw-r--. 1 ansible ansible 222 Jan 21 14:24 chrony.conf.sample
drwxrwxr-x. 8 ansible ansible 185 Jan 21 14:32 .git
-rw-rw-r--. 1 ansible ansible 135 Jan 21 14:24 hosts
-rw-rw-r--. 1 ansible ansible 558 Jan 21 14:24 install-package.yaml
-rw-rw-r--. 1 ansible ansible 69 Jan 21 14:21 README.md
```



```
[ansible@ansible ansible-package-installation]$ git status
On branch main
Your branch is up to date with 'origin/main'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    ansible.cfg
    chrony.conf.sample
    hosts
    install-package.yaml

nothing added to commit but untracked files present (use "git add" to track)
```



```
[ansible@ansible ansible-package-installation]$ git status
On branch main
Your branch is up to date with 'origin/main'.




Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   ansible.cfg
    new file:   chrony.conf.sample
    new file:   hosts
    new file:   install-package.yaml
```

```
[ansible@ansible ansible-package-installation]$ git commit -m "First commit with Ansible files"
[main 302dfcc] First commit with Ansible files
4 files changed, 51 insertions(+)
create mode 100644 ansible.cfg
create mode 100644 chrony.conf.sample
create mode 100644 hosts
create mode 100644 install-package.yaml
```

```
[ansible@ansible ansible-package-installation]$ git push
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 1.04 KiB | 1.04 MiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:demouser-2022/ansible-package-installation.git
e02e43b..302dfcc main -> main
```

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main 1 branch 0 tags

[Go to file](#) [Add file](#) [Code](#)

demouser-2022 and demouser-2022 First commit with Ansible files 302dfcc 6 minutes ago 2 commits

README.md	Initial commit	1 hour ago
ansible.cfg	First commit with Ansible files	6 minutes ago
chrony.conf.sample	First commit with Ansible files	6 minutes ago
hosts	First commit with Ansible files	6 minutes ago
install-package.yaml	First commit with Ansible files	6 minutes ago

README.md

ansible-package-installation

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main


Commits on Jan 21, 2022

First commit with Ansible files

 demouser-2022 authored and demouser-2022 committed 9 minutes ago

[302dfcc](#) [Code](#)

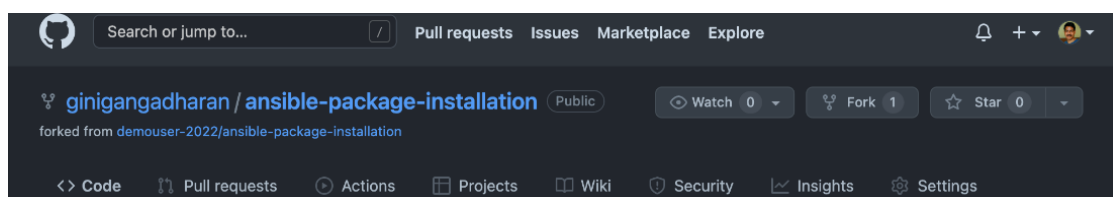
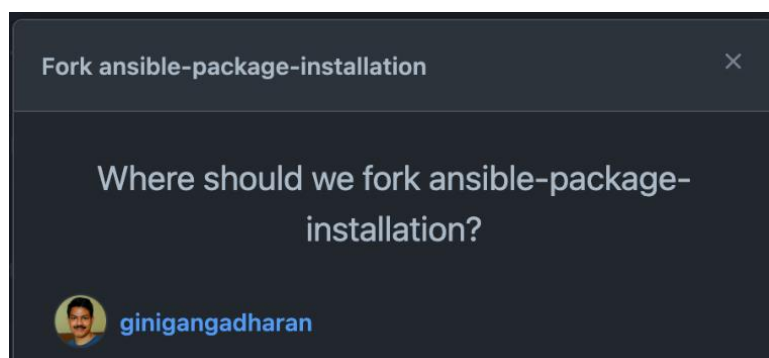
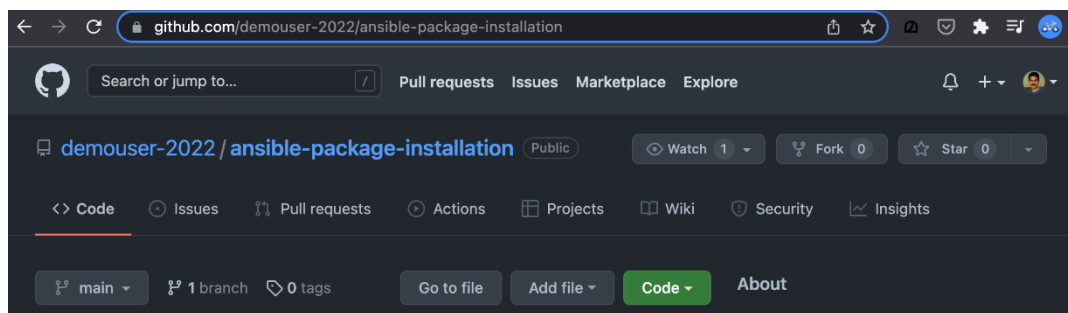
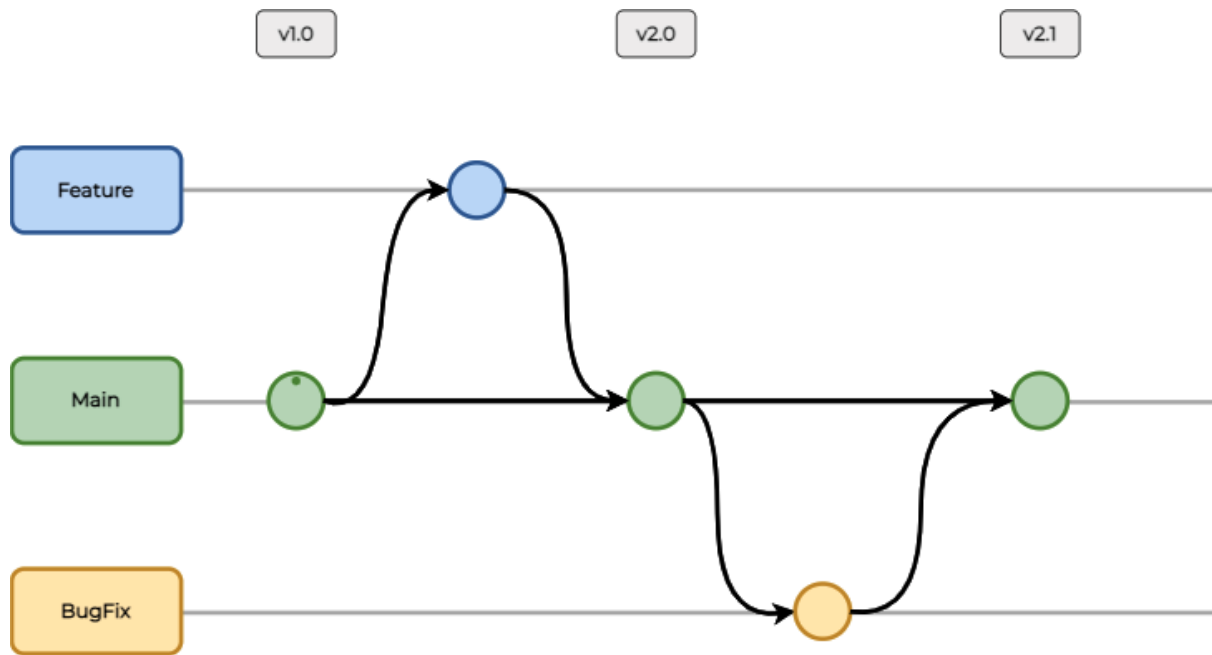
Initial commit

 demouser-2022 committed 1 hour ago

Verified [e02e43b](#) [Code](#)

Newer

Older





```
$ git clone git@github.com:ginigangadharan/ansible-package-installation.git
Cloning into 'ansible-package-installation'...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (8/8), done.
Receiving objects: 100% (9/9), done.
remote: Total 9 (delta 0), reused 6 (delta 0), pack-reused 0

$ cd ansible-package-installation
$ ls -l
total 40
-rw-r--r-- 1 gini staff 69 22 Jan 12:33 README.md
-rw-r--r-- 1 gini staff 209 22 Jan 12:33 ansible.cfg
-rw-r--r-- 1 gini staff 222 22 Jan 12:33 chrony.conf.sample
-rw-r--r-- 1 gini staff 135 22 Jan 12:33 hosts
-rw-r--r-- 1 gini staff 558 22 Jan 12:33 install-package.yaml
```



```
$ git status
On branch feature-1
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   install-package.yaml

no changes added to commit (use "git add" and/or "git commit -a")
```



```
$ git add *
$ git commit -m "updated install-package.yaml"
[feature-1 6e7004b] updated install-package.yaml
1 file changed, 2 insertions(+), 2 deletions(-)
```

```
$ git log
commit 898e5dfde4d90805feb579d245efdce5a18738c7 (HEAD -> feature-1)
Author: ginigangadharan <net.gini@gmail.com>
Date: Sat Jan 22 13:04:26 2022 +0800

    updated install-package.yaml

commit 302dfccd4cc5b018e17619d8fba107b9f230350 (origin/main, origin/HEAD, main)
Author: demouser-2022 <M demo1@techbeatly.com>
Date: Fri Jan 21 14:32:14 2022 +0000

    First commit with Ansible files

commit e02e43be5e66504e6c129443b38c228245a6444a
Author: demouser-2022 <98160880+demouser-2022@users.noreply.github.com>
Date: Fri Jan 21 21:23:13 2022 +0800

    Initial commit
```

```
$ git push -u origin feature-1
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
...<output omitted>...
* [new branch] feature-1 -> feature-1
Branch 'feature-1' set up to track remote branch 'feature-1' from 'origin'.
```

The screenshot shows the GitHub interface for a repository named 'ginigangadharan / ansible-package-installation'. The repository is public and was forked from 'demouser-2022/ansible-package-installation'. The 'Pull requests' tab is selected, showing a notification that 'feature-1' had recent pushes 8 minutes ago. A green button labeled 'Compare & pull request' is visible. Below the notification, there are filters for 'is:pr is:open', 9 labels, and 0 milestones. A green button labeled 'New pull request' is also present.

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).


base repository: demouser-2022/ansible-pac... base: main ←

head repository: ginigangadharan/ansible-pac... compare: feature-1 ▾

✓ **Able to merge.** These branches can be automatically merged.

Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

Create pull request



PullsIssuesMarketplaceExplore

demouser-2022 / ansible-package-installation Public


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updated install-package.yaml #1 EditCode ▾

Open ginigangadharan wants to merge 1 commit into demouser-2022:main from ginigangadharan:feature-1

Conversation 0Commits 1Checks 0Files changed 1 +2 -1



ginigangadharan commented 2 minutes ago First-time contributor

No description provided.

updated install-package.yaml 898e5df

Reviewers

No reviews

Still in progress? Convert to draft

Assignees

No one—assign yourself

Labels

None yet

Projects

None yet

Milestone

No milestone

Linked issues

Successfully merging this pull request may close these issues.

Add more commits by pushing to the **feature-1** branch on **ginigangadharan/ansible-package-installation**.

Continuous integration has not been set up

[GitHub Actions](#) and [several other apps](#) can be used to automatically catch bugs and enforce style.

This branch has no conflicts with the base branch

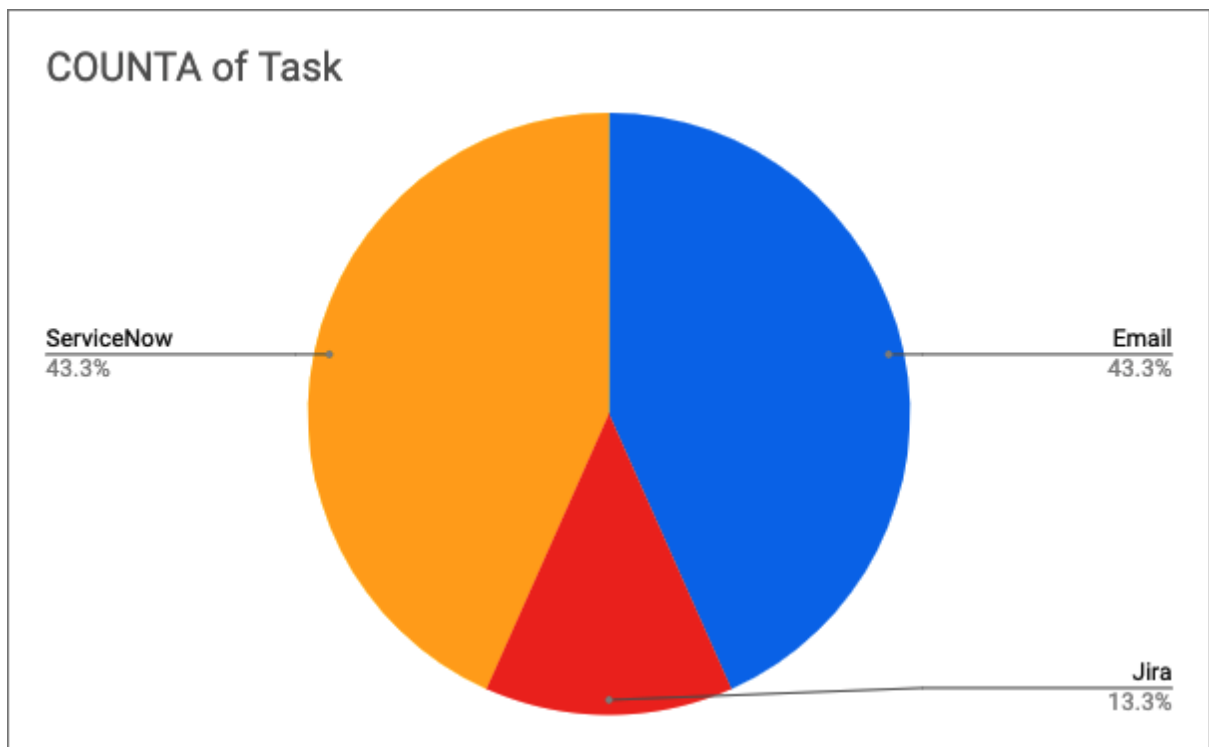
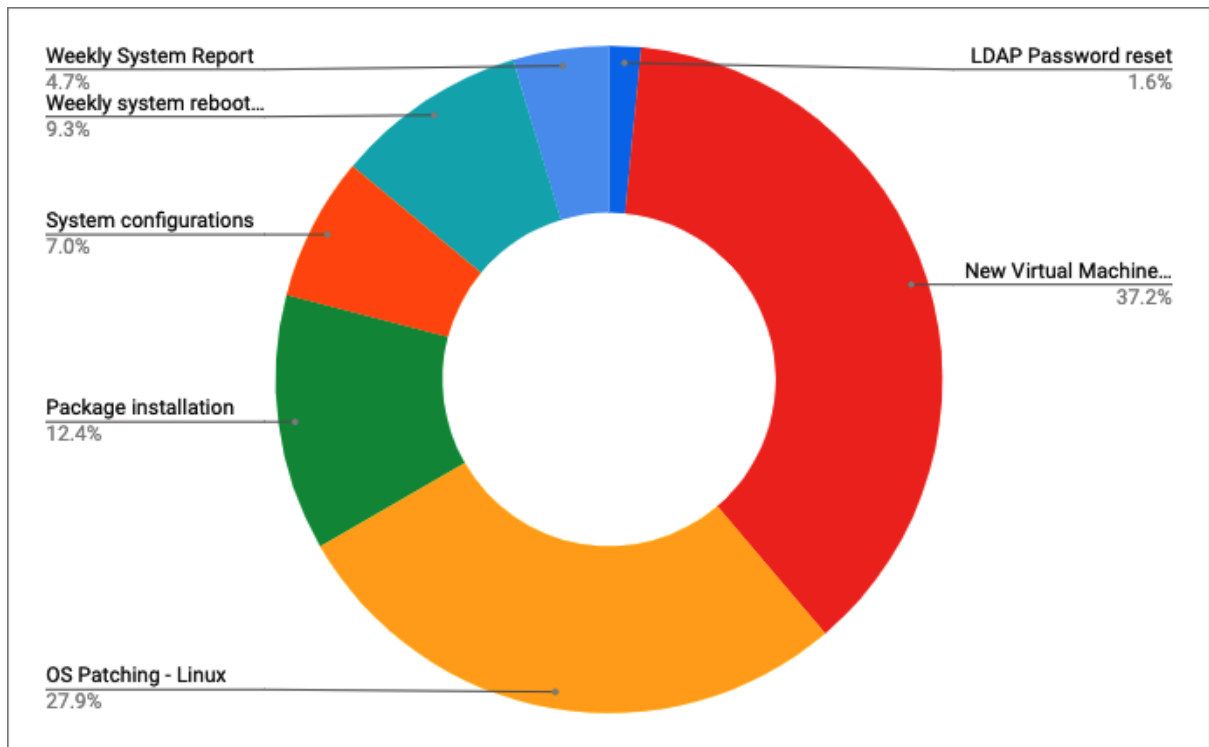
Merging can be performed automatically.

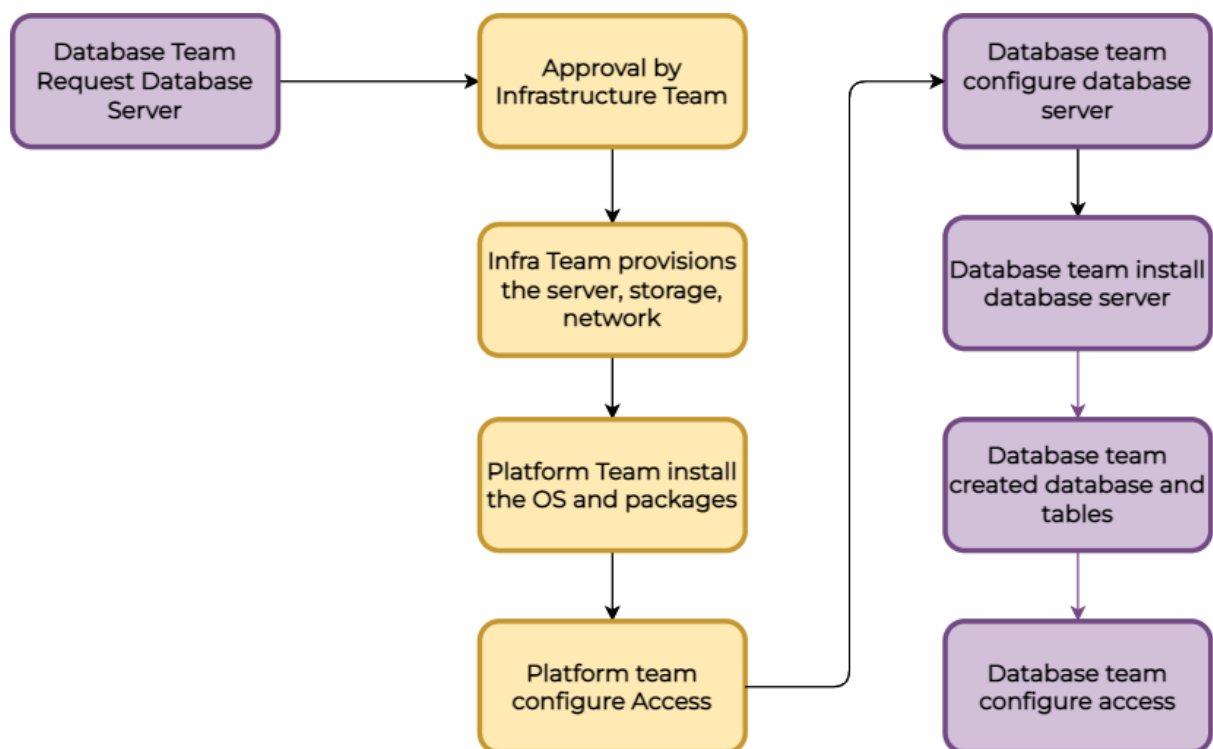
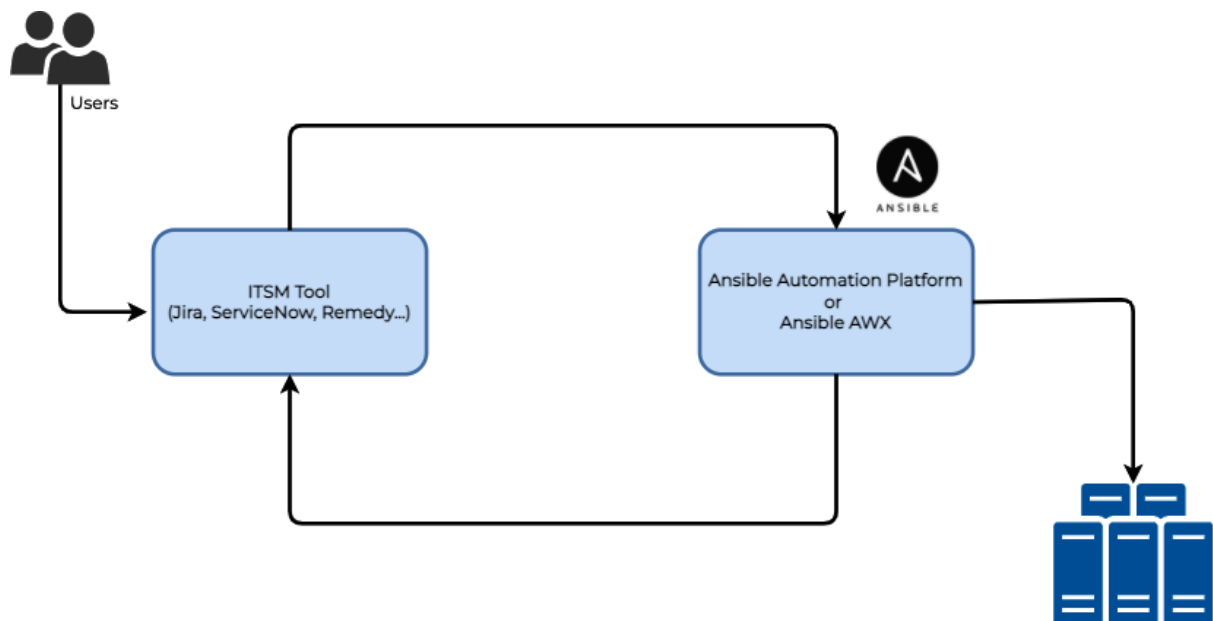
Merge pull request ▾

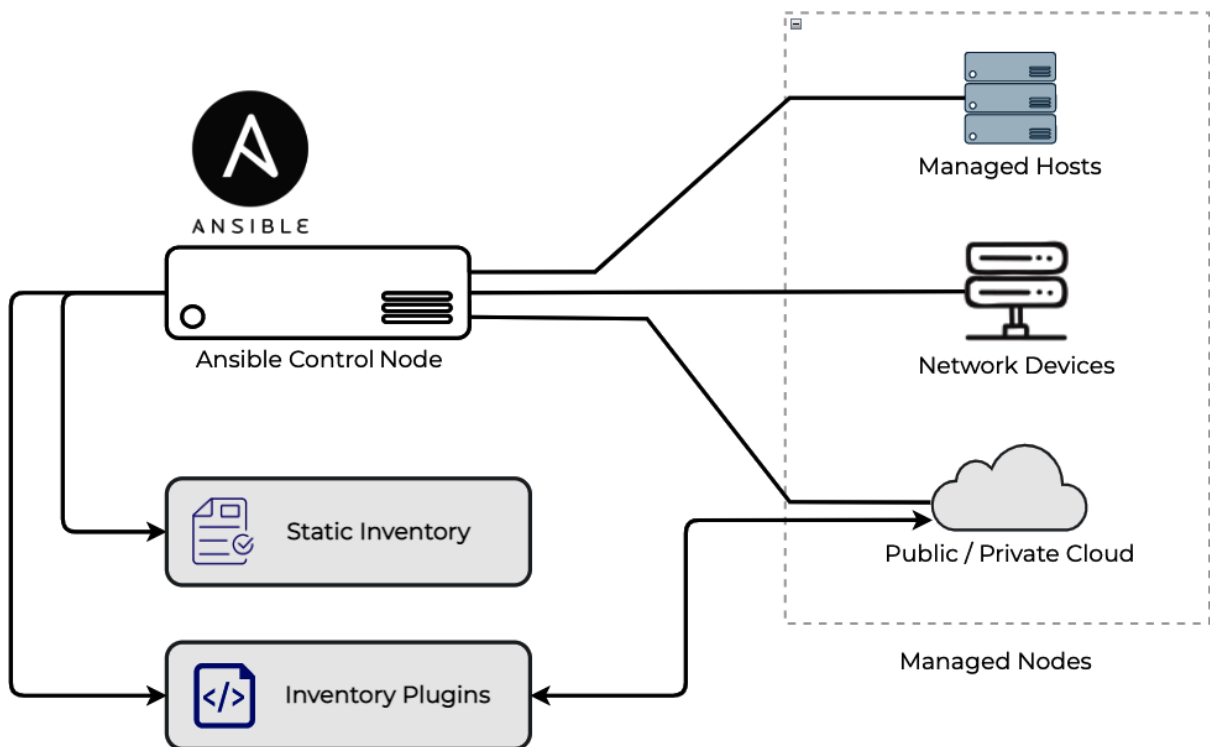
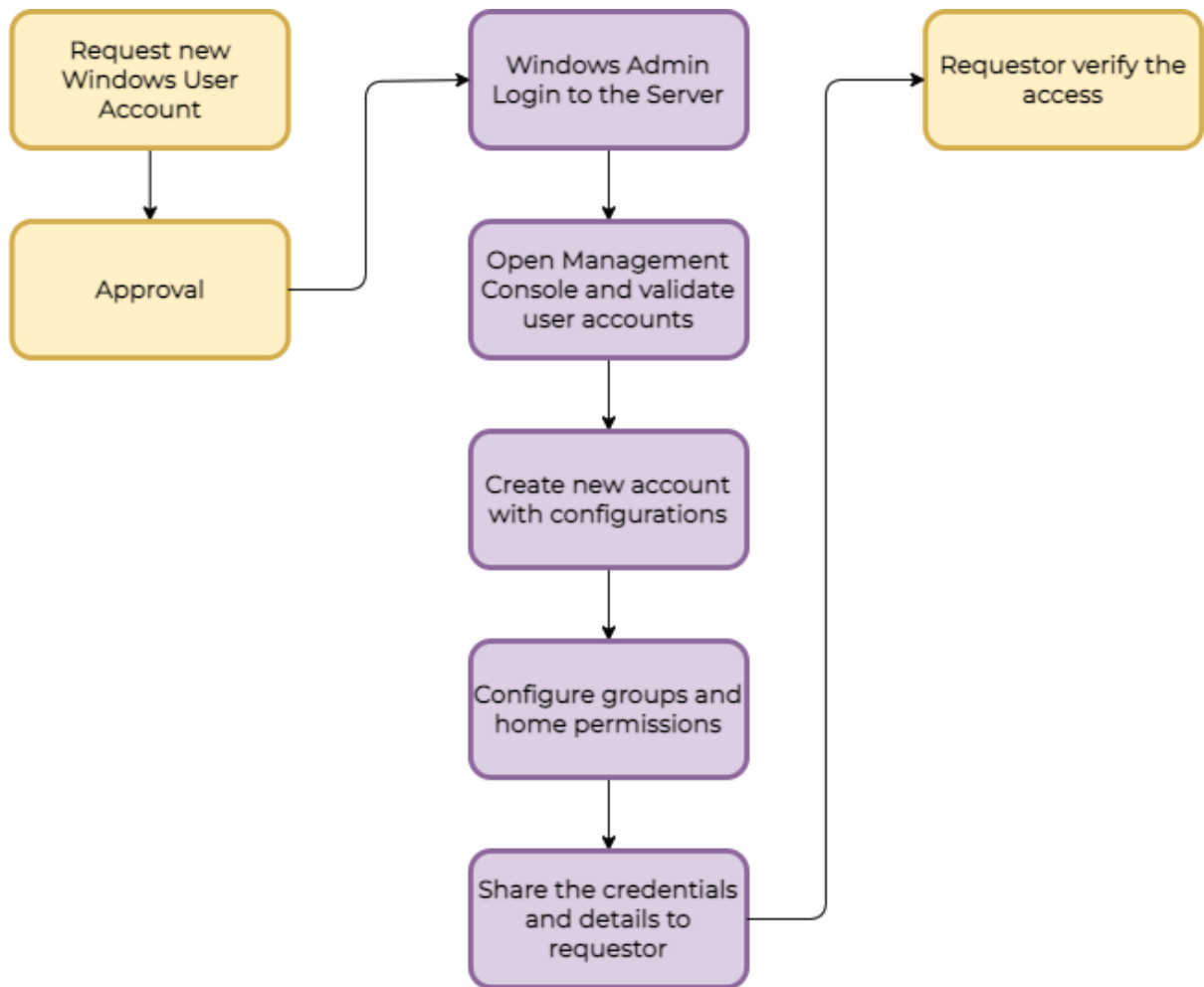
You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

Chapter 5: Expanding Your Automation Landscape

Date	Task	Minutes	Source
01-01-2021	LDAP Password reset	10	Jira
01-01-2021	Package installation	120	ServiceNow
01-01-2021	Package installation	100	ServiceNow
01-01-2021	Package installation	100	ServiceNow
02-01-2021	OS Patching - Linux	120	ServiceNow
02-01-2021	OS Patching - Linux	120	ServiceNow
02-01-2021	Weekly system reboot - Linux	60	Email
02-01-2021	Weekly system reboot - Linux	60	Email
02-01-2021	Weekly system reboot - Linux	60	Email
02-01-2021	Weekly system reboot - Linux	60	Email
03-01-2021	OS Patching - Linux	120	ServiceNow
03-01-2021	OS Patching - Linux	120	ServiceNow
03-01-2021	OS Patching - Linux	120	ServiceNow
03-01-2021	OS Patching - Linux	120	ServiceNow
04-01-2021	New Virtual Machine Configuration	240	ServiceNow
04-01-2021	New Virtual Machine Configuration	240	ServiceNow
04-01-2021	New Virtual Machine Configuration	240	ServiceNow
04-01-2021	New Virtual Machine Configuration	240	ServiceNow
04-01-2021	Additional disk configuration	120	Email
04-01-2021	Additional disk configuration	120	Email
04-01-2021	Additional disk configuration	120	Email
04-01-2021	Additional disk configuration	120	Email
06-01-2021	LDAP Password reset	10	Jira
06-01-2021	System configurations	60	Email
06-01-2021	System configurations	60	Email
06-01-2021	System configurations	60	Email
07-01-2021	LDAP Password reset	10	Jira
07-01-2021	LDAP Password reset	10	Jira
07-01-2021	Weekly System Report	60	Email
07-01-2021	Weekly System Report	60	Email









```
[ansible@ansible Chapter-05]$ ansible-galaxy collection list amazon.aws

# /home/ansible/ansible-book-packt/Chapter-05/collections/ansible_collections
Collection Version
-----
amazon.aws 3.0.0
```



```
[ansible@ansible Chapter-05]$ ansible-doc -t inventory -l |grep aws
amazon.aws.aws_ec2          EC2 inventory sourc...
amazon.aws.aws_rds          rds instance source
```

Add user



Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name*

[+ Add another user](#)

Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

- Access type* ☒ **Programmatic access**
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.
- ☐ **AWS Management Console access**
Enables a **password** that allows users to sign-in to the AWS Management Console.

Add user

1

2

3

Set permissions

Add user to group

Copy permissions from existing user

Attach existing policies directly

Create policy

Filter policies

 Search

Showing

	Policy name	Type	Used as
<input checked="" type="checkbox"/>	AdministratorAccess	Job function	Permissions policy (1)
<input type="checkbox"/>	AdministratorAccess-Amplify	AWS managed	None
<input type="checkbox"/>	AdministratorAccess-AWSElasticBeanstalk	AWS managed	None
<input type="checkbox"/>	AlexaForBusinessDeviceSetup	AWS managed	None
<input type="checkbox"/>	AlexaForBusinessFullAccess	AWS managed	None
<input type="checkbox"/>	AlexaForBusinessGatewayExecution	AWS managed	None
<input type="checkbox"/>	AlexaForBusinessLifesizeDelegatedAccessPolicy	AWS managed	None
<input type="checkbox"/>	AlexaForBusinessPolyDelegatedAccessPolicy	AWS managed	None

Add user

1

2

3

4

5

Success

You successfully created the users shown below. You can view and download user security credentials. You can also email users instructions for signing in to the AWS Management Console. This is the last time these credentials will be available to download. However, you can create new credentials at any time.

Users with AWS Management Console access can sign-in at: <https://941008431329.signin.aws.amazon.com/console>

Download .csv

User	Access key ID	Secret access key
ansible-demo		***** Show

```

[ansible@ansible Chapter-05]$ cat ~/.aws/credentials
[default]
aws_access_key_id=EXAMPLEKEY
aws_secret_access_key=EXAMPLEACCESSKEY
[ansible]
aws_access_key_id=EXAMPLEKEY
aws_secret_access_key=EXAMPLEACCESSKEY

```



```
[ansible@ansible Chapter-05]$ cat ~/.aws/config
[default]
region=ap-southeast-1 output=json
```



```
[ansible@ansible Chapter-05]$ mkdir inventories/aws

[ansible@ansible Chapter-05]$ cd inventories/aws/
[ansible@ansible aws]$ cat lab.aws_ec2.yml
# lab.aws_ec2.yml
plugin: amazon.aws.aws_ec2
boto_profile: ansible
regions:
  - ap-southeast-1
```



```
[ansible@ansible Chapter-05]$ ansible-inventory -i inventories/aws/ --graph
@all:
  |--@aws_ec2:
  |  |--ec2-13-250-108-199.ap-southeast-1.compute.amazonaws.com
  |  |--ec2-13-250-48-91.ap-southeast-1.compute.amazonaws.com
  |  |--ec2-54-179-175-153.ap-southeast-1.compute.amazonaws.com
  |--@ungrouped:
```


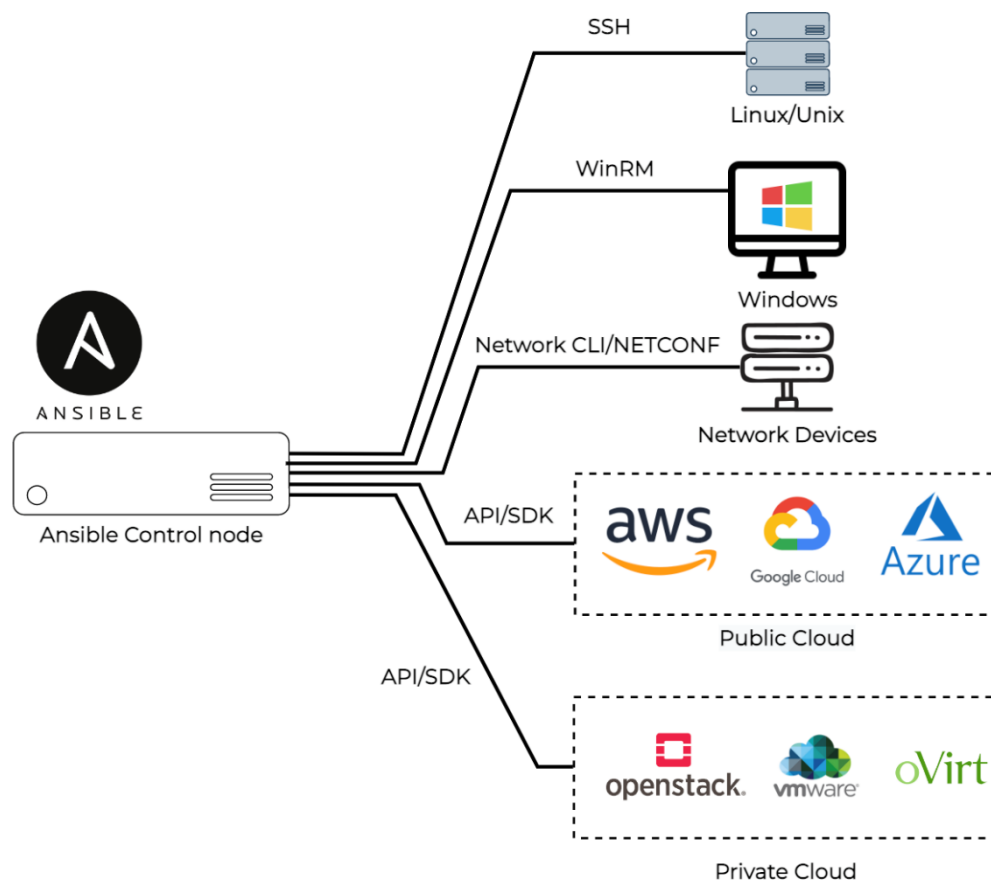


```
[ansible@ansible Chapter-05]$ ansible-inventory -i inventories/aws/ --graph
@all:
  |--@aws_ec2:
  |  |--ec2-54-179-175-153.ap-southeast-1.compute.amazonaws.com
  |--@ungrouped:
```



```
[ansible@ansible Chapter-05]$ ansible all -m ping -i inventories/aws/
ec2-13-250-108-199.ap-southeast-1.compute.amazonaws.com | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
```

Chapter 6: Automating Microsoft Windows and Network Devices



<code>\$ ansible-doc -l -t connection</code>	
<code>ansible.netcommon.httpapi</code>	Use httpapi to run command on network applia...
<code>ansible.netcommon.libssh</code>	(Tech preview) Run tasks using libssh for ss...
<code>ansible.netcommon.napalm</code>	Provides persistent connection using NAPALM
<code>ansible.netcommon.netconf</code>	Provides a persistent connection using the n...
<code>ansible.netcommon.network_cli</code>	Use network_cli to run command on network ap...
<code>ansible.netcommon.persistent</code>	Use a persistent unix socket for connection
<code>community.aws.aws_ssm</code>	execute via AWS Systems Manager
<code>community.docker.docker</code>	Run tasks in docker containers
<code>...</code>	
<code><output omitted></code>	
<code>...</code>	
<code>containers.podman.podman</code>	Interact with an existing podman container
<code>kubernetes.core.kubectl</code>	Execute tasks in pods running on Kubernetes
<code>local</code>	execute on controller
<code>paramiko_ssh</code>	Run tasks via python ssh (paramiko)
<code>psrp</code>	Run tasks over Microsoft PowerShell Remoting...
<code>ssh</code>	connect via ssh client binary
<code>winrm</code>	Run tasks over Microsoft's WinRM



```
[ansible@ansible Chapter-06]$ ansible-doc -s -t connection community.docker.docker  
> COMMUNITY.DOCKER.DOCKER (/home/ansible/ansible-book-packt/Chapter-06/collections/ansible_collectio>
```

Run commands or put/fetch files to an existing docker container. Uses the Docker CLI to execute commands in the container. If you prefer to directly connect to the Docker daemon, use the community.docker.docker_api connection plugin.

OPTIONS (= is mandatory):

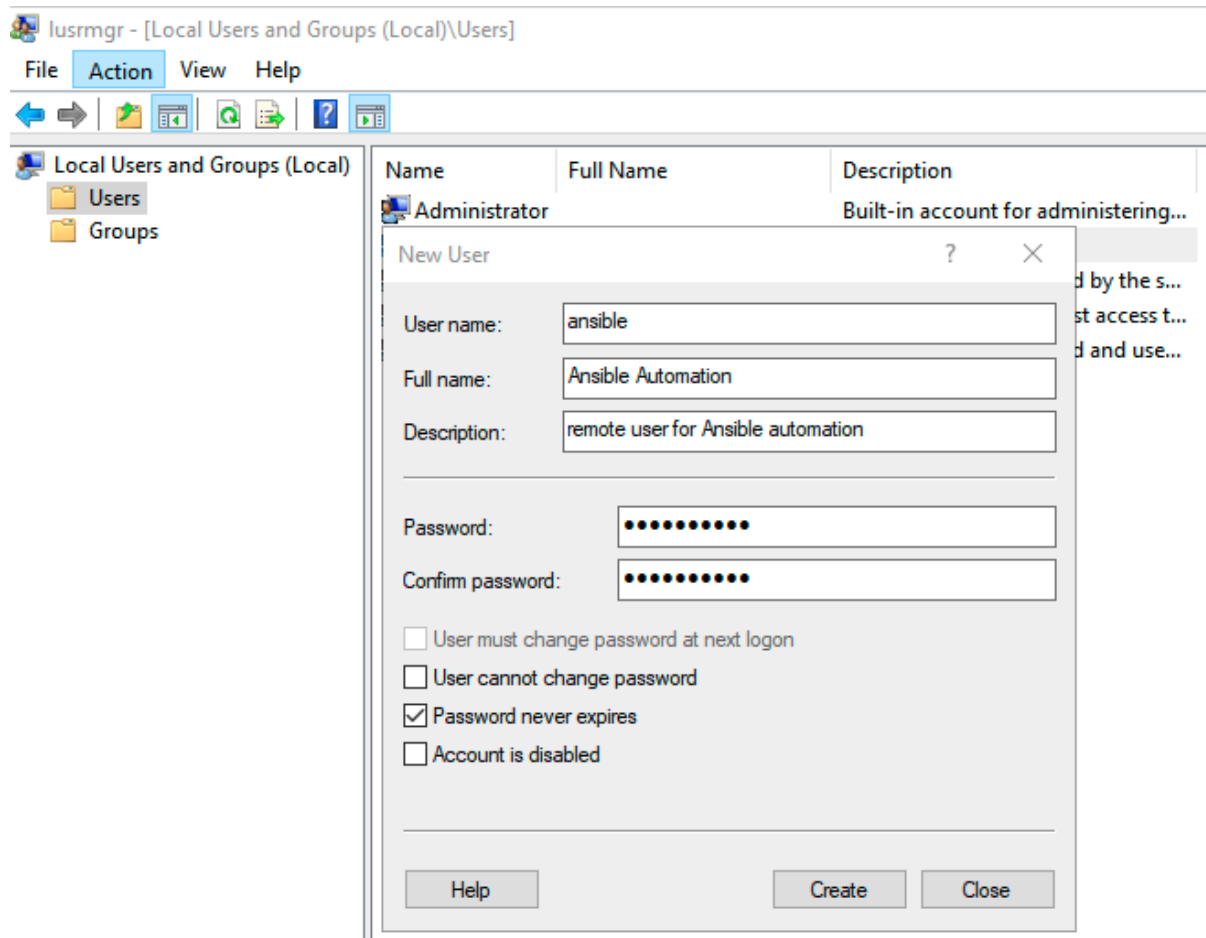
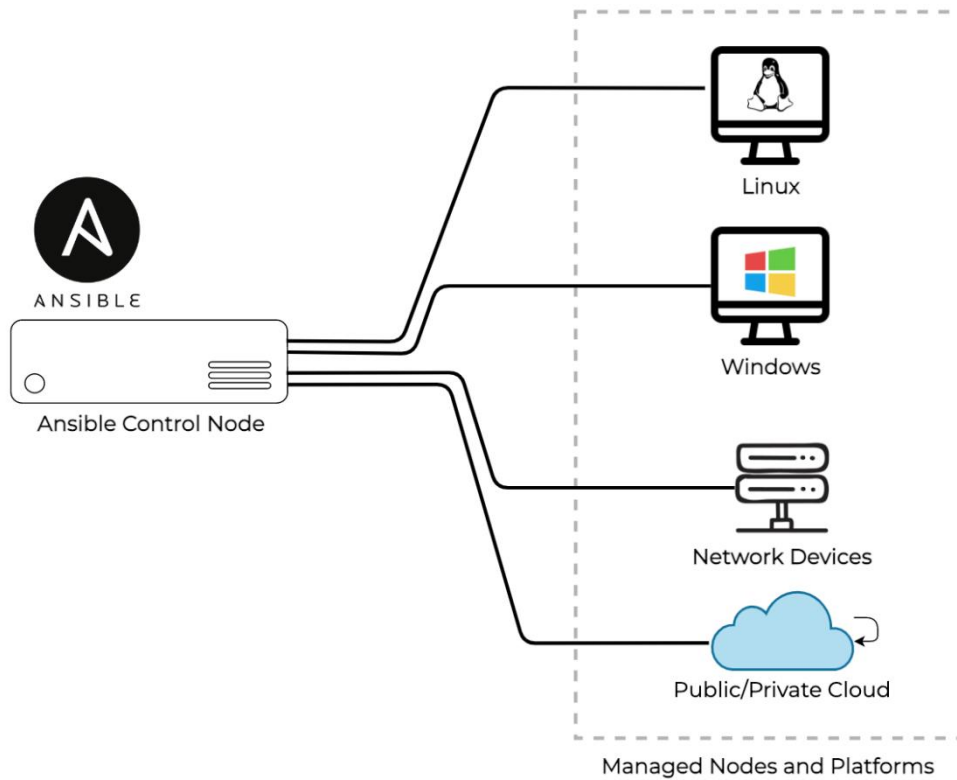
```
- container_timeout  
  Controls how long we can wait to access reading output from the container  
  once execution started.  
  [Default: 10]  
  set_via:  
    env:  
      - name: ANSIBLE_TIMEOUT  
      - name: ANSIBLE_DOCKER_TIMEOUT  
      version_added_collection: community.docker  
    ini:  
      - key: timeout  
        section: defaults  
      - key: timeout  
:  
:
```

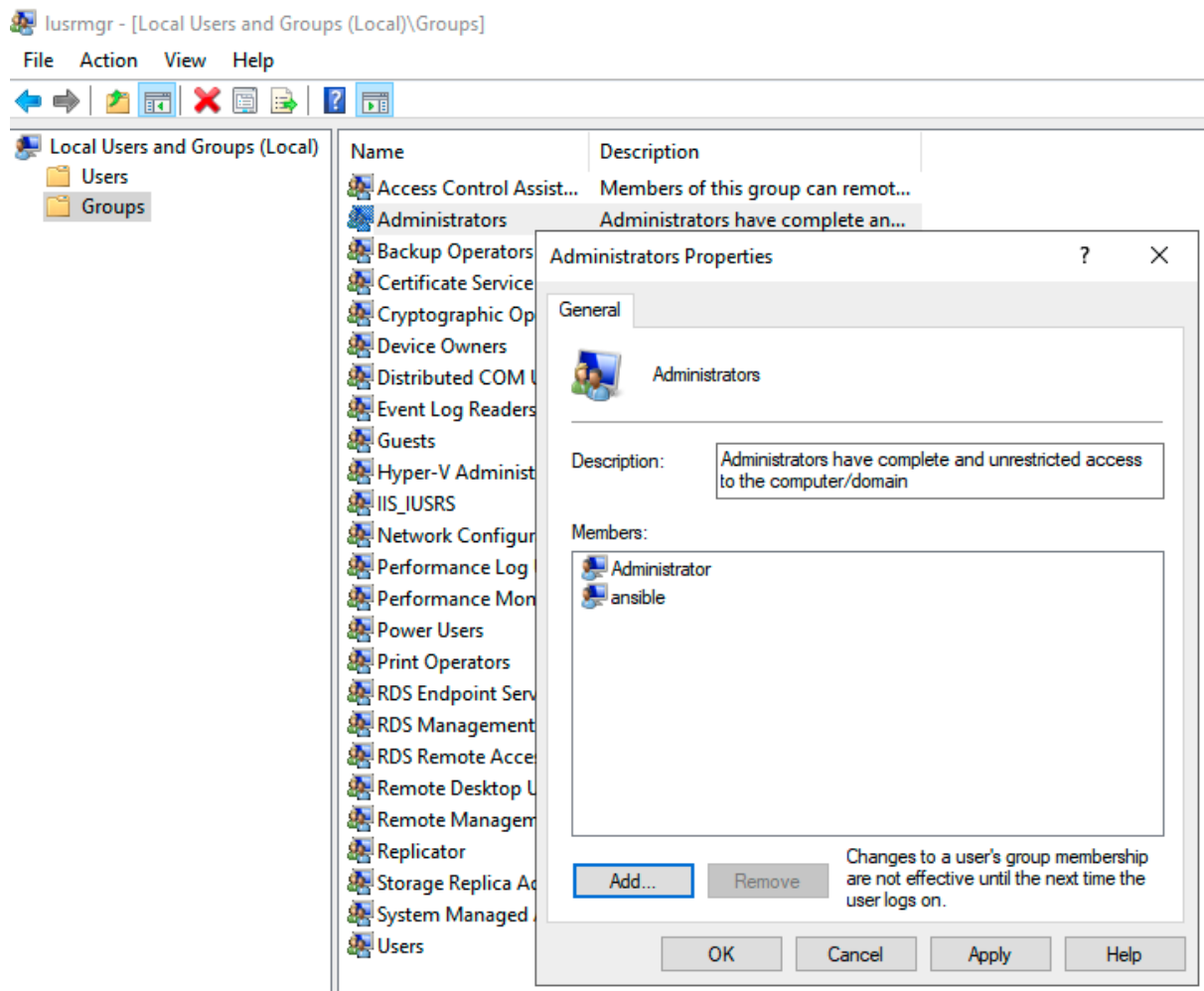


```
---  
# inventory variables  
ansible_connection: "winrm"  
ansible_user: "ansible"  
ansible_password: "MySecretWindowsPassword"  
ansible_port: "5985"  
ansible_winrm_transport: "basic"  
ansible_winrm_server_cert_validation: ignore
```



```
ansible_ssh_private_key_file=/home/ansible/.ssh/id_rsa  
ansible_ssh_common_args='-o StrictHostKeyChecking=no'
```





```
PS C:\Users\Administrator> (Get-Host).Version

Major Minor Build Revision
-----
5      1      14393  693
```



```
PS C:\Users\Administrator> $url =  
"https://raw.githubusercontent.com/ansible/ansible/devel/examples/scripts/ConfigureRemotingForAnsible.ps1"  
PS C:\Users\Administrator> $file = "$env:temp\ConfigureRemotingForAnsible.ps1"  
PS C:\Users\Administrator> (New-Object -TypeName System.Net.WebClient).DownloadFile($url, $file)  
PS C:\Users\Administrator> powershell.exe -ExecutionPolicy Bypass -File $file  
Self-signed SSL certificate generated; thumbprint: DD2BFCC45E7503BC9C05BA9174326B593614C733  
  
wxf          : http://schemas.xmlsoap.org/ws/2004/09/transfer  
a            : http://schemas.xmlsoap.org/ws/2004/08/addressing  
w            : http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd  
lang         : en-US  
Address      : http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous  
ReferenceParameters : ReferenceParameters  
  
Ok.
```



```
C:\Users\Administrator>winrm e winrm/config/listener  
Listener  
  Address = *  
  Transport = HTTP  
  Port = 5985  
  Hostname  
  Enabled = true  
  URLPrefix = wsman  
  CertificateThumbprint  
  ListeningOn = 10.0.2.15, 127.0.0.1, 192.168.99.103, ::1, fe80::5efe:10.0.2.15%3, fe80::5efe:192.168.99.103%13,  
fe80::785d:9659:c4d4:9b0f%16  
  
Listener  
  Address = *  
  Transport = HTTPS  
  Port = 5986  
  Hostname = WIN-CCUQI8Q4RMH  
  Enabled = true  
  URLPrefix = wsman  
  CertificateThumbprint = 64E69568BD75F3068BDCBF7ED819E4EA9ED1FDA3  
  ListeningOn = 10.0.2.15, 127.0.0.1, 192.168.99.103, ::1, fe80::5efe:10.0.2.15%3, fe80::5efe:192.168.99.103%13,  
fe80::785d:9659:c4d4:9b0f%16
```



```
[ansible@ansible Chapter-06]$ nc -vz 192.168.56.22 5985  
Connection to 192.168.56.22 5985 port [tcp/wsman] succeeded!  
  
[ansible@ansible Chapter-06]$ nc -vz 192.168.56.22 5986  
Connection to 192.168.56.22 5986 port [tcp/wsmans] succeeded!
```



```
[ansible@ansible Chapter-06]$ cat group_vars/windows  
---  
ansible_user: "ansible"  
ansible_password: "MySecretWindowsPassword"  
ansible_port: "5985"  
ansible_connection: "winrm"  
ansible_winrm_transport: "basic"  
ansible_winrm_server_cert_validation: ignore
```

```

[ansible@ansible Chapter-06]$ ansible windows -m win_ping
win2019 | SUCCESS => {
  "changed": false,
  "ping": "pong"
}

```

```

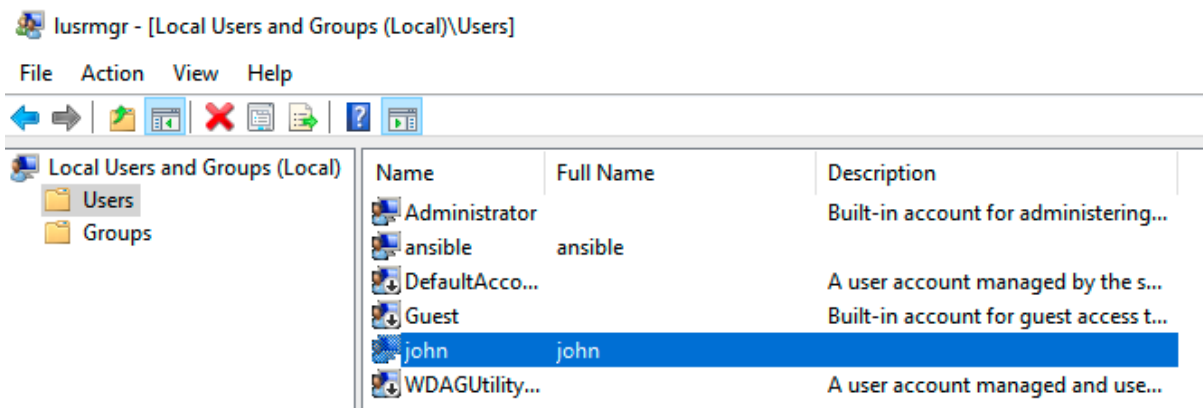
---
- name: "Create New user on Windows Machine"
  hosts: "{{ NODES }}"
  vars:
    windows_username: "john"
    windows_password: "MyP4ssw0rd"
  tasks:
    - name: Create a new User
      win_user:
        name: "{{ windows_username }}"
        password: "{{ windows_password }}"
        state: present
        groups:
          - Users
      when: ansible_os_family == 'Windows'

```

```

[ansible@ansible Chapter-06]$ ansible-playbook windows-create-user.yaml -e "NODES=windows"

```



Value of <code>ansible_connection</code>	Protocol	Requires	Persistent?
<code>ansible.netcommon.network_cli</code>	CLI over SSH	<code>network_os</code> setting	yes
<code>ansible.netcommon.netconf</code>	XML over SSH	<code>network_os</code> setting	yes
<code>ansible.netcommon.httpapi</code>	API over HTTP/HTTPS	<code>network_os</code> setting	yes
local	depends on provider	provider setting	no

```

[coreswtiches]
c7000-sw01 ansible_host=192.168.0.242

[coreswtiches:vars]
ansible_connection=ansible.netcommon.network_cli
ansible_network_os=cisco.ios.ios
ansible_password='Cisco@123'
ansible_user=admin
ansible_become_method=enable
ansible_become_password='Cisco@123'

[distributionswtiches]
hp5130ds01 ansible_host=192.168.0.253

[distributionswtiches:vars]
ansible_password=hpadmin
ansible_user=hppassword

```

```

[ansible@ansible inventories]$ cat network
...output omitted...

[vynos]
vyos-01 ansible_host=192.168.56.201

[vynos:vars]
ansible_connection=ansible.netcommon.network_cli
ansible_user=vynosuser
ansible_password=vynospassword
ansible_network_os=vynos.vynos.vynos

```

```

---
## Chapter-06/vyos-facts.yaml

- name: Collecting VyOS facts
  connection: ansible.netcommon.network_cli
  gather_facts: false
  hosts: vyos
  tasks:
    - name: Fetching VyOS details
      vyos.vyos.vyos_facts:
        gather_subset: all

    - name: Display fact output
      debug:
        msg: "VyOS version: {{ ansible_net_version }}"

```

```

[ansible@ansible Chapter-06]$ ansible-playbook -i inventories/ vyos-facts.yaml

PLAY [Collecting VyOS facts] *****

TASK [Fetching VyOS details] *****
ok: [vyos-01]

TASK [Display fact output] *****
ok: [vyos-01] => {
  "msg": "VyOS version: VyOS 1.4-rolling-202202130317"
}

PLAY RECAP *****
vyos-01                : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

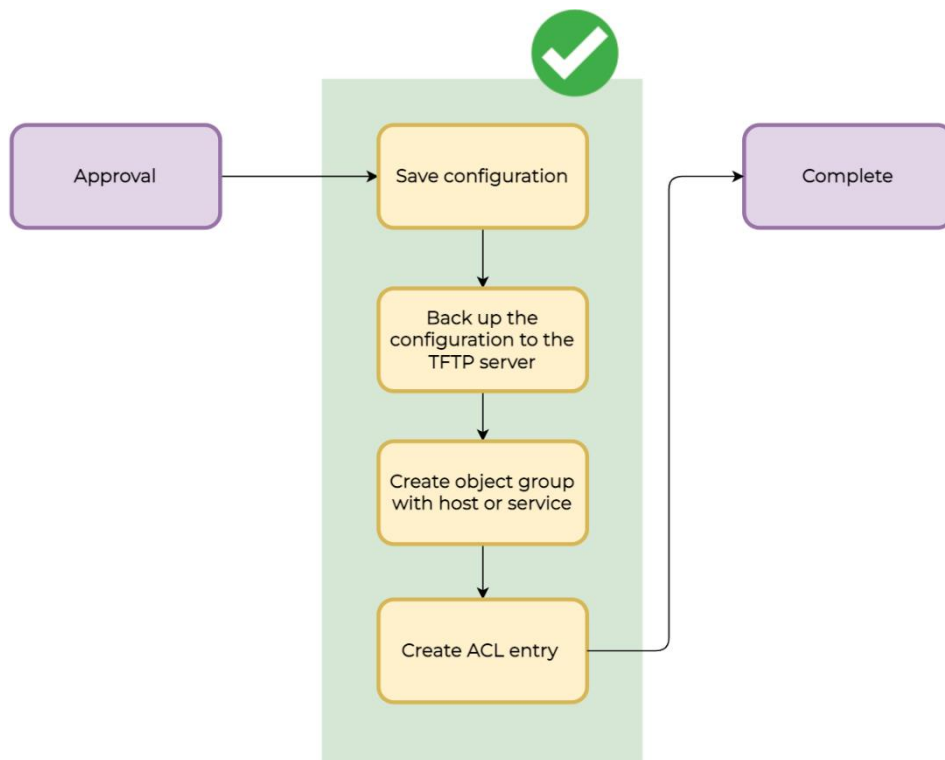
```

```

[asa]
ciscoasa ansible_host=192.168.57.121

[asa:vars]
ansible_user=adminasa
ansible_ssh_pass=password
ansible_become=true
ansible_become_method=ansible.netcommon.enable
ansible_become_pass=password
ansible_connection=ansible.netcommon.network_cli
ansible_network_os=cisco.asa.asa

```



```

---
- name: Cisco ASA Create ACL Entry
  hosts: "{{ nw_devices }}"
  gather_facts: no

  vars:
    take_backup: "Yes"
    tftp_server: 192.168.57.106
    tftp_server_port: 69

    acl_identifier: Demo-ACL
    acl_type: extended
    acl_action: permit #or deny
    acl_entry_source_ip: 10.1.20.11
    acl_entry_source_mask: 255.255.255.255

    asa_object_group_name: DEMO-NETWORK-TEAM-NEW
    asa_object_group_type: network # service, security etc.
    asa_object_group_host: 192.0.50.4
  
```

```

tasks:
  - name: Set backup filename
    ansible.builtin.set_fact:
      backup_filename: "{{ inventory_hostname }}_{{ lookup('pipe', 'date +%Y%m%d-%H%M%S') }}_backup.cfg"

  - name: Save configuration and take device Backup to tftp
    cisco.asa.asa_command:
      commands:
        - write memory
        - copy /noconfirm running-config tftp://{{ tftp_server }}/{{ backup_filename }}
    when: take_backup == "Yes"
  
```

```

- name: Merge module attributes of given object-group
  cisco.asa.asa_ogs:
    config:
      - object_type: network
        object_groups:
          - name: "{{ asa_object_group_name }}"
            network_object:
              host:
                - "{{ asa_object_group_host }}"
            state: merged

```

```

- name: Add new ACL Entry and Merge configuration with device configuration
  cisco.asa.asa_acls:
    config:
      acls:
        - name: "{{ acl_identifier }}"
          acl_type: "{{ acl_type }}"
          aces:
            - grant: "{{ acl_action }}"
              protocol_options:
                tcp: true
              source:
                address: "{{ acl_entry_source_ip }}"
                netmask: "{{ acl_entry_source_mask }}"
              destination:
                object_group: "{{ asa_object_group_name }}"
            state: merged

```

```

[ansible@ansible Chapter-06]$ ansible-playbook cisco-asa-acl-create.yaml -e "nw_devices=asa"

PLAY [Cisco ASA Create ACL Entry] *****

TASK [Set backup filename] *****
ok: [ciscoasa]

TASK [Save configuration and take device Backup to tftp] *****
ok: [ciscoasa]

TASK [Merge module attributes of given object-group] *****
changed: [ciscoasa]

TASK [Add new ACL Entry and Merge configuration with device configuration] *****
changed: [ciscoasa]

PLAY RECAP *****
ciscoasa                : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

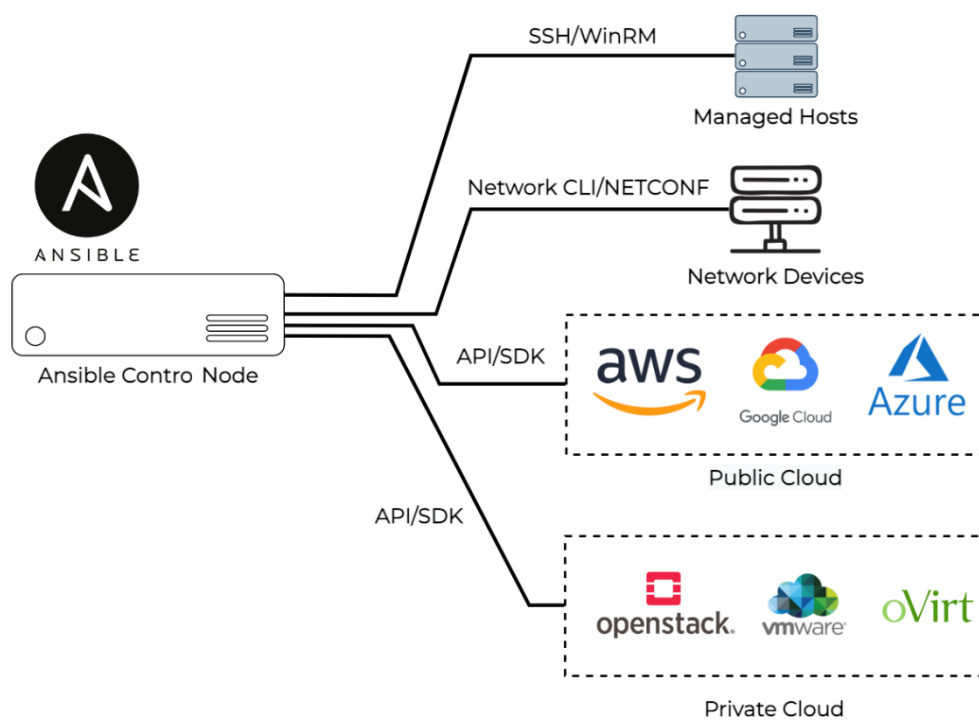
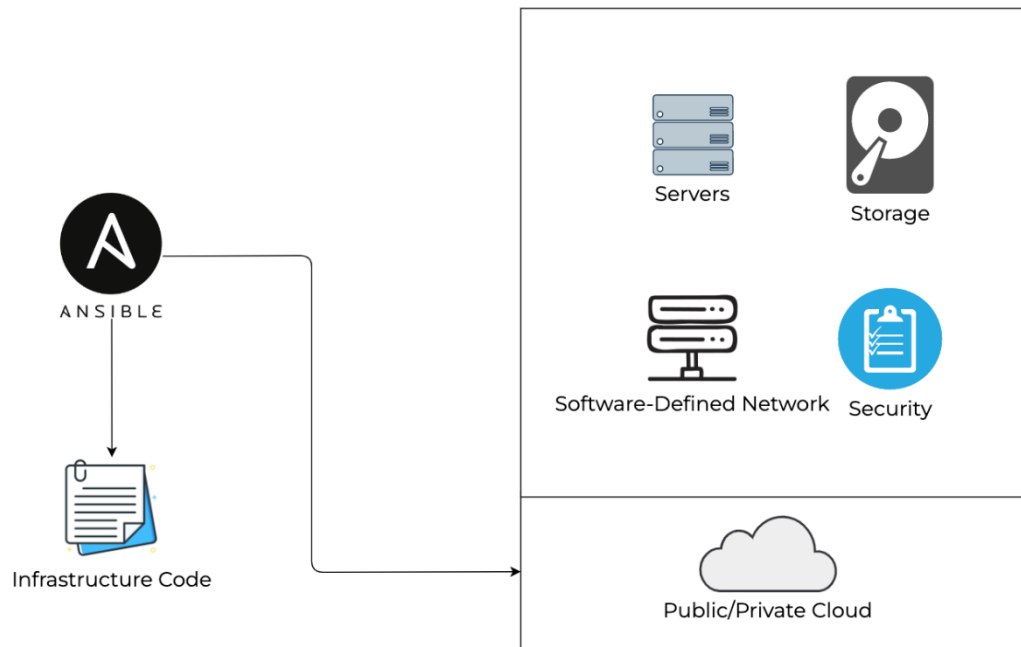


```
$ ssh adminasa@192.168.57.121
adminasa@192.168.57.121's password:
User adminasa logged in to ciscoasa
Logins over the last 1 days: 2. Last login: 03:49:07 UTC May 29 2022 from 192.168.57.1
Failed logins since the last login: 0.
Type help or '?' for a list of available commands.
ciscoasa> en
Password: *****
ciscoasa#
ciscoasa#
ciscoasa# show running-config object-group | include DEMO-NETWORK-TEAM-NEW
object-group network DEMO-NETWORK-TEAM-NEW
ciscoasa#
ciscoasa# show running-config access-list | include Demo-ACL
access-list Demo-ACL extended permit tcp host 10.1.20.11 object-group DEMO-NETWORK-TEAM-NEW
```



```
[operator@tftp-prod tftpboot]$ ls -lrt
total 48
-rw-r--r--. 1 nobody nobody 8368 May 29 03:54 ciscoasa_20220529-115451_backup.cfg
-rw-r--r--. 1 nobody nobody 8368 May 29 03:55 ciscoasa_20220529-115531_backup.cfg
-rw-r--r--. 1 nobody nobody 8400 May 29 03:55 ciscoasa_20220529-115553_backup.cfg
-rw-r--r--. 1 nobody nobody 8432 May 29 03:56 ciscoasa_20220529-115610_backup.cfg
```


Chapter 7: Managing Your Virtualization and Cloud Platforms



A
Documentation

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Docs
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Working With Modules
Module Index
Cloud modules

You are reading the latest Red Hat released version of the Ansible documentation. Community users can use this, or select any version in version selection to the left, including latest for the most recent community version.

Cloud modules

Alicloud

- ali_instance - Create, Start, Stop, Restart or Terminate an Instance in ECS. Add or Remove Instance to/from a Security Group
- ali_instance_info - Gather information on instances of Alibaba Cloud ECS

Amazon

- aws_acm_info - Retrieve certificate information from AWS Certificate Manager service
- aws_api_gateway - Manage AWS API Gateway APIs
- aws_application_scaling_policy - Manage Application Auto Scaling Scaling Policies
- aws_az_info - Gather information about availability zones in AWS
- aws_batch_compute_environment - Manage AWS Batch Compute Environments
- aws_batch_job_definition - Manage AWS Batch Job Definitions
- aws_batch_job_queue - Manage AWS Batch Job Queues
- aws_caller_info - Get information about the user and account being used to make AWS calls
- aws_codebuild - Create or delete an AWS CodeBuild project
- aws_codecommit - Manage repositories in AWS CodeCommit
- aws_codepipeline - Create or delete AWS CodePipelines
- aws_config_aggregation_authorization - Manage cross-account AWS Config authorizations
- aws_config_aggregator - Manage AWS Config aggregations across multiple accounts
- aws_config_delivery_channel - Manage AWS Config delivery channels
- aws_config_recorder - Manage AWS Config Recorders
- aws_config_rule - Manage AWS Config resources
- aws_direct_connect_connection - Creates, deletes, modifies a DirectConnect connection
- aws_direct_connect_gateway - Manage AWS Direct Connect Gateway
- aws_direct_connect_link_aggregation_group - Manage Direct Connect LAG bundles

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GALAXY

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<div>vca_fw</div> <div>add remove firewall rules in a gateway in a vca</div>	<div>vca_nat</div> <div>add remove nat rules in a gateway in a vca</div>	<div>vca_vapp</div> <div>Manages vCloud Air vApp instances.</div>	<div>vcenter_domain_user_group_info</div> <div>Gather user or group information of a domain</div>
<div>vcenter_extension</div> <div>Register/deregister vCenter Extensions</div>	<div>vcenter_extension_info</div> <div>Gather info vCenter extensions</div>	<div>vcenter_folder</div> <div>Manage folders on given datacenter</div>	<div>vcenter_license</div> <div>Manage VMware vCenter license keys</div>
<div>vcenter_standard_key_provider</div> <div>Add, reconfigure or remove Standard Key Provider on vCenter server</div>	<div>vmware_about_info</div> <div>Provides information about VMware server to which user is connecting to</div>	<div>vmware_category</div> <div>Manage VMware categories</div>	<div>vmware_category_info</div> <div>Gather info about VMware tag categories</div>
<div>vmware_cfg_backup</div> <div>Backup / Restore / Reset ESXi host configuration</div>	<div>vmware_cluster</div> <div>Manage VMware vSphere clusters</div>	<div>vmware_cluster_drs</div> <div>Manage Distributed Resource Scheduler (DRS) on VMware vSphere clusters</div>	<div>vmware_cluster_ha</div> <div>Manage High Availability (HA) on VMware vSphere clusters</div>

[illegible]

 [Community Authors](#) > [vmware](#) > [vmware_rest](#)

vmware rest

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i Info

Installation

NOTE: Installing collections with `ansible-galaxy` is only supported in `ansible 2.9+`

Install Version

 Tags

```
[ansible@ansible Chapter-07]$ cat ansible.cfg
[defaults]
inventory = ./hosts
remote_user = devops
ask_pass = false

COLLECTIONS_PATHS = ./collections
```

Based on 0 surveys. [Show Details](#)

Tell us about this collection

Quality of docs?

Ease of use?

Does what it promises?

Works without



```
[ansible@ansible Chapter-07]$ ansible-galaxy collection install community.vmware
Starting galaxy collection install process
Process install dependency map
Starting collection install process
Downloading https://galaxy.ansible.com/download/community-vmware-2.1.0.tar.gz to
/home/ansible/.ansible/tmp/ansible-local-2922ya8yiroz/tmpgwmpkp4a/community-vmware-2.1.0-hk7iqmqh
Installing 'community.vmware:2.1.0' to '/home/ansible/ansible-book-packt/Chapter-
07/collections/ansible_collections/community/vmware'
community.vmware:2.1.0 was installed successfully
```



```
[ansible@ansible Chapter-07]$ ansible-galaxy collection list community.vmware

# /home/ansible/ansible-book-packt/Chapter-07/collections/ansible_collections
Collection      Version
-----
community.vmware 2.1.0

# /usr/local/lib/python3.6/site-packages/ansible_collections
Collection      Version
-----
community.vmware 1.17.0
```



```
[ansible@ansible Chapter-07]$ cat collections/ansible_collections/community/vmware/requirements.txt
pyVmomi>=6.7
git+https://github.com/vmware/vsphere-automation-sdk-python.git ; python_version >= '2.7' # Python 2.6 is not
supported
```



```
[ansible@ansible Chapter-07]$ pip install -r collections/ansible_collections/community/vmware/requirements.txt
```



```
[ansible@ansible Chapter-07]$ mkdir vars
[ansible@ansible Chapter-07]$ cd vars/
[ansible@ansible vars]$ ansible-vault create vmware-credential.yaml
New Vault password:
Confirm New Vault password:
```

```

# details about the cluster
vcenter_hostname: vcenter.lab.local
vmware_datacenter: DC1
vmware_cluster_name: 'AZ1'
vmware_datastore: 'datastore1'
vm_folder: "/"

# details for the new VM
vm_name: 'DC1AZ1POC101'
vm_template_name: 'RHEL7-New'
# disk details
vm_disk_size_gb: '40'
vm_disk_type: 'thin'
vm_disk_datastore_name: 'datastore1'
# capacity and hardware
vm_memory_size_mb: '8192'

...<output omitted for brevity>...

```

```

[ansible@ansible Chapter-07]$ mkdir roles

[ansible@ansible Chapter-07]$ cd roles
[ansible@ansible roles]$ ansible-galaxy role init vmware-provision-vm-from-template
- Role vmware-provision-vm-from-template was created successfully

```

```

---
# tasks file for vmware-provision-vm-from-template
- name: Check VM exist or not
  include_tasks: vmware-provisioning-pre-check.yaml

- name: Provision VM
  include_tasks: vmware-provisioning-task.yaml
  when: vm_check.failed

```

```

---
# vmware-provisioning-pre-check.yaml
- name: Check if VM exist with same name
  no_log: true
  community.vmware.vmware_guest_find:
    hostname: "{{ vcenter_hostname }}"
    username: "{{ vcenter_username }}"
    password: "{{ vcenter_password }}"
    validate_certs: no
    name: "{{ vm_name }}"
  delegate_to: localhost
  register: vm_check
  ignore_errors: yes

- name: If VM with same name already exist
  debug:
    msg: "The virtual machine {{ vm_name }} already exist. Skipping tasks..."
  when: not vm_check.failed

```

```

---
# vmware-provisioning-task.yml
- name: "Provisioning New VM using template {{ vm_template_name }}"
  vmware_guest:
    hostname: "{{ vcenter_hostname }}"
    username: "{{ vcenter_username }}"
    password: "{{ vcenter_password }}"
    validate_certs: no
    datacenter: "{{ vmware_datacenter }}"
    cluster: "{{ vmware_cluster_name }}"
    folder: "{{ vm_folder }}"
    #guest_id: "{{ vm_guest_id }}"
    name: "{{ vm_name }}"
    template: "{{ vm_template_name }}"
    state: poweredon
    wait_for_ip_address: "{{ vm_wait_for_ip_connection }}"
    wait_for_customization: "{{ vm_wait_for_customization }}"
    #customization_spec: "{{ vm_base_profile }}"
    datastore: "{{ vmware_datastore }}"
    ...<remved code for brevity>...

```

```

---
# defaults file for vmware-provision-vm-from-template
vcenter_hostname: vcenter.lab.local
vmware_datacenter: DC1
vmware_cluster_name: AZ1

```

```

## vmware-provision-vm-from-template.yml
---
- name: "Provision VM from Template"
  hosts: localhost
  gather_facts: no
  become: no
  connection: local
  vars_files:
    - vars/common-vars.yml          # other common variables
    - vars/vmware-credential.yml    # vcenter credential
  tasks:
    - name: Deploy new VM in vCenter
      ansible.builtin.include_role:
        name: vmware-provision-vm-from-template
      tags: provisionvmfromtemplate

    - name: Waits for SSH (VM UP and Running)
      ansible.builtin.wait_for:
        host: "{{ vm_net1_ip_address }}"
        port: 22
        delay: "{{ vm_wait_for_ssh_time }}"
        timeout: 300
        state: started
      when: vm_wait_for_ip_connection == "yes"

```

```

## vmware-provision-vm-from-template.yml
.
.
- name: Add newly created VMs to a host group
  no_log: true
  ansible.builtin.add_host:
    name: "{{ vm_net1_ip_address }}"
    groups: "vmwarenewvms"
    ansible_ssh_extra_args: ' -o StrictHostKeyChecking=no '
    ansible_user: "{{ vm_ansible_user_name }}"
    ansible_password: "{{ vm_ansible_user_password }}"
    var_vm_os_family: "{{ vm_os_family }}"
    var_vm_user_name_list: "{{ vm_user_name_list }}"
    var_vm_user_password: "{{ vm_user_password }}"
  when: vm_os_family == "RHEL"

```

```

## vmware-provision-vm-from-template.yml
.
.
## 2nd play for post-configurations
- name: RHEL VM Post-Provisioning Configurations
  hosts: vmwarenewvms
  gather_facts: no
  become: yes
  tasks:
    - name: Waiting for SSH
      wait_for:
        host: "{{ inventory_hostname }}"
        port: 22
        delay: 1
        timeout: 300
        state: started
      when: var_vm_os_family is defined
      become: no
      vars:
        ansible_connection: local


    - name: New VM post-provisioning configurations
      debug:
        msg: "You can include additional tasks to execute inside the new VM as post provisioning configurations"
      when: var_vm_os_family is defined

```





```
[ansible@ansible Chapter-07]$ ansible-playbook vmware-provision-vm-from-template.yml --ask-vault-password
Vault password:
```



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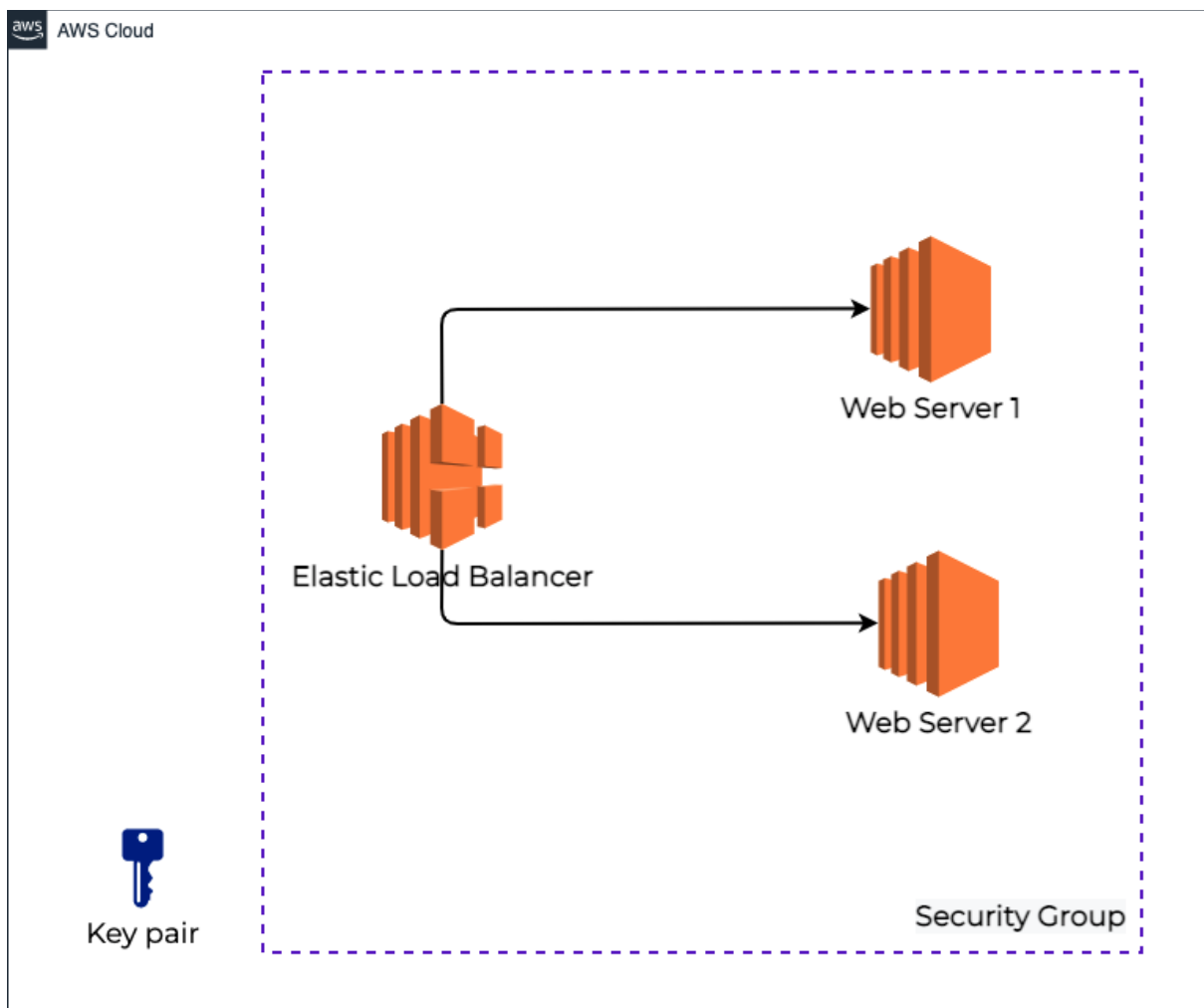
```
[ansible@ansible Chapter-07]$ cat requirements.yml
---
collections:
  # Install a collection from Ansible Galaxy.
  - name: amazon.aws
    version: 3.0.0
    source: https://galaxy.ansible.com
  - name: community.vmware
    version: 2.1.0
    source: https://galaxy.ansible.com
  - name: google.cloud
    version: 1.0.2
    source: https://galaxy.ansible.com
  - name: community.general
    version: 4.0.1
    source: https://galaxy.ansible.com
  - name: ansible.posix
    version: 1.3.0
    source: https://galaxy.ansible.com
```



```
[ansible@ansible Chapter-07]$ [ansible@ansible Chapter-07]$ ansible-galaxy install -r requirements.yml
```



```
[ansible@ansible Chapter-07]$ ansible-galaxy collection list
.
.
# /home/ansible/ansible-book-packt/Chapter-07/collections/ansible_collections
Collection      Version
-----
amazon.aws      3.0.0
ansible.posix   1.3.0
community.aws   3.1.0
community.general 4.0.1
community.vmware 2.1.0
google.cloud     1.0.2
```





```
[ansible@ansible Chapter-07]$ ls -l roles/
total 0
drwxrwxr-x. 4 ansible ansible 35 Jul 30 08:00 aws-create-ec2
drwxrwxr-x. 5 ansible ansible 61 Jul 30 08:00 aws-create-elb
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-create-keypair
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-create-sg
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-create-targetgrp
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-delete-ec2
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-delete-elb
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-delete-keypair
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-delete-sg
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-delete-targetgrp
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-get-vpc-details
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 aws-remove-web
drwxrwxr-x. 3 ansible ansible 19 Jul 30 08:00 deploy-web-server
drwxrwxr-x. 8 ansible ansible 124 Jul 30 08:00 vmware-provision-vm-from-template
```



```
## aws-common-vars.yml
---
# variables aws environment
vpc_id: ""
vpc_subnet_list: []

region: ap-southeast-1
aws_region: ap-southeast-1
elbgroupname: webtarget

inventory_webgroup: ec2webservers
existing_ec2_list: []
new_ec2_list: []
existing_ec2_public_ips: []
...<removed for brevity>...
```



```
## vars/aws-ec2-new.yml
---
# list of ec2 instances
ec2_new_list:
  aws_web_101:
    name: AWS_WEB_101
    key_name: "{{ aws_demo_key }}"
    group: SG-Ansible-Demo
    instance_type: t2.micro
  aws_web_102:
    name: AWS_WEB_102
    key_name: "{{ aws_demo_key }}"
    group: SG-Ansible-Demo
    instance_type: t2.micro
```



```
---
# tasks file for aws-create-sg
- name: Create Security group
  amazon.aws.ec2_group:
    profile: "{{ aws_boto_profile }}"
    name: "{{ aws_security_group }}"
    description: 'Security Group with SSH and HTTP rules'
    vpc_id: "{{ aws_vpc_id }}"
    region: "{{ aws_region }}"
    rules:
      - proto: tcp
        ports:
          - 80
        cidr_ip: 0.0.0.0/0
        rule_desc: allow all on port 80
      - proto: tcp
        ports:
          - 22
        cidr_ip: 0.0.0.0/0
        rule_desc: allow all on port 22
```



```
---
# tasks file for aws-create-keypair
- name: Create key pair
  amazon.aws.ec2_key:
    name: "{{ aws_demo_key }}"
    key_material: "{{ lookup('file', '~/ssh/id_rsa.pub') }}"
    profile: "{{ aws_boto_profile }}"
    region: "{{ aws_region }}"
```



```
---
# tasks file for aws-create-elb
- name: Create Amazon ELB
  amazon.aws.ec2_elb_lb:
    profile: "{{ aws_boto_profile }}"
    name: "{{ aws_elb_app_lb }}"
    region: "{{ aws_region }}"
    zones:
      - "{{ ap_zone1 }}"
      - "{{ ap_zone2 }}"
    listeners:
      - protocol: http
        load_balancer_port: 80
        instance_port: 80
        proxy_protocol: True
    state: present
    register: elbcreated

- name: Collect ELB Public DNS
  ansible.builtin.set_fact:
    elb_public_dns: "{{ elbcreated.elb.dns_name }}"
```

```

---
# tasks file for aws-create-vm

- name: Fetch Instances by tag, subnet and type
  amazon.aws.ec2_instance_info:
    profile: "{{ aws_boto_profile }}"
    region: "{{ aws_region }}"
    filters:
      "tag:Name": "{{ item.value.name }}"
      #network-interface.subnet-id: "{{ item.value.vpc_subnet_id }}"
      instance-type: "{{ item.value.instance_type }}"
      instance-state-name: ["running", "stopped", "stopping", "starting", "pending"]
    loop: "{{ lookup('dict', ec2_new_list, wantlist=True) }}"
    register: ec2_collected

- name: Collect ec2 in a list
  set_fact:
    existing_ec2_list: "{{ existing_ec2_list }} + {{ item }}"
  loop: "{{ ec2_collected | json_query('results[*].instances[*].tags.Name') }}"
  #loop: "{{ ec2_collected | json_query('results[*].invocation.module_args.instance_ids') }}"

```

```

---
# tasks file for aws-create-vm
.
.
- name: Launching EC2 instances
  amazon.aws.ec2_instance:
    profile: "{{ aws_boto_profile }}"
    key_name: "{{ aws_demo_key }}"
    security_group: "{{ aws_security_group }}"
    instance_type: "{{ item.value.instance_type }}"
    image_id: "{{ aws_ami_id }}"
    state: running
    wait: true
    #wait_timeout: 300
    #count: 1
    region: "{{ aws_region }}"
    tags:
      Name: "{{ item.value.name }}"
    detailed_monitoring: no
    vpc_subnet_id: "{{ vpc_subnet_list | random }}"
    network:
      assign_public_ip: yes
    loop: "{{ lookup('dict', ec2_new_list, wantlist=True) }}"
    when: "not item.value.name in existing_ec2_list"
    register: created_ec2

```

```

---
# tasks file for aws-create-vm
.
.
- name: Collect newly created ec2 in a list
  ansible.builtin.set_fact:
    new_ec2_list: "{{ new_ec2_list }} + [ '{{ item.instances[0].public_ip }}' ]"
  when: item.instances[0].public_ip is defined
  loop: "{{ created_ec2.results }}"

- name: Status
  ansible.builtin.debug:
    msg: "{{ item }} : Waiting for instances online..."
  with_items: "{{ new_ec2_list }}"

- name: Wait for SSH
  ansible.builtin.wait_for:
    host: "{{ item }}"
    port: 22
    delay: 3
    connect_timeout: 180
    sleep: 5
    state: started
  with_items: "{{ new_ec2_list }}"

```

```

---
# tasks file for aws-create-vm
.
.
- name: Fetch Instances by tag, subnet and type
  amazon.aws.ec2_instance_info:
    profile: "{{ aws_boto_profile }}"
    region: "{{ aws_region }}"
    filters:
      "tag:Name": "{{ item.value.name }}"
      #network-interface.subnet-id: "{{ item.value.vpc_subnet_id }}"
      instance-type: "{{ item.value.instance_type }}"
      instance-state-name: ["running", "stopped", "stopping", "starting", "pending"]
    loop: "{{ lookup('dict', ec2_new_list, wantlist=True) }}"
  register: ec2_existing_collected

```

```

---
# tasks file for aws-create-vm
.
.
- name: Update Amazon ELB and add instance ids
  amazon.aws.ec2_elb_lb:
    profile: "{{ aws_boto_profile }}"
    name: "{{ aws_elb_app_lb }}"
    region: "{{ aws_region }}"
    zones:
      - "{{ ap_zone1 }}"
      - "{{ ap_zone2 }}"
    listeners:
      - protocol: http
        load_balancer_port: 80
        instance_port: 80
        proxy_protocol: True
    instance_ids:
      - "{{ item.instances[0].instance_id }}"
    state: present
    register: elbcreated
    loop: "{{ ec2_existing_collected.results }}"

```

```

---
# tasks file for aws-create-vm
.
.
- name: Collect ec2 Public IP in a list
  ansible.builtin.set_fact:
    existing_ec2_public_ips: "{{ existing_ec2_public_ips }} + [ '{{ item.instances[0].public_ip_address }}' ] "
    loop: "{{ ec2_existing_collected.results }}"

- name: Add ec2 instances to a host group
  ansible.builtin.add_host:
    name: "{{ item }}"
    groups: "{{ inventory_webgroup }}"
    ansible_ssh_extra_args: ' -o StrictHostKeyChecking=no '
    loop: "{{ existing_ec2_public_ips }}"

```

```
## Chapter-07/aws-infra-provisioning.yaml
```

```
---
```

```
- name: Provision AWS Infrastructure
  hosts: localhost
  gather_facts: no
  connection: local
  vars_files:
    - vars/aws-ec2-new.yml
    - vars/aws-common-vars.yml
  vars:
    aws_boto_profile: ansible
  tasks:
    - name: Fetch VPC ID
      include_role:
        name: aws-get-vpc-details

    - name: Create Security Group
      include_role:
        name: aws-create-sg
      tags: sgcreate

    - name: Create Keypair
      include_role:
        name: aws-create-keypair
      tags: keycreate

    - name: Create ELB
      include_role:
        name: aws-create-elb
      tags: elbcreate

    - name: Create ec2 instances
      include_role:
        name: aws-create-ec2
      tags: ec2create
```

```
## Chapter-07/aws-infra-provisioning.yaml
```

```
.
```

```
.
```

```
## 2nd play to deploy webserver on new ec2 instance
```

```
- name: Deploy Webserver to EC2 instances
  hosts: ec2webservers
  remote_user: ec2-user
  become: true
  tasks:
    - name: Deploy Web service
      include_role:
        name: deploy-web-server
```

```
## 3rd play to display ELB details
```

```
- name: IaC Summary
  hosts: localhost
  tasks:
    - debug:
        msg: "Website is accessible on Application ELB: {{ elb_public_dns }} (It may take some time to get the
        backend instance to come InService)"
```

```

[ansible@ansible Chapter-07]$ ansible-playbook aws-infra-provisioning.yaml

...<output omitted for brevity>...

TASK [debug] *****
ok: [localhost] => {
  "msg": "Website is accessible on Appication ELB: ansible-iac-demo-elb-app-lb-893112002.ap-southeast-1.elb.amazonaws.com (It may take some time to get the backend instance to come InService)"
}

```

```

## Chapter-07/aws-infra-destroy.yaml
---
- name: Destroy AWS Infrastructure
  hosts: localhost
  gather_facts: no
  connection: local
  vars_files:
    - vars/aws-ec2-new.yml
    - vars/aws-common-vars.yml
  vars:
    aws_boto_profile: ansible
  tasks:
    - name: Fetch VPC ID
      include_role:
        name: aws-get-vpc-details

    - name: Delete ec2 instances
      include_role:
        name: aws-delete-ec2
      tags: ec2delete

    - name: Delete App ELB
      include_role:
        name: aws-delete-elb
      tags: elbdelete

...<omitted for brevity>...

```

```

[ansible@ansible Chapter-07]$ cat vars/gcp-details.yaml
gcp_auth_kind: serviceaccount
gcp_service_account_email: ansible-demo@ansible-automation-demo.iam.gserviceaccount.com
gcp_service_account_file: ~/.config/ansible-automation-demo-bce5e5cf69d0.json
gcp_project: ansible-automation-demo
gcp_scopes:
  - https://www.googleapis.com/auth/compute

```



```

## Chapter-07/gcp-create-instance.yml
---
- name: "Provision new GCP instance"
  hosts: localhost
  gather_facts: no
  become: no
  connection: local
  vars_files:
    - vars/gcp-details.yml          # GCP credentials and details
  tasks:
    - name: Get info about default VPC network
      gcp_compute_network_info:
        project: "{{ gcp_project }}"
        auth_kind: "{{ gcp_auth_kind }}"
        service_account_file: "{{ gcp_service_account_file }}"
        filters:
          - name = default
      register: default_network_details

```

```

## Chapter-07/gcp-create-instance.yml
.
.
- name: Create a disk with OS
  google.cloud.gcp_compute_disk:
    project: "{{ gcp_project }}"
    auth_kind: "{{ gcp_auth_kind }}"
    service_account_file: "{{ gcp_service_account_file }}"
    name: demo-disk
    size_gb: 10
    source_image: projects/debian-cloud/global/images/family/debian-9
    zone: us-central1-a
    state: present
  register: instance_source_disk

```

```

## Chapter-07/gcp-create-instance.yml
.
.
- name: Create GCP instance
  google.cloud.gcp_compute_instance:
    project: "{{ gcp_project }}"
    auth_kind: "{{ gcp_auth_kind }}"
    service_account_file: "{{ gcp_service_account_file }}"
    zone: us-central1-a
    state: present
    name: demo-instance
    machine_type: n1-standard-1
    disks:
      - auto_delete: 'true'
        boot: 'true'
        source: "{{ instance_source_disk }}"
    labels:
      environment: production
    network_interfaces:
      - network: "{{ default_network_details.resources[0] }}"

```

INSTANCES

INSTANCE SCHEDULE

VM instances are highly configurable virtual machines for running workloads on Google infrastructure. [Learn more](#)

Filter

Enter property name or value

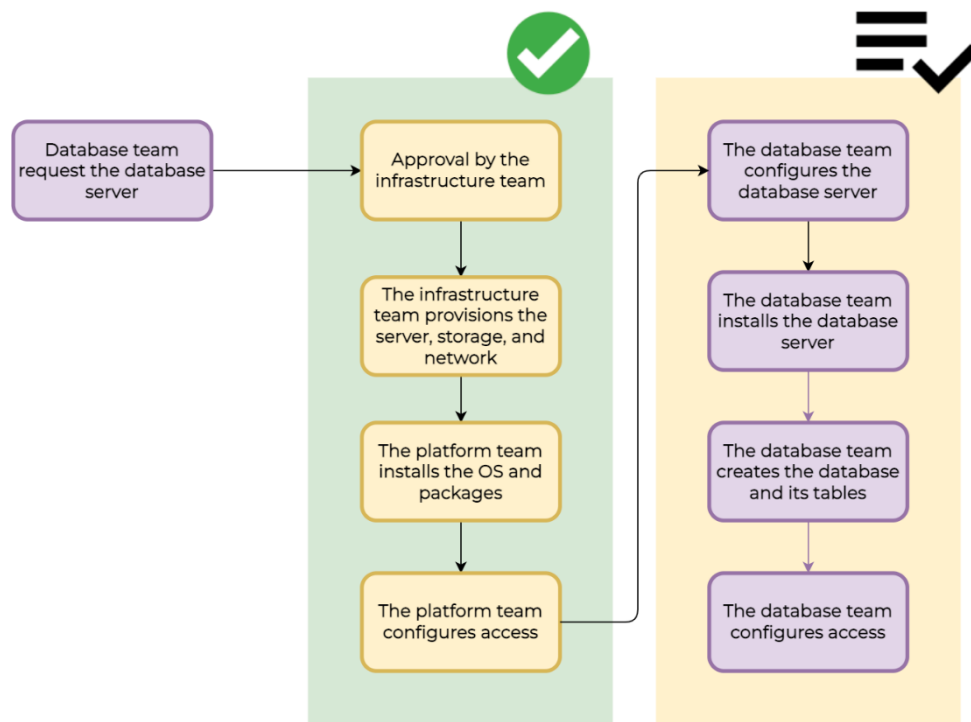
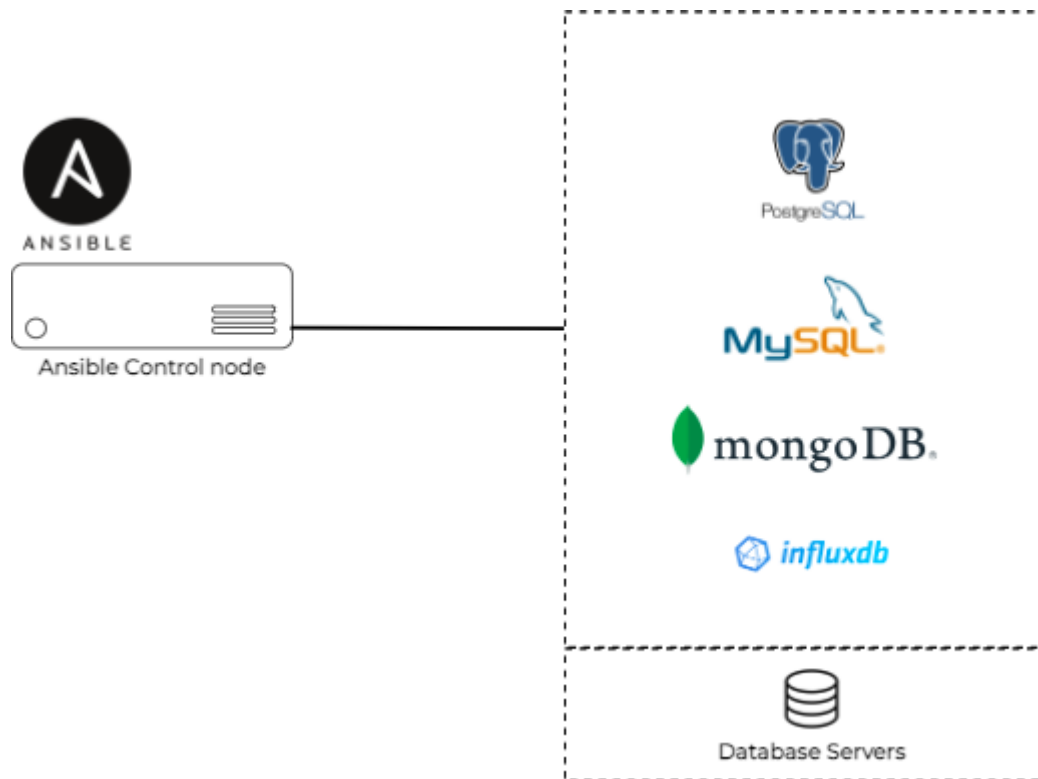
<input type="checkbox"/>	Status	Name ↑	Zone	Machine type	Recommendations	In use by	Internal IP	External IP	Connect	
<input type="checkbox"/>	✓	demo-instance	us-central1-a	n1-standard-1			10.128.0.4 (nic0)	None	SSH ▾	⋮

Filter

Enter property name or value

<input type="checkbox"/>	Status	Name ↑	Type	Size	Zone(s)	In use by	Snapshot schedule	Actions
<input type="checkbox"/>	✓	demo-disk	Standard persistent disk	10 GB	us-central1-a	demo-instance	None	⋮

Chapter 8: Helping the Database Team with Automation



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```
[defaults]
.
.
COLLECTIONS_PATHS = ./collections
roles_path = roles
```

```
[ansible@ansible Chapter-08]$ ansible-galaxy install geerlingguy.postgresql -p roles/
Starting galaxy role install process
- downloading role 'postgresql', owned by geerlingguy
- downloading role from https://github.com/geerlingguy/ansible-role-postgresql/archive/3.4.0.tar.gz
- extracting geerlingguy.postgresql to /home/ansible/ansible-book-packt/Chapter-08/roles/geerlingguy.postgresql
- geerlingguy.postgresql (3.4.0) was installed successfully
```

```
# vars/postgres.yml

postgresql_databases:
  - name: database_demo

postgresql_users:
  - name: demouser
    password: password

postgresql_hba_entries:
  - { type: local, database: all, user: all, auth_method: peer }
  - { type: host, database: all, user: all, address: '0.0.0.0/0', auth_method: md5 }
```

```

---
## Chapter-08/postgres-deploy.yaml
- name: Deploying PostgreSQL Database Server
  hosts: "{{ NODES }}"
  become: true
  vars_files:
    - vars/postgres.yaml
  tasks:
    - name: Install and configure PostgreSQL
      include_role:
        name: geerlingguy.postgresql
        .
        .

```

```

---
## Chapter-08/postgres-deploy.yaml
.
.
- name: Allow remote connection for PostgreSQL
  ansible.builtin.lineinfile:
    path: /var/lib/pgsql/data/postgresql.conf
    regexp: '^listen_addresses'
    line: "listen_addresses = '*'"
    insertbefore: '^#port = 5432'

- name: restart postgresql
  service:
    name: postgresql.service
    state: restarted
    sleep: 5

- name: Allow 5432 port for PostgreSQL on firewall
  ansible.posix.firewalld:
    port: 5432/tcp
    zone: public
    permanent: yes
    state: enabled
    immediate: yes

```

```

[ansible@ansible Chapter-08]$ ansible-playbook postgres-deploy.yaml -e "NODES=node1"

```

```

[devops@node-1 ~]$ sudo su - postgres
Last login: Tue Mar 15 09:59:35 UTC 2022 on pts/1

[postgres@node-1 ~]$ postgres -V
postgres (PostgreSQL) 10.17

```

```
[postgres@node-1 ~]$ psql
psql (10.17)
Type "help" for help.

postgres=#
```

```
postgres=# \l

              List of databases
   Name   | Owner   | Encoding | Collate | Ctype   | Access privileges
-----+-----+-----+-----+-----+-----
 database_demo | postgres | UTF8     | en_US.UTF-8 | en_US.UTF-8 | 
 postgres     | postgres | UTF8     | en_US.UTF-8 | en_US.UTF-8 | 
 template0    | postgres | UTF8     | en_US.UTF-8 | en_US.UTF-8 | =c/postgres +
            |         |         |             |             | postgres=CTc/postgres
 template1    | postgres | UTF8     | en_US.UTF-8 | en_US.UTF-8 | =c/postgres +
            |         |         |             |             | postgres=CTc/postgres
(4 rows)
```

```
postgres=# \du

              List of roles
 Role name | Attributes                                  | Member of
-----+-----+-----
 demouser  |                                             | {}
 postgres  | Superuser, Create role, Create DB, Replication, Bypass RLS | {}
```

```
postgres=# \q
[postgres@node-1 ~]$
```

```
[postgres@node-1 ~]$ cat /var/lib/pgsql/data/pg_hba.conf
#
# Ansible managed
#
# PostgreSQL Client Authentication Configuration File
# =====
#
# See: https://www.postgresql.org/docs/current/static/auth-pg-hba-conf.html

local all all peer
host all all 0.0.0.0/0 md5
```

```

[devops@node-1 ~]$ sudo su - postgres
Last login: Tue Mar 15 08:59:39 UTC 2022 on pts/1
[postgres@node-1 ~]$

# Open psql command line
[postgres@node-1 ~]$ psql
psql (10.17)
Type "help" for help.
```

```

postgres=# ALTER USER postgres WITH ENCRYPTED PASSWORD 'PassWord';
ALTER ROLE

## exit psql cli
postgres=# \q

## exit postgres user
[postgres@node-1 ~]$ exit
logout
[devops@node-1 ~]$
```

```

[ansible@ansible Chapter-08]$ ansible-galaxy collection install microsoft.sql
```

```

- name: Create a new database
  community.general.mssql_db:
    name: sales_db
    state: present
```

```

# Chapter-08/postgres-manage-database.yaml
---
- name: Deploying PostgreSQL Database Server
  hosts: "{{ NODES }}"
  vars:
    ansible_become_user: postgres
    postgres_user: postgres
    postgres_password: 'PassWord'
    postgres_host: localhost
    postgres_database: db_sales
    postgres_table: demo_table
    postgres_new_user_name: devteam
    postgres_new_user_password: 'DevPassword'
```

```

# Chapter-08/postgres-manage-database.yaml
.
.
tasks:
  - name: Create a new database
    community.postgresql.postgresql_db:
      login_user: "{{ postgres_user }}"
      login_password: "{{ postgres_password | default(omit) }}"
      login_host: "{{ postgres_host | default('localhost') }}"
      name: "{{ postgres_database }}"

```

```

# Chapter-08/postgres-manage-database.yaml
.
.
  - name: Create table with few columns
    community.postgresql.postgresql_table:
      login_user: "{{ postgres_user }}"
      login_password: "{{ postgres_password }}"
      login_host: "{{ postgres_host }}"
      db: "{{ postgres_database }}"
      name: "{{ postgres_table }}"
      columns:
        - id bigserial primary key
        - num bigint
        - stories text
      ssl_mode: disable

```

```

# Chapter-08/postgres-manage-database.yaml
.
.
  - name: Create user and grant access to database
    community.postgresql.postgresql_user:
      login_user: "{{ postgres_user }}"
      login_password: "{{ postgres_password }}"
      login_host: "{{ postgres_host }}"
      db: "{{ postgres_database }}"
      name: "{{ postgres_new_user_name }}"
      password: "{{ postgres_new_user_password }}"
      encrypted: yes
      priv: "CONNECT/{{ postgres_table }}:ALL"
      expires: "Dec 31 2022"
      comment: "Developer user access"
      state: present

```

```

[ansible@ansible Chapter-08]$ ansible-playbook postgres-manage-database.yaml -e "NODES=node1"

```




```
[devops@node-1 ~]$ sudo su - postgres
Last login: Sat Aug 20 13:59:54 UTC 2022 on pts/0
[postgres@node-1 ~]$
```

```
[postgres@node-1 ~]$ psql
psql (10.17)
Type "help" for help.
```

```
postgres=# \l
```

List of databases						
Name	Owner	Encoding	Collate	Ctype	Access privileges	
database_demo	postgres	UTF8	en_US.UTF-8	en_US.UTF-8		
db_sales	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	=Tc/postgres + postgres=CTc/postgres+ devteam=c/postgres	
postgres	postgres	UTF8	en_US.UTF-8	en_US.UTF-8		
template0	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	=c/postgres + postgres=CTc/postgres	
template1	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	=c/postgres + postgres=CTc/postgres	
(5 rows)						



```
postgres=# \du
```

List of roles		
Role name	Attributes	Member of
demouser		{}
devteam	Password valid until 2022-12-31 00:00:00+00	{}
postgres	Superuser, Create role, Create DB, Replication, Bypass RLS	{}



```
postgres=# \c db_sales
```

```
You are now connected to database "db_sales" as user "postgres".
```

```
db_sales=#
```

```
db_sales=# \dt
```

List of relations			
Schema	Name	Type	Owner
public	demo_table	table	postgres
(1 row)			



```
db_sales=# \d+ demo_table
```

```
Table "public.demo_table"
Column | Type | Collation | Nullable | Default | Storage | Stat
s target | Description
-----+-----+-----+-----+-----+-----+-----
id      | bigint |          | not null | nextval('demo_table_id_seq'::regclass) | plain | 
num     | bigint |          |          |          | plain | 
stories | text   |          |          |          | extended | 
Indexes:
    "demo_table_pkey" PRIMARY KEY, btree (id)
```



```
[postgres@node-1 ~]$ psql -U devteam -h localhost -d db_sales
Password for user devteam:
psql (10.17)
Type "help" for help.
```

```
db_sales=> \dt
List of relations
Schema | Name | Type | Owner
-----+-----+-----+-----
public | demo_table | table | postgres
(1 row)
```



```
- name: Grant users access to databases
community.postgresql.postgresql_pg_hba:
  dest: /var/lib/postgres/data/pg_hba.conf
  contype: host
  users: johnt
  source: 192.168.0.100/24
  databases: db_sales
  method: peer
  create: true
```



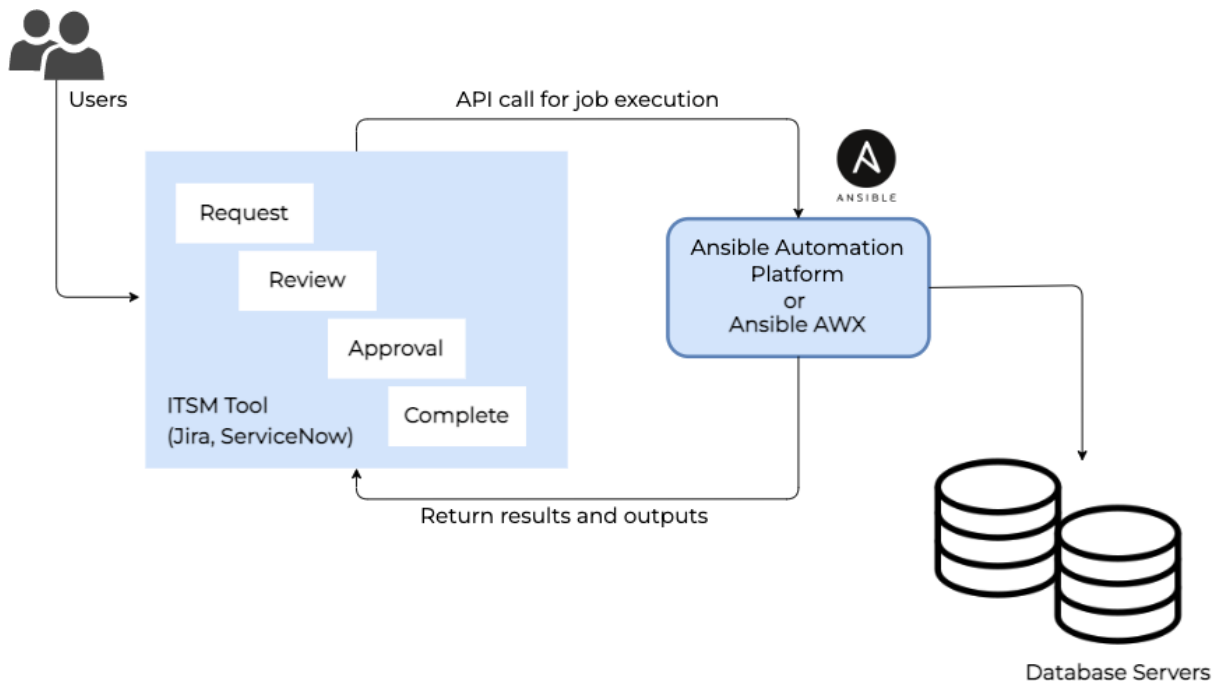
```
- name: Dump existing database to a file
community.postgresql.postgresql_db:
  login_user: "{{ postgres_user }}"
  login_password: "{{ postgres_password }}"
  login_host: "{{ postgres_host }}"
  name: "{{ postgres_database }}"
  state: dump
  target: /data/db_dumps/daily_prod_db_sales.sql
```

```
- name: Restore backup from file to database
community.postgresql.postgresql_db:
  login_user: "{{ postgres_user }}"
  login_password: "{{ postgres_password }}"
  login_host: "{{ postgres_host }}"
  name: "{{ postgres_database }}"
  state: restore
  target: /tmp/test.sql
```

```
# Chapter-08/postgres-backup-restore.yml
---
- name: Deploying PostgreSQL Database Server
  hosts: "{{ NODES }}"
  vars:
    ansible_become_user: postgres
    postgres_user: postgres
    postgres_password: 'PassWord'
    postgres_host: localhost
    postgres_database: db_sales

    db_action: 'restore' # 'backup'
  tasks:
    - name: Dump existing database to a file
      community.postgresql.postgresql_db:
        login_user: "{{ postgres_user }}"
        login_password: "{{ postgres_password }}"
        login_host: "{{ postgres_host }}"
        name: "{{ postgres_database }}"
        state: dump
        target: /tmp/test.sql
      when: db_action == 'backup'

    - name: Restore backup from file to database
      community.postgresql.postgresql_db:
        login_user: "{{ postgres_user }}"
        login_password: "{{ postgres_password }}"
        login_host: "{{ postgres_host }}"
        name: "{{ postgres_database }}"
        state: restore
        target: /tmp/test.sql
      when: db_action == 'restore'
```



Create issue

Import issues



Project *

 Support



Issue type *

 Story



Summary *

Database User Password Reset

Components

None



Attachment

 Drop files to attach or [browse](#)

Description

Normal text ▾

B

I

...

 ▾









@





<>



+

▾

Requesting password reset for the database user john for the database db_sales.

@Maria

Kindly approve.

☐ Create another issue

Cancel

Create

Database Name

db_sales

Database Server

node1.lab.local

Database Username

johnt

Please enter the database username for which the password to be reset

☐ Create another issue

Cancel

Create




```
# Chapter-08/postgres-password-reset.yaml
---
- name: Deploying PostgreSQL Database Server
  ## collect the database server name from Jira
  hosts: "{{ DATABASE_NODE }}"
  vars:
    ansible_become_user: postgres
    postgres_user: postgres
    postgres_password: 'PassWord'
    postgres_host: localhost

    ## collect the database name from Jira
    postgres_database: "{{ DATABASE_NAME }}"
    ## collect the database user name from Jira
    db_user_name: "{{ DATABASE_USER_NAME }}"
    ## Generate random password
    db_user_password: "{{ lookup('password', '/dev/null chars=ascii_lowercase,digits length=8') }}"
```

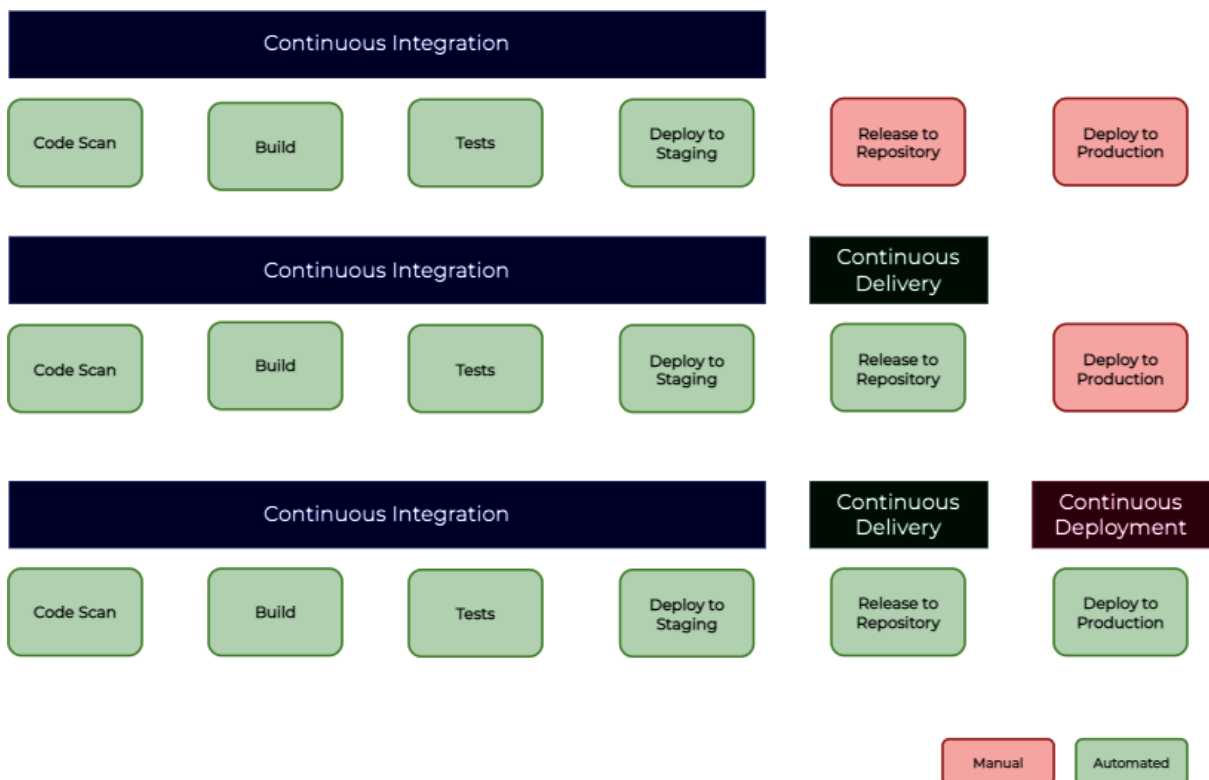
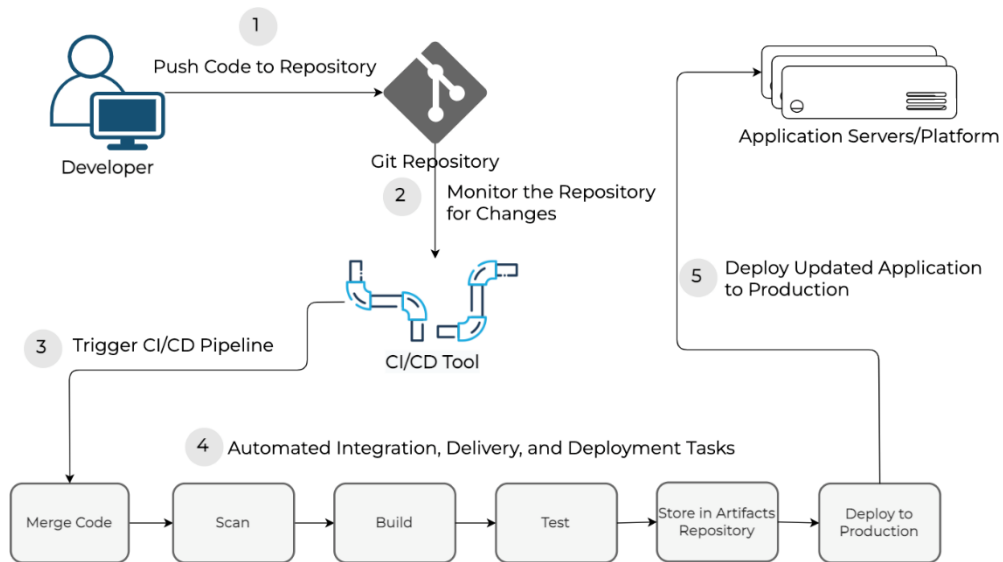


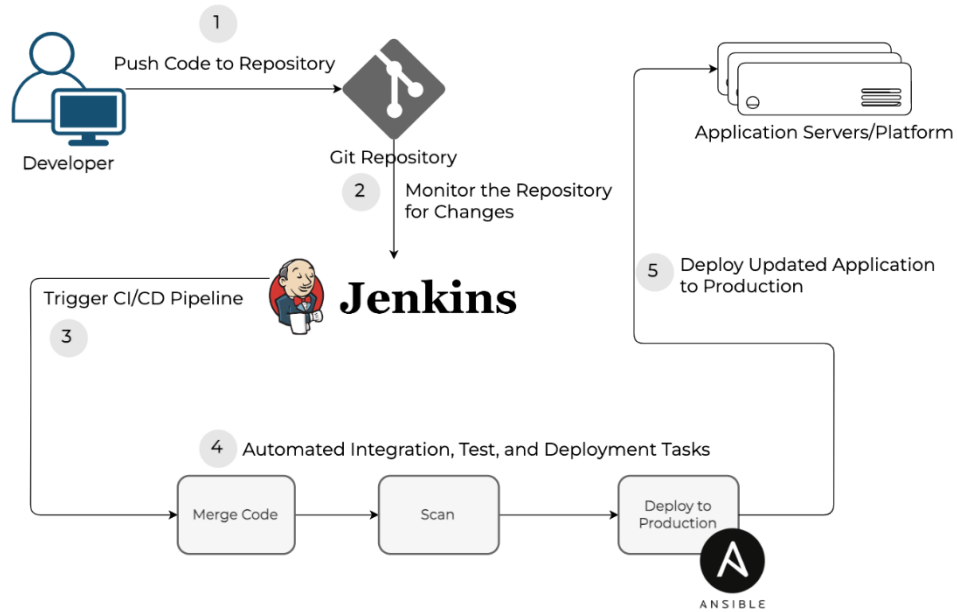
```
# Chapter-08/postgres-password-reset.yaml
.
.
- name: Set user's password with no expire date
  community.postgresql.postgresql_user:
    login_user: "{{ postgres_user }}"
    login_password: "{{ postgres_password | default(omit) }}"
    login_host: "{{ postgres_host | default('localhost') }}"
    db: "{{ postgres_database }}"
    name: "{{ db_user_name }}"
    password: "{{ db_user_password }}"
    priv: "CONNECT/products:ALL"
    expires: infinity
```



```
# Chapter-08/postgres-password-reset.yaml
.
.
- name: Comment on Jira issue
  community.general.jira:
    uri: '{{ jira_server }}'
    username: '{{ jira_user }}'
    password: '{{ jira_pass }}'
    issue: '{{ issue.meta.key }}'
    operation: comment
    comment: 'Password has been reset for the user {{ db_user_name }}, for the database {{ postgres_database
  }}'
```

Chapter 9: Implementing Automation in a DevOps Workflow





General Source Code Management **Build Triggers** Build Environment Build Post-build Actions

☒ Trigger builds remotely (e.g., from scripts) ?

Authentication Token

SECRETTOKEN

Use the following URL to trigger build remotely: [JENKINS_URL/job/ansible-demo/build?token=TOKEN_NAME](#) or [/buildWithParameters?token=TOKEN_NAME](#)

Optionally append `&cause=Cause+Text` to provide text that will be included in the recorded build cause.

☐ Build after other projects are built ?

☐ Build periodically ?

☐ GitHub Branches

☐ GitHub Pull Requests ?

☐ GitHub hook trigger for GITScm polling ?

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General

Access

Collaborators

Moderation options

Code and automation

Branches

Tags

Actions

Webhooks

Environments

Codespaces

Webhooks / Add webhook

We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, etc). More information can be found in [our developer documentation](#).

Payload URL *

<https://jenkins.myorganization.com/job/ansible-demo/build?token=SECRETTOKEN>

Content type

application/x-www-form-urlencoded

Secret


```

.
.
pipeline {
    agent any
    stages {
        stage ("Fetch Ansible content") {
            steps {
                git "https://github.com/ginigangadharan/website-demo-one-page.git"
            }
        }
        stage("Deploy application using Ansible") {
            steps {
                ansiblePlaybook credentialsId: 'private-key', disableHostKeyChecking: true, installation: 'Ansible',
inventory: 'produ.inventory', playbook: 'deploy-web.yaml'
            }
        }
    }
}
.
.

```

```

[web]
node1 ansible_host=192.168.56.25
node2 ansible_host=192.168.56.24

```

```

---
# Chapter-09/deploy-web.yaml
- name: Deploying Application
  hosts: "{{ NODES }}"
  become: yes
  vars:
    application_repo: 'https://github.com/ginigangadharan/website-demo-one-page'
    application_branch: production
    application_path: /var/www/html

  tasks:

```

```

# Chapter-09/deploy-web.yaml...
.
.
- name: Delete content & directory if exists
  ansible.builtin.file:
    state: absent
    path: "{{ application_path }}"

- name: Create application directory
  ansible.builtin.file:
    state: directory
    path: "{{ application_path }}"
    mode: '0755'

```

```

# Chapter-09/deploy-web.yaml...
.
.
- name: Install httpd, firewalld and Git packages
  ansible.builtin.dnf:
    name:
      - httpd >= 2.4
      - firewalld
      - git
    state: latest

- name: Enable and Run firewalld service
  ansible.builtin.service:
    name: firewalld
    enabled: true
    state: started

- name: Permit httpd service in firewall
  ansible.posix.firewalld:
    service: http
    permanent: true
    state: enabled
    immediate: yes

- name: Enable and start httpd service
  ansible.builtin.service:
    name: httpd
    enabled: true
    state: started

```

```

# Chapter-09/deploy-web.yaml...
.
.
- name: Git checkout the application or website
  ansible.builtin.git:
    repo: "{{ application_repo }}"
    dest: "{{ application_path }}"
    version: "{{ application_branch }}"

- name: Update index.html with server details
  ansible.builtin.lineinfile:
    path: "{{ application_path }}/index.html"
    regexp: 'SERVER_DETAILS'
    line: "<h3>{Installed using Ansible. Serving from {{ ansible_hostname }}}</h3>"

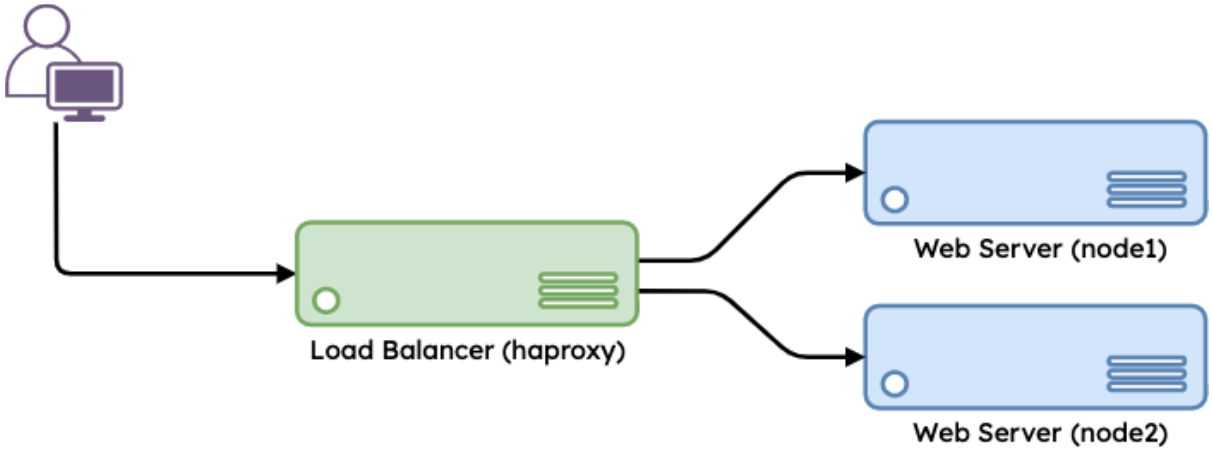
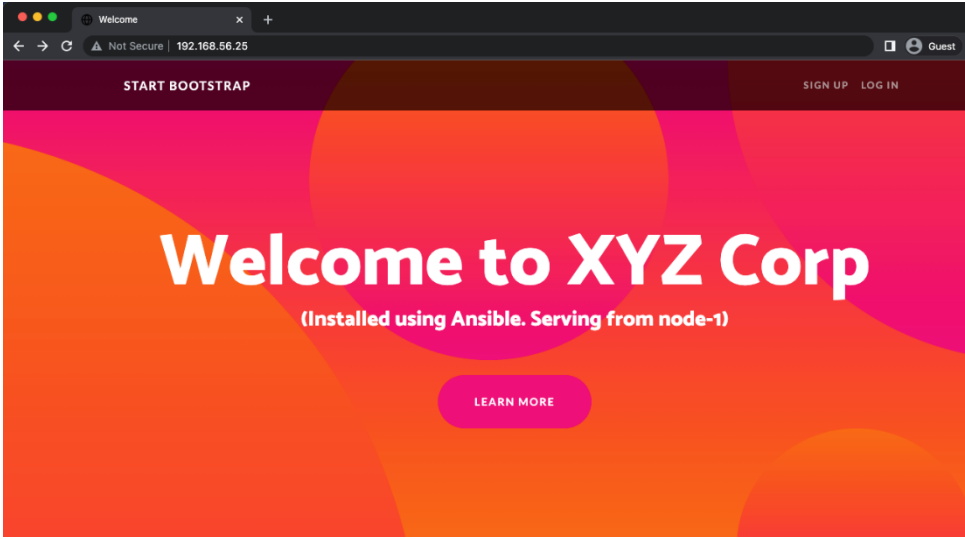
```

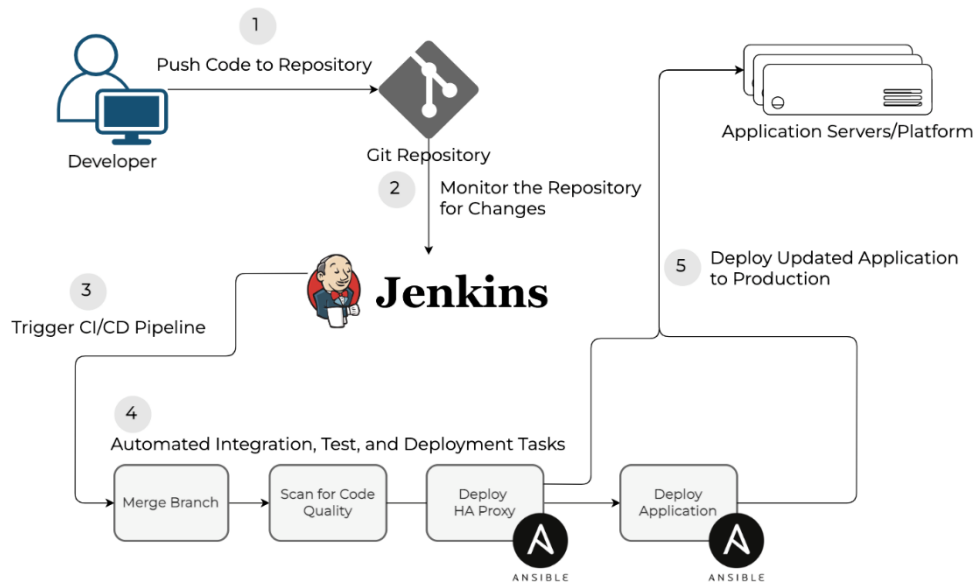
```

# Chapter-09/deploy-web.yaml...
.
.
- name: Verify deployment
  hosts: "{{ NODES }}"
  become: no
  tasks:
    - name: Verify application health
      ansible.builtin.uri:
        url: http://{{ inventory_hostname }}.lab.local
        status_code: 200
      delegate_to: localhost

```

```
[ansible@ansible Chapter-09]$ ansible-playbook deploy-web.yaml -e "NODES=web"
.
<output omitted>
.
.
TASK [Verify application health] *****
ok: [localhost]
.
.
```





```

[loadbalancer]
node3 ansible_host=192.168.56.45

```

```

[ansible@ansible Chapter-09]$ cd roles

[ansible@ansible roles]$ ansible-galaxy role install geerlingguy.haproxy

```

```

---
# Chapter-09/deploy-haproxy.yaml
- name: Deploy Load Balancer using HAProxy
  hosts: loadbalancer
  become: yes
  vars:
    haproxy_frontend_name: 'hafrontend'
    haproxy_backend_name: 'habackend'
    haproxy_backend_servers:
      - name: node1
        address: 192.168.56.25:80
      - name: node2
        address: 192.168.56.24:80
  tasks:
    - name: Install haproxy
      include_role:
        name: geerlingguy.haproxy

    - name: Permit port 80 in firewall
      ansible.posix.firewalld:
        port: 80/tcp
        permanent: true
        state: enabled
        immediate: yes

```

```

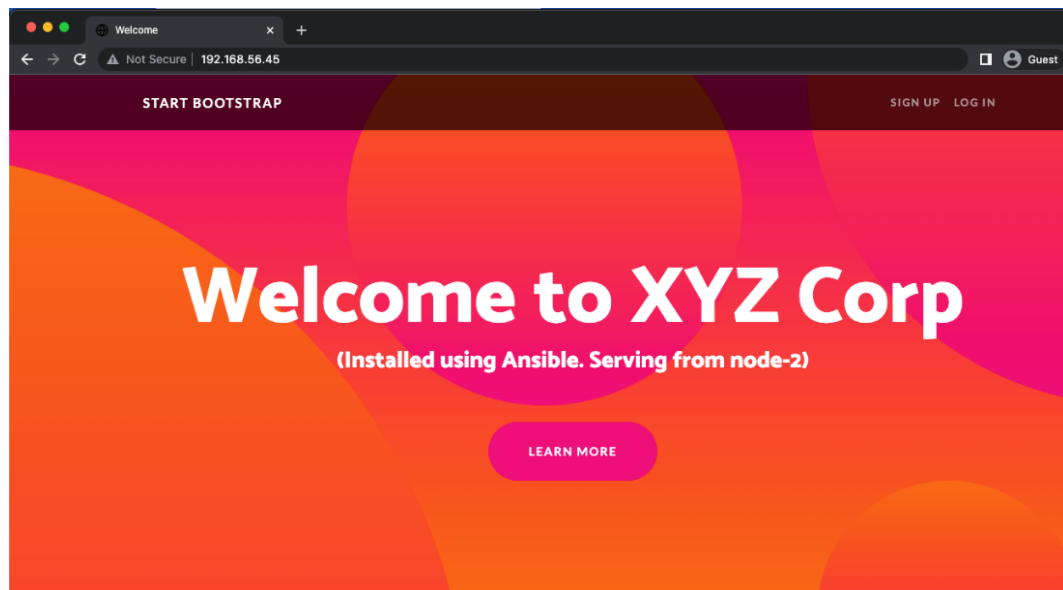
---
# Chapter-09/deploy-haproxy.yaml
.
.
- name: Verify load balancer deployment
  hosts: loadbalancer
  become: no
  tasks:
    - name: Verify load balancer health
      ansible.builtin.uri:
        url: http://{{ inventory_hostname }}.lab.local
        status_code: 200
      delegate_to: localhost

```

```

[ansible@ansible Chapter-09]$ ansible-playbook deploy-haproxy.yaml
.
.
TASK [Verify load balancer health]*****
ok: [node3 -> localhost]
.
.

```



1. Stop application monitoring services (to avoid any unwanted alerts)

2. Remove (disable) the web server from the load balancer backend

3. Stop the web service

4. Deploy a new version of the application or files

5. Start the web service

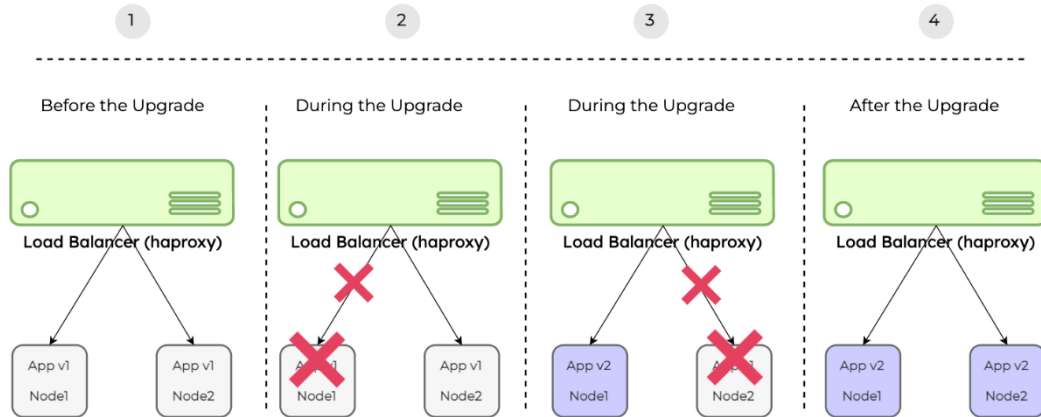
6. Add the web server back to the load balancer backend

7. Start application monitoring

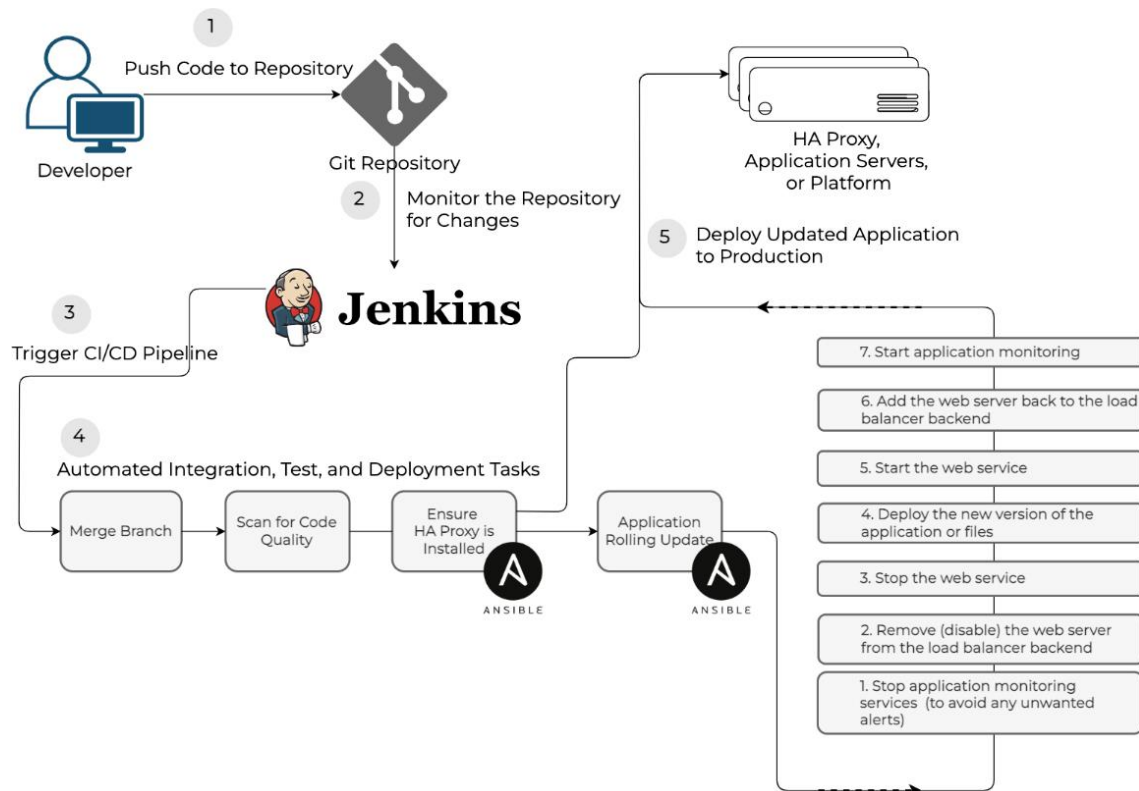
```
.
hosts: web
become: yes
serial: 25%
tasks:
.
.
```



ANSIBLE



```
serial:
  - 1
  - 20%
  - 100%
```





```
## Clone the repository to your local machine:
[ansible@ansible ~]$ git clone git@github.com:ginigangadharan/website-demo-one-page

## Switch to the repository's directory:
[ansible@ansible ~]$ cd website-demo-one-page

## Switch to the production branch:
[ansible@ansible website-demo-one-page]$ git checkout production
Switched to branch 'production'
Your branch is up to date with 'origin/production'.

## Checkout new branch called v2
[ansible@ansible website-demo-one-page]$ git checkout -b v2
Switched to a new branch 'v2'
```



```
.
.
    <h1 class="masthead-heading mb-0">Welcome to XYZ Corp</h1>
    <h4>(v2)</h4>
    SERVER_DETAILS
.
.
```



```
[ansible@ansible website-demo-one-page]$ git add .;git commit -m "v2"

[ansible@ansible website-demo-one-page]$ git push -u origin v2
```



```
---
# Chapter-09/rolling-update.yaml
- name: Rolling Update
  hosts: "{{ NODES }}"
  become: yes
  serial: 1
  vars:
    haproxy_backend_name: 'habackend'
    application_repo: 'https://github.com/ginigangadharan/website-demo-one-page'
    application_branch: production
    application_path: /var/www/html

  tasks:
```




```
---
# Chapter-09/rolling-update.yaml
.
.
- name: Disable server in haproxy backend
  community.general.haproxy:
    state: disabled
    host: '{{ inventory_hostname }}'
    wait: yes
    socket: "/var/lib/haproxy/stats"
    backend: "{{ haproxy_backend_name }}"
    fail_on_not_found: yes
    delegate_to: '{{ item }}'
    with_items: '{{ groups.loadbalancer }}'

- name: Stop httpd service
  ansible.builtin.service:
    name: httpd
    state: stopped
```



```
---
# Chapter-09/rolling-update.yaml
.
.
- name: Delete content & directory if exists
  ansible.builtin.file:
    state: absent
    path: "{{ application_path }}"

- name: Create application directory
  ansible.builtin.file:
    state: directory
    path: "{{ application_path }}"
    mode: '0755'

- name: Git checkout - latest application content
  ansible.builtin.git:
    repo: "{{ application_repo }}"
    dest: "{{ application_path }}"
    version: "{{ application_branch }}"

- name: Update index.html with server details
  ansible.builtin.lineinfile:
    path: "{{ application_path }}/index.html"
    regexp: 'SERVER_DETAILS'
    line: "<h3>{Installed using Ansible. Serving from { ansible_hostname }}</h3>"
```

```

---
# Chapter-09/rolling-update.yaml
.
.
- name: Start httpd service
  ansible.builtin.service:
    name: httpd
    state: started

- name: Enable server in haproxy backend
  community.general.haproxy:
    state: enabled
    host: '{{ inventory_hostname }}'
    wait: yes
    socket: "/var/lib/haproxy/stats"
    backend: "{{ haproxy_backend_name }}"
    fail_on_not_found: yes
    delegate_to: '{{ item }}'
    with_items: '{{ groups.loadbalancer }}'

```

```

---
# Chapter-09/rolling-update.yaml
.
.
- name: Verify load balancer traffic
  hosts: loadbalancer
  become: no
  tasks:
    - name: Verify load balancer traffic
      ansible.builtin.uri:
        url: http://{{ inventory_hostname }}.lab.local
        status_code: 200
        delegate_to: localhost

```

```

[ansible@ansible Chapter-09]$ ansible-playbook rolling-update.yaml -e "NODES=web application_branch=v2"
.
.
PLAY [Rolling Update] *****

TASK [Gathering Facts] *****
ok: [node1]

TASK [Disable server in haproxy backend] *****
changed: [node1 -> node3] => (item=node3)
.
.

```

```

.
.
PLAY [Rolling Update] *****

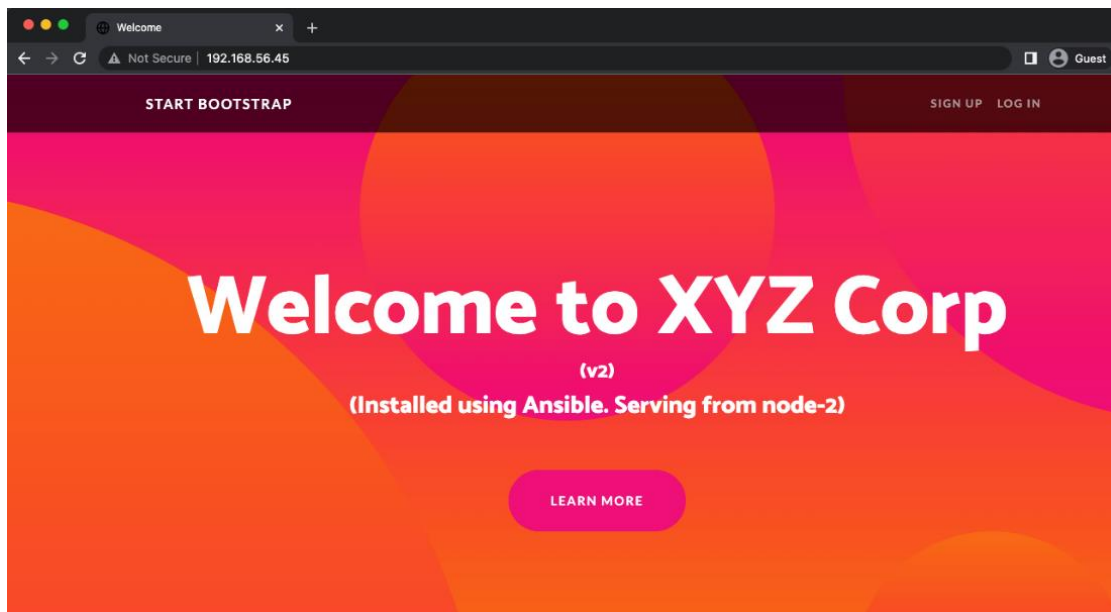
TASK [Gathering Facts] *****
ok: [node2]

TASK [Disable server in haproxy backend] *****
changed: [node2 -> node3] => (item=node3)
.
.
Finally, the Verify load balancer traffic task is successful as follows.
PLAY [Verify load balancer traffic] *****

TASK [Gathering Facts] *****
ok: [node3]

TASK [Verify load balancer traffic] *****
ok: [node3 -> localhost]
.
.

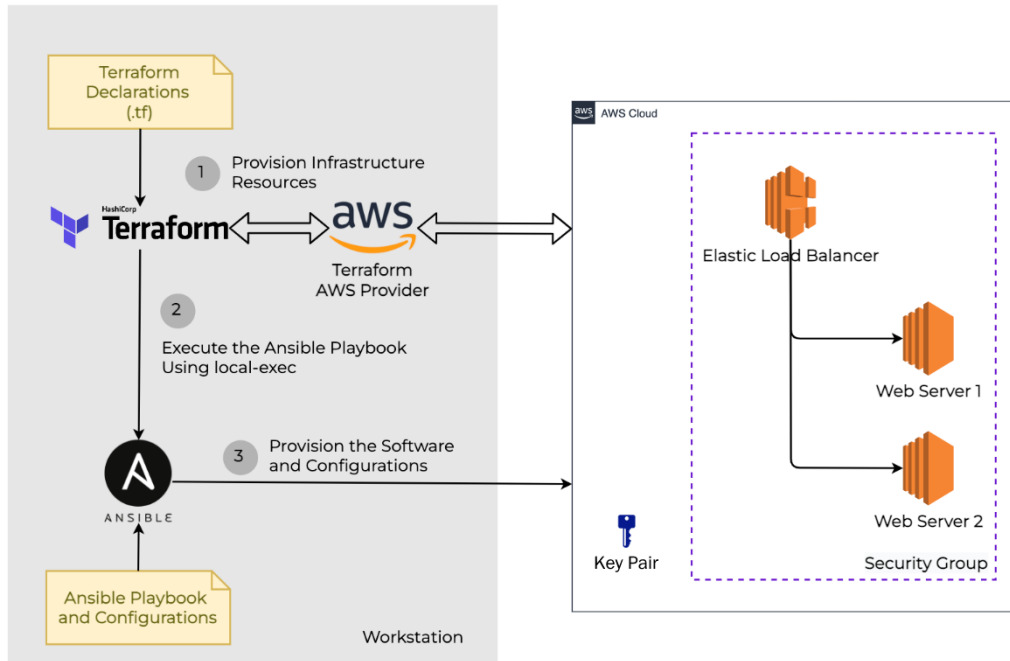
```



```

resource "aws_instance" "dbnodes" {
  ami           = var.aws_ami_id
  instance_type = "t2.large"
  key_name      = aws_key_pair.ec2loginkey.key_name
  count         = var.dbnodes_count
  security_groups = ["dbnodes-sg"]
  user_data     = file("user-data-dbnodes.sh")
  tags = {
    Name = "dbnode-${count.index + 1}"
  }
}

```

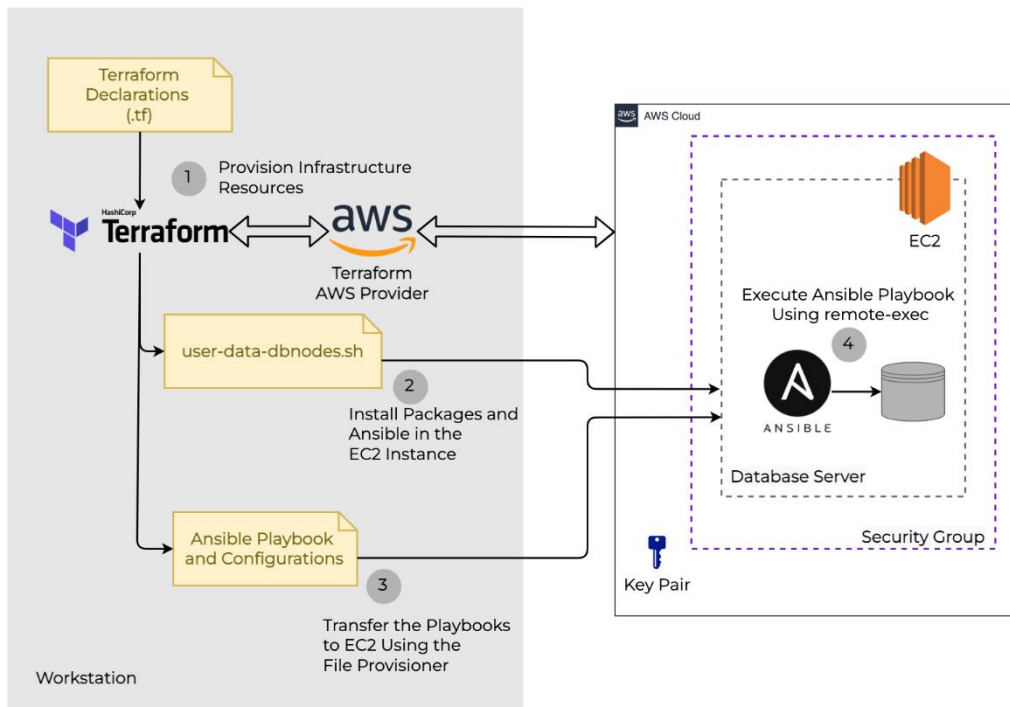


```

resource "aws_instance" "dbnodes" {
  ami           = var.aws_ami_id
  instance_type = "t2.large"
  key_name      = aws_key_pair.ec2loginkey.key_name
  count        = var.dbnodes_count
  security_groups = ["dbnodes-sg"]
  user_data     = file("user-data-dbnodes.sh")
  tags = {
    Name = "dbnode-${count.index + 1}"
  }

  provisioner "local-exec" {
    command = "ANSIBLE_HOST_KEY_CHECKING=False ansible-playbook -u ec2-user -i '${self.public_ip},' --private-key ${var.ssh_key_pair} post-configuration.yaml"
  }
}

```



```

#!/bin/bash
sudo amazon-linux-extras install -y epel
sudo useradd devops
echo -e 'devops\ndevops' | sudo passwd devops
echo 'devops ALL=(ALL) NOPASSWD: ALL' | sudo tee /etc/sudoers.d/devops
sudo sed -i 's/PasswordAuthentication no/PasswordAuthentication yes/g' /etc/ssh/sshd_config
sudo systemctl restart sshd.service
sudo yum install -y python3
sudo yum install -y vim
sudo yum install -y ansible
sudo yum install -y git

```

```

resource "aws_instance" "dbnodes" {
  ami           = var.aws_ami_id #"ami-0cd31be676780afa7"
  instance_type = "t2.large"
  key_name      = aws_key_pair.ec2loginkey.key_name
  count        = var.dbnodes_count
  security_groups = ["dbnodes-sg"]
  user_data     = file("user-data-dbnodes.sh")
  tags = {
    Name = "dbnode-${count.index + 1}"
  }
}

```



```
# copy dbnode-config.yaml
provisioner "file" {
  source      = "dbnode-config.yaml"
  destination = "/home/ec2-user/dbnode-config.yaml"
  connection {
    type      = "ssh"
    user      = "ec2-user"
    private_key = file(pathexpand(var.ssh_key_pair))
    host      = self.public_ip
  }
}

# Execute Ansible Playbook
provisioner "remote-exec" {
  inline = [
    "sleep 120; ansible-playbook dbnode-config.yaml"
  ]
  connection {
    type      = "ssh"
    user      = "ec2-user"
    private_key = file(pathexpand(var.ssh_key_pair))
    host      = self.public_ip
  }
}
```

Chapter 10: Managing Containers Using Ansible



```
[dockerhost]
node1 ansible_host=192.168.56.25
```



```
[ansible@ansible Chapter-10]$ ansible-galaxy install geerlingguy.docker -p roles/
[ansible@ansible Chapter-10]$ ansible-galaxy install geerlingguy.pip -p roles/
You can verify the roles installation as follows.
[ansible@ansible Chapter-10]$ ansible-galaxy role list
# /home/ansible/ansible-book-packt/Chapter-10/roles
- geerlingguy.docker, 4.1.3
- geerlingguy.pip, 2.1.0
```



```
---
# Chapter-10/deploy-docker.yaml
- name: Deploy Docker to Host
  hosts: "{{ NODES }}"
  become: yes
  vars:
    pip_install_packages:
      - name: docker
  tasks:
    - name: Install docker
      include_role:
        name: geerlingguy.docker
    - name: Install Packages
      include_role:
        name: geerlingguy.pip
```

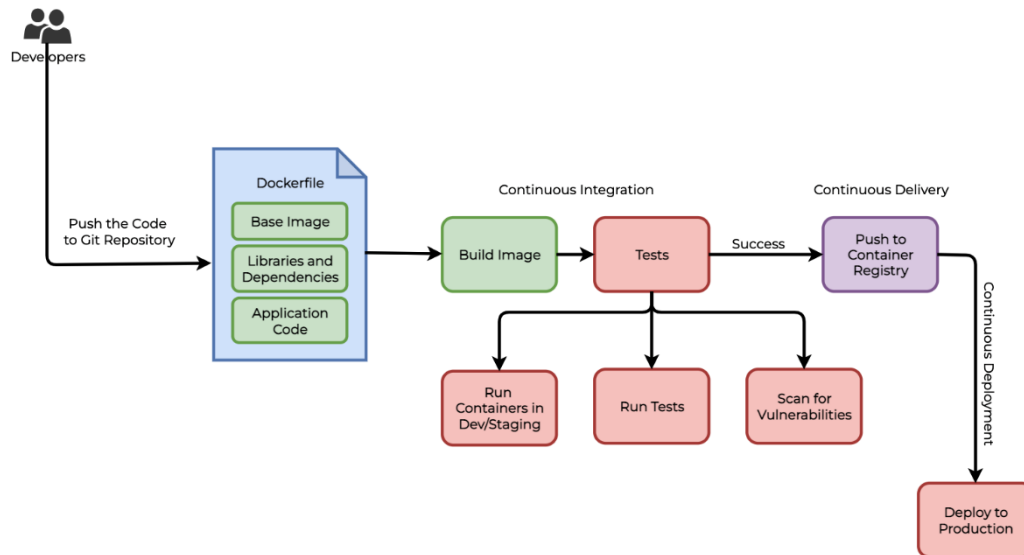


```
[ansible@ansible Chapter-10]$ ansible-playbook deploy-docker.yaml -e "NODES=dockerhost"
```

```

[root@node-1 ~]# docker version
Client: Docker Engine - Community
Version: 20.10.14
API version: 1.41
Go version: go1.16.15
..<output omitted>..
Server: Docker Engine - Community
Engine:
  Version: 20.10.14
  API version: 1.41 (minimum version 1.12)
  Go version: go1.16.15
  ..<output omitted>..
containerd:
  Version: 1.5.11
  GitCommit: 3df54a852345ae127d1fa3092b95168e4a88e2f8
  ..<output omitted>..

```



```

[defaults]
inventory = ./hosts
remote_user = devops
ask_pass = false

COLLECTIONS_PATHS = ./collections
roles_path = roles

```

```

[ansible@ansible Chapter-10]$ ansible-galaxy collection install community.docker

```



```

[ansible@ansible Chapter-10]$ ansible-galaxy collection list
...
<output omitted>
# /home/ansible/ansible-book-packt/Chapter-10/collections/ansible_collections
Collection      Version
-----
community.docker 2.3.0

```

```

./collections).
[ansible@ansible Chapter-10]$ ansible-galaxy collection list |grep -i docker
community.docker      1.10.2
community.docker 2.3.0

```

```

---
# Chapter-10/container-manage.yml
- name: Manage Docker containers
  hosts: "{{ NODES }}"
  become: yes
  vars:
    container_image: nginx
    container_name: web
    container_port: 80
    container_expose_port: 8080
    container_action: 'run'

```

```

tasks:
  - name: Create and Start a Docker container
    community.docker.docker_container:
      name: "{{ container_name }}"
      image: "{{ container_image }}"
      state: started
      ports: "{{ container_expose_port }}:{{ container_port }}"
      when: container_action == 'run'

```

```

- name: Verify web site running inside container
  hosts: "{{ NODES }}"
  become: no
  vars:
    container_expose_port: 8080
    container_action: 'run'
  tasks:
    - name: Verify application health
      ansible.builtin.uri:
        url: http://{{ inventory_hostname }}.lab.local:{{ container_expose_port }}
        status_code: 200
      delegate_to: localhost
      when: container_action == 'run'

```

```
[ansible@ansible Chapter-10]$ ansible-playbook container-manage.yaml -e "NODES=dockerhost"
```

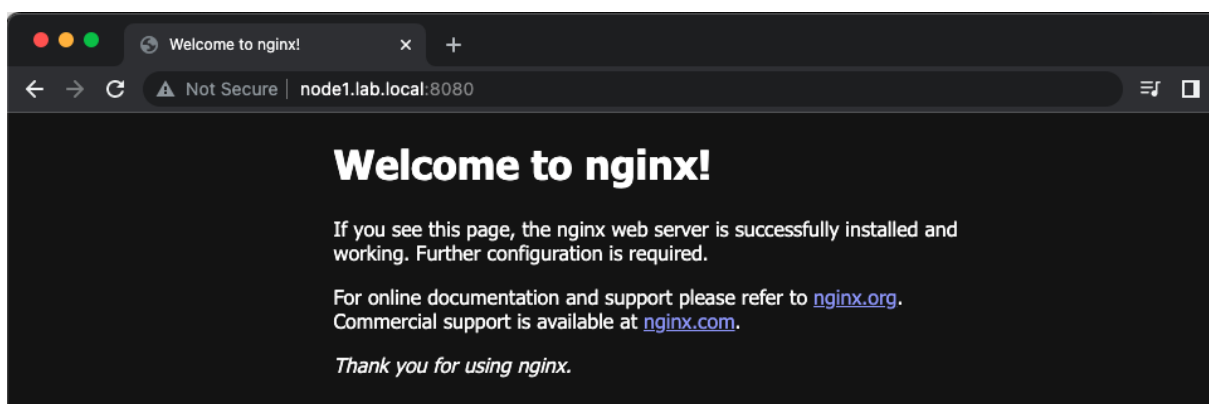
```
[root@node-1 ~]# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
e36fb7419165	nginx	"/docker-entrypoint..."	10 minutes ago	Up 10 minutes	0.0.0.0:8080->80/tcp	web

```
[ansible@ansible Chapter-10]$ curl http://node1:8080
```

```
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
..<output omitted>..
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
```



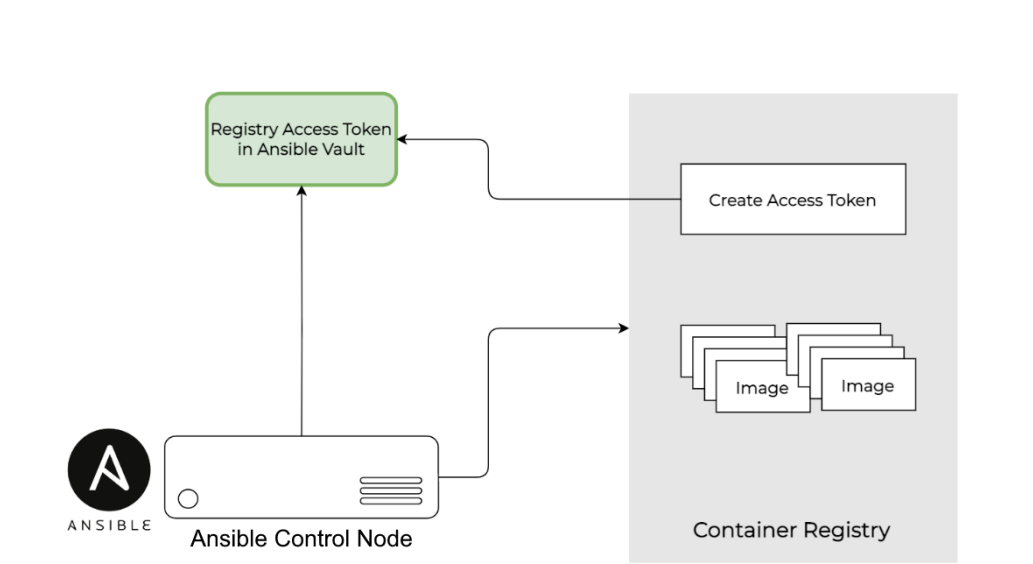
```

.
.
- name: Stop Docker container
  community.docker.docker_container:
    name: "{{ container_name }}"
    state: stopped
  when: container_action == 'stop'

- name: Remove Docker container
  community.docker.docker_container:
    name: "{{ container_name }}"
    state: absent
  when: container_action == 'stop'
.
.
```

```
[ansible@ansible Chapter-10]$ ansible-playbook container-manage.yaml -e "NODES=dockerhost container_action=stop"
```

```
[root@node-1 ~]# docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS        NAMES
[root@node-1 ~]#
```



New Access Token

A personal access token is similar to a password except you can have many tokens and revoke access to each one at any time. [Learn more](#)

Access Token Description *

ansible-book-demo

Access permissions

Read, Write, Delete

Read, Write, Delete tokens allow you to manage your repositories.

Cancel

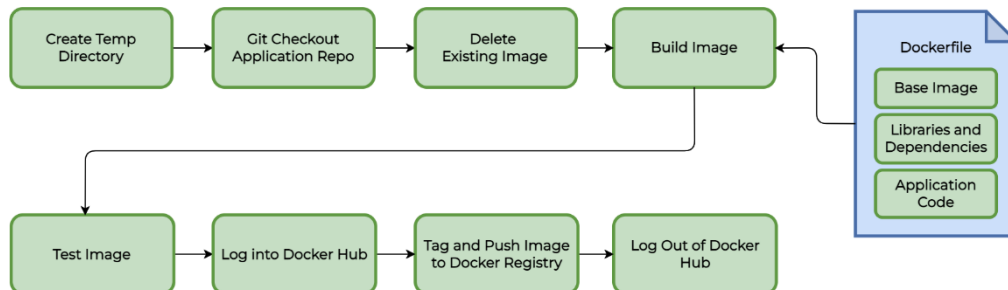
Generate



```
[ansible@ansible Chapter-10]$ mkdir vars
[ansible@ansible Chapter-10]$ ansible-vault create vars/docker-credential.yaml
New Vault password:
Confirm New Vault password:
```



```
# vars/docker-credential.yaml
docker_username: yourdockerusername
docker_password: yourdockeraccesstoken
```



```
# syntax=docker/dockerfile:1
FROM node:12-alpine
RUN apk add --no-cache python2 g++ make
WORKDIR /app
COPY . .
RUN yarn install --production
CMD ["node", "src/index.js"]
EXPOSE 3000
```

```

$ ls -l
total 344
-rw-r-xr-x 1 gini staff 182 3 Apr 15:33 Dockerfile
-rw-r--r-- 1 gini staff 204 3 Apr 14:07 README.md
-rw-rw-r--@ 1 gini staff 646 10 Feb 16:59 package.json
drwxrwxr-x@ 5 gini staff 160 3 Apr 14:06 spec
drwxrwxr-x@ 7 gini staff 224 3 Apr 14:06 src
-rw-rw-r--@ 1 gini staff 162208 10 Feb 16:59 yarn.lock

```

```

---
# Chapter-10/container-build.yml
- name: Building Container Images
  hosts: "{{ NODES }}"
  become: yes
  vars:
    application_repo: https://github.com/ginigungadharan/nodejs-todo-demo-app
    application_branch: main
    application_name: todo-app
    application_version: v1
    container_image_repository: ginigungadharan
    container_registry_url: https://index.docker.io/v1/

  vars_files:
    - vars/docker-credential.yml

```

```

---
# Chapter-10/container-build.yml
..
tasks:
  - name: Create temporary location
    ansible.builtin.tempfile:
      state: directory
      prefix: "container_build_"
      register: temp_location

  - debug:
      msg: "{{ temp_location.path }}"

  - name: Git checkout the application
    ansible.builtin.git:
      repo: "{{ application_repo }}"
      dest: "{{ temp_location.path }}"
      version: "{{ application_branch }}"

```

```

---
# Chapter-10/container-build.yaml
..
- name: Delete existing container image with same name and tag
  community.docker.docker_image:
    name: "{{ application_name }}"
    tag: "{{ application_version }}"
    state: absent

- name: Build container image
  community.docker.docker_image:
    name: "{{ application_name }}"
    tag: "{{ application_version }}"
    build:
      path: "{{ temp_location.path }}"
      source: build
    state: present
.
.

```

```

---
# Chapter-10/container-build.yaml
..
- name: Integration and other tests
  debug:
    msg: "Your tests can be included here..."
.
.

```

```

---
# Chapter-10/container-build.yaml
..
- name: Log into DockerHub
  community.docker.docker_login:
    registry_url: "{{ container_registry_url }}"
    username: "{{ docker_username }}"
    password: "{{ docker_password }}"

- name: Push container image to registry
  community.docker.docker_image:
    name: "{{ application_name }}"
    tag: "{{ application_version }}"
    repository: "{{ container_image_repository }}/{{ application_name }}:{{ application_version }}"
    source: local
    push: yes
.
.

```

```

---
# Chapter-10/container-build.yaml
..
- name: Add tag latest to image
  community.docker.docker_image:
    name: "{{ application_name }}:{{ application_version }}"
    repository: "{{ container_image_repository }}/{{ application_name }}:latest"
    force_tag: yes
    push: yes
    source: local

- name: Log out of DockerHub
  community.docker.docker_login:
    registry_url: "{{ container_registry_url }}"
    state: absent
.
.

```

```

---
# Chapter-10/container-build.yaml
..
- name: Delete temporary location
  ansible.builtin.file:
    path: "{{ temp_location.path }}"
    state: absent

```

```

[ansible@ansible Chapter-10]$ ansible-playbook container-build.yaml -e "NODES=dockerhost" --ask-vault-password
Vault password:

```

```

[root@node-1 ~]# docker images |grep todo
todo-app          v1               8408ad9523d3    2 minutes ago   407MB
ginigangadharan/todo-app v1               83c58c775765    26 hours ago   407MB

```


ginigangadharan / **todo-app**
Last pushed: a few seconds ago

Not Scanned

☆ 0

↓ 0

Public

 **ginigangadharan / todo-app**
This repository does not have a description



🕒 Last pushed: 5 minutes ago

Docker commands [Public View](#)
To push a new tag to this repository,

```
docker push ginigangadharan/todo-app:tagname
```



Tags and Scans
This repository contains 1 tag(s).

VULNERABILITY SCANNING - DISABLED [Enable](#)

TAG	OS	PULLED	PUSHED
 v1		---	5 minutes ago

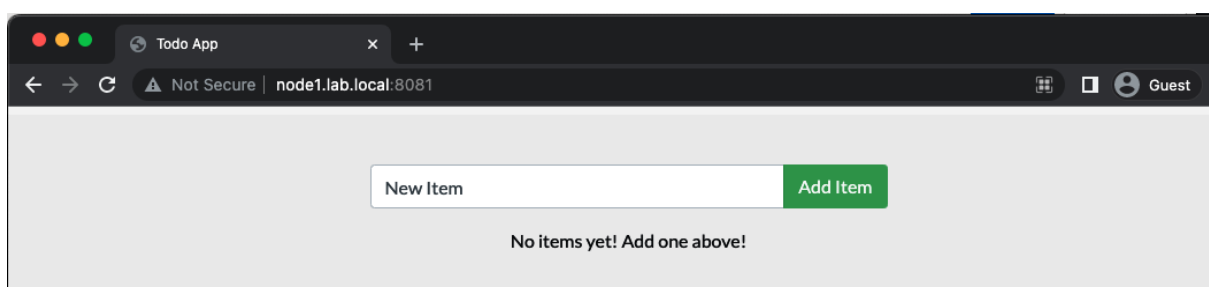
[See all](#)

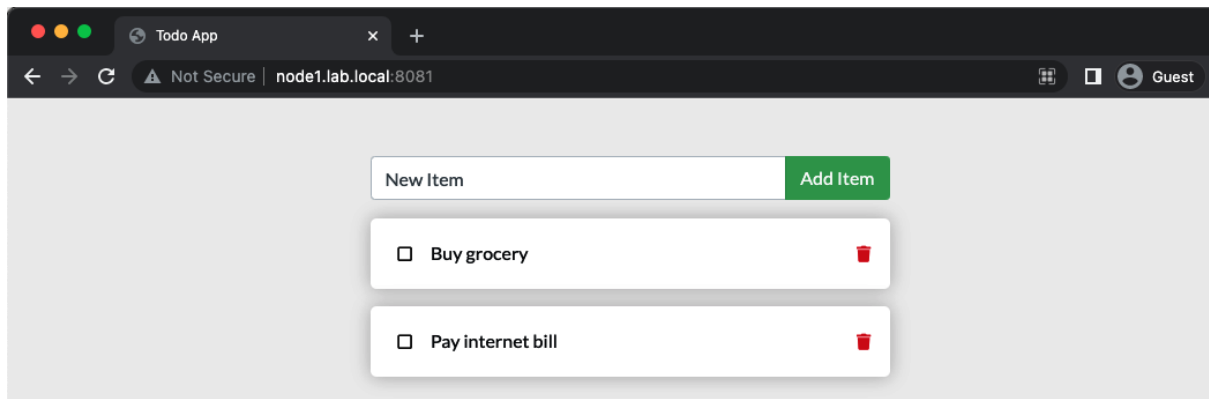
Automated Builds
Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.
Available with Pro, Team and Business subscriptions.
[Upgrade to Pro](#) [Learn more](#)

Readme  
Repository description is empty. Click [here](#) to edit.

```
[ansible@ansible Chapter-10]$ ansible-playbook container-manage.yaml -e "NODES=dockerhost
container_image=ginigangadharan/todo-app container_name=todo-app container_port=3000 container_expose_port=8081"
```

```
[root@node-1 ~]# docker ps |grep todo
0e158f5710bf  ginigangadharan/todo-app  "docker-entrypoint.s..." 3 minutes ago Up 3 minutes 0.0.0.0:8081-
>3000/tcp  todo-app
```





```
[ansible@ansible Chapter-10]$ ansible-playbook container-manage.yaml -e "NODES=dockerhost
container_image=ginigangadharan/todo-app container_name=todo-app container_port=3000 container_expose_port=8081
container_action=stop"
```



```
---
- name: Deploy wordpress stack on Docker
  hosts: "{{ NODES }}"
  become: yes
  vars:
    db_volume: 'mariadb'
    wordpress: 'wordpress'
    mysql_root_password: 'secretrootpassword'
    mysql_username: 'wordpressuser'
    mysql_password: 'secretpassword'
    mysql_database: 'wordpressdb'
    container_port: 8082
  tasks:
```

```

- name: Deploy MariaDB server for Database
  community.docker.docker_container:
    state: started
    image: mariadb
    name: mariadb
    volumes:
      - "{{db_volume}}:/var/lib/mysql"
    env:
      MYSQL_ROOT_PASSWORD: "{{mysql_root_password }}"
      MYSQL_PASSWORD: "{{mysql_password }}"
      MYSQL_DATABASE: "{{mysql_database }}"
      MYSQL_USER: "{{mysql_username }}"

- name: Deploy WordPress
  community.docker.docker_container:
    state: started
    image: wordpress
    name: wordpress
    restart_policy: always
    ports:
      - "{{ container_port }}:80"
    links:
      - "{{ db_volume }}:/var/lib/mysql"
    volumes:
      - "{{ wordpress }}:/var/www/html"
    env:
      MYSQL_PASSWORD: "{{mysql_password }}"
      MYSQL_DATABASE: "{{mysql_database }}"
      MYSQL_USER: "{{mysql_username }}"
      MYSQL_HOST: mariadb

```

```

[ansible@ansible Chapter-10]$ ansible-playbook deploy-wordpress-on-docker.yaml -e "NODES=dockerhost"

```

```

[devops@node-1 ~]$ sudo docker ps

```

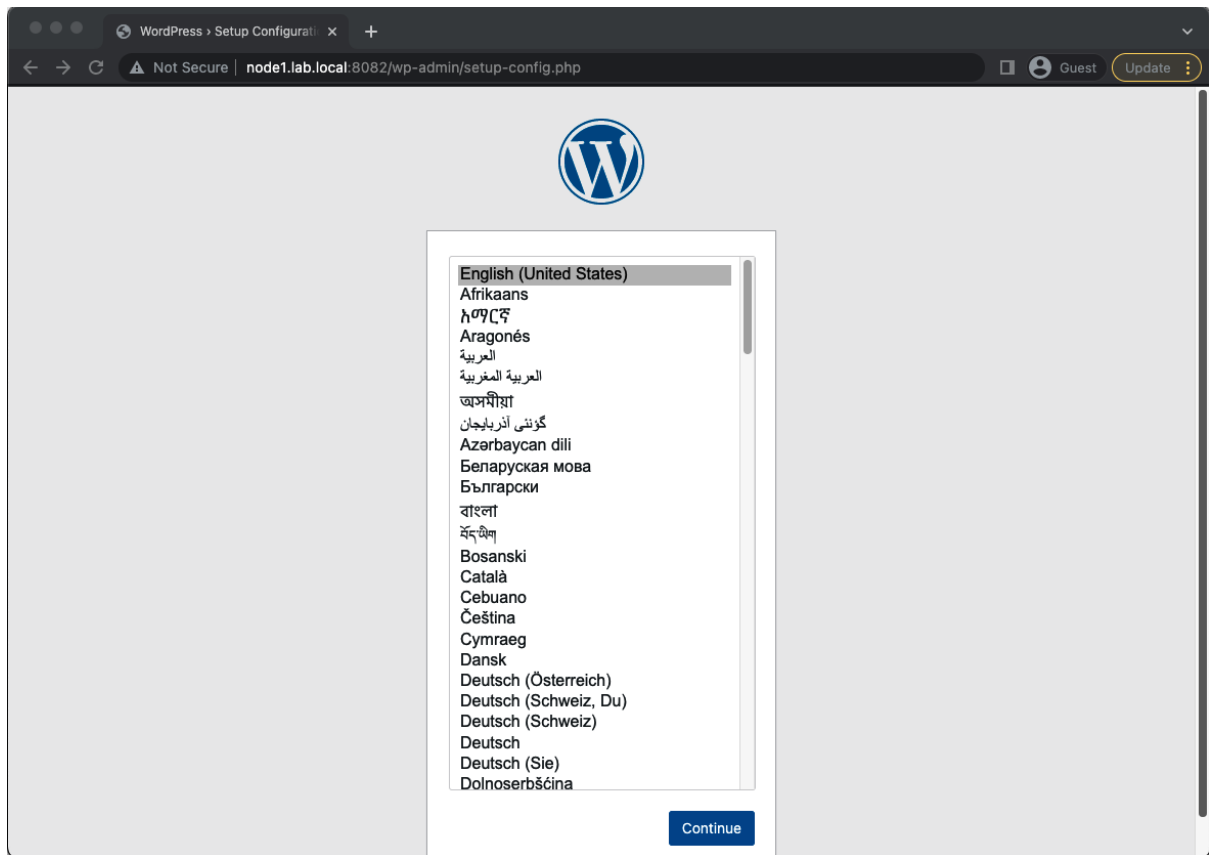
CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
d5253f49d1c9	wordpress	"docker-entrypoint.s..."	15 minutes ago	Up 15 minutes	0.0.0.0:8082->80/tcp	wordpress
74eb2db91a52	mariadb	"docker-entrypoint.s..."	15 minutes ago	Up 15 minutes	3306/tcp	mariadb

```

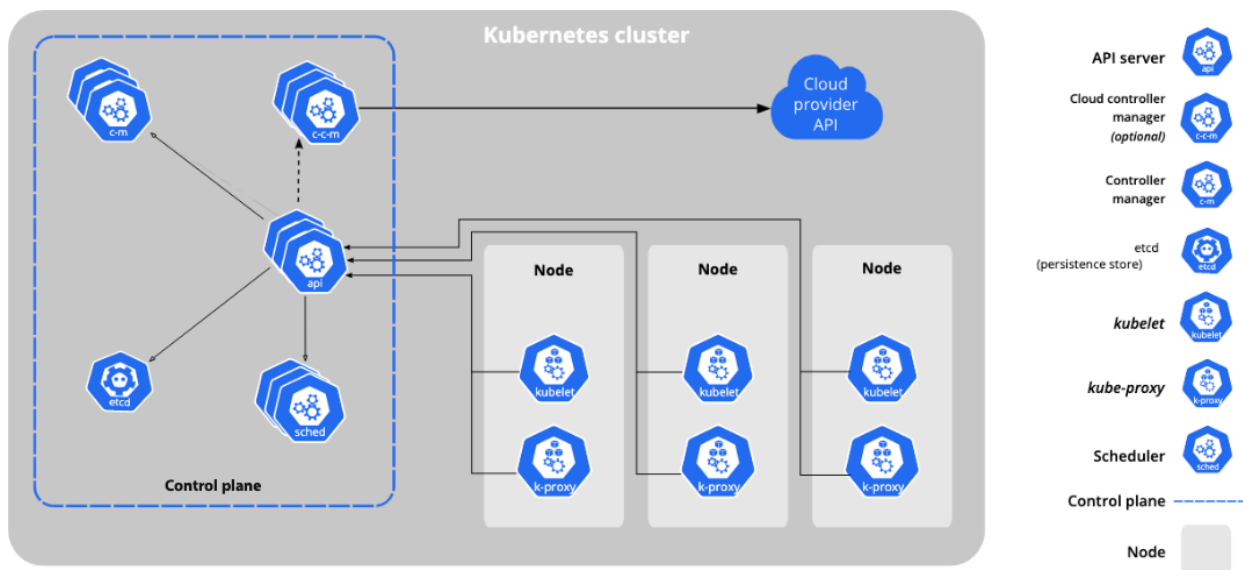
[devops@node-1 ~]$ sudo docker volume ls

```

DRIVER	VOLUME NAME
local	mariadb
local	wordpress



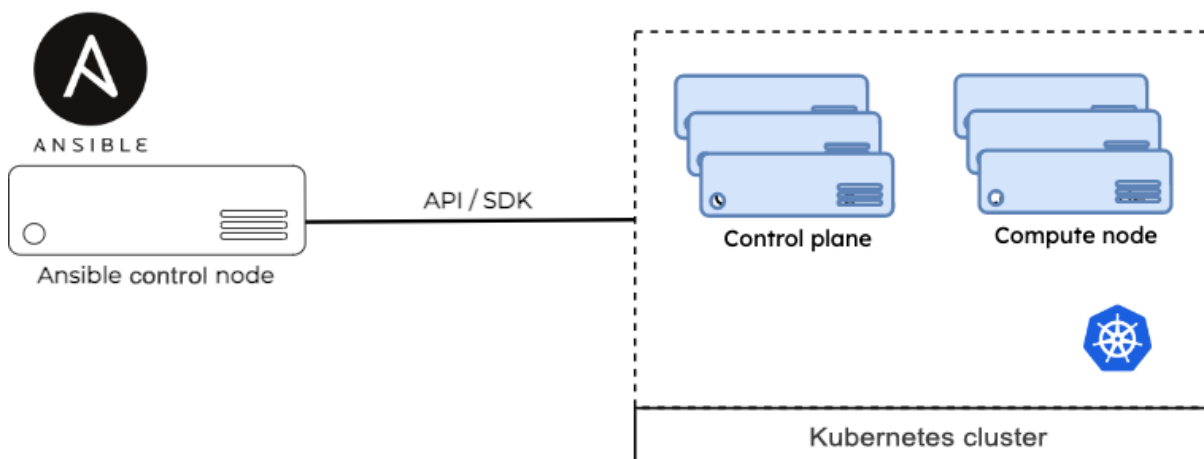
Chapter 11: Managing Kubernetes Using Ansible



```
$ minikube version
minikube version: v1.25.1
commit: 3e64b11ed75e56e4898ea85f96b2e4af0301f43d

$ minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

$ minikube node list
minikube      192.168.64.10
```



```
[defaults]
.
.
COLLECTIONS_PATHS = ./collections
```

```
[ansible@ansible Chapter-11]$ ansible-galaxy collection install kubernetes.core
```

```
[ansible@ansible Chapter-11]$ ls -l ~/.kube/
total 16
-rw-r--r--. 1 ansible ansible 1111 Apr 25 14:03 ca.crt
-rw-r--r--. 1 ansible ansible 1147 Apr 25 14:03 client.crt
-rw-----. 1 ansible ansible 1675 Apr 25 14:03 client.key
-rw-rw-r--. 1 ansible ansible 824 Apr 25 13:58 minikube-config
```

```
[ansible@ansible Chapter-11]$ cat <<EOF | sudo tee /etc/yum.repos.d/kubernetes.repo
[kubernetes]
name=Kubernetes
baseurl=https://packages.cloud.google.com/yum/repos/kubernetes-el7-x86_64
enabled=1
gpgcheck=1
repo_gpgcheck=1
gpgkey=https://packages.cloud.google.com/yum/doc/yum-key.gpg https://packages.cloud.google.com/yum/doc/rpm-package-
key.gpg
EOF
```

```
[ansible@ansible Chapter-11]$ sudo yum install -y kubectl
```

```
[ansible@ansible Chapter-11]$ export KUBECONFIG=$KUBECONFIG:/home/ansible/.kube/minikube-config
```



```
[ansible@ansible Chapter-11]$ kubectl version
Client Version: version.Info{Major:"1", Minor:"23", GitVersion:"v1.23.6",
GitCommit:"ad3338546da947756e8a88aa6822e9c11e7eac22", GitTreeState:"clean", BuildDate:"2022-04-14T08:49:13Z",
GoVersion:"go1.17.9", Compiler:"gc", Platform:"linux/amd64"}
Server Version: version.Info{Major:"1", Minor:"23", GitVersion:"v1.23.1",
GitCommit:"86ec240af8cbd1b60bcc4c03c20da9b98005b92e", GitTreeState:"clean", BuildDate:"2021-12-16T11:34:54Z",
GoVersion:"go1.17.5", Compiler:"gc", Platform:"linux/amd64"}
```



```
[ansible@ansible Chapter-11]$ kubectl get po -n kube-system
```

NAME	READY	STATUS	RESTARTS	AGE
coredns-64897985d-msdjx	1/1	Running	18	164d
etcd-minikube	1/1	Running	21	164d
kube-apiserver-minikube	1/1	Running	22	164d
kube-controller-manager-minikube	1/1	Running	21	164d
kube-proxy-bh9wj	1/1	Running	19	164d
kube-scheduler-minikube	1/1	Running	21	164d
metrics-server-6b76bd68b6-4lcww	1/1	Running	69	164d
storage-provisioner	1/1	Running	80	164d



```
# Chapter-11/k8s-details.yaml
---
- name: Ansible Kubernetes Info
  hosts: localhost
  tasks:
    - name: Get a list of all pods from any namespace
      kubernetes.core.k8s_info:
        kubeconfig: /home/ansible/.kube/minikube-config
        kind: Pod
        namespace: kube-system
        register: pod_list

    - name: Display Pod Details
      debug:
        msg: "{{ pod_list }}"
```

```

[ansible@ansible Chapter-11]$ ansible-playbook k8s-details.yaml |more

...<output omitted for brevity>...

TASK [Display Pod Details] *****
ok: [localhost] => {
  "msg": {
    "api_found": true,
    "changed": false,
    "failed": false,
    "resources": [
      {
        "apiVersion": "v1",
        "kind": "Pod",
        "metadata": {
          "creationTimestamp": "2022-02-01T06:57:46Z",
          "generateName": "coredns-64897985d-",
          "labels": {
            "k8s-app": "kube-dns",
            "pod-template-hash": "64897985d"
          },
          "managedFields": [
            {
              "apiVersion": "v1",
              "fieldsType": "FieldsV1",

```

```

- name: Get a list of Nodes
  kubernetes.core.k8s_info:
    kubeconfig: /home/ansible/.kube/minikube-config
    kind: Node
    register: node_list

- name: Display Pod Details
  debug:
    msg: "{{ item.metadata.labels['kubernetes.io/hostname'] }}"
    loop: "{{ node_list.resources }}"

```

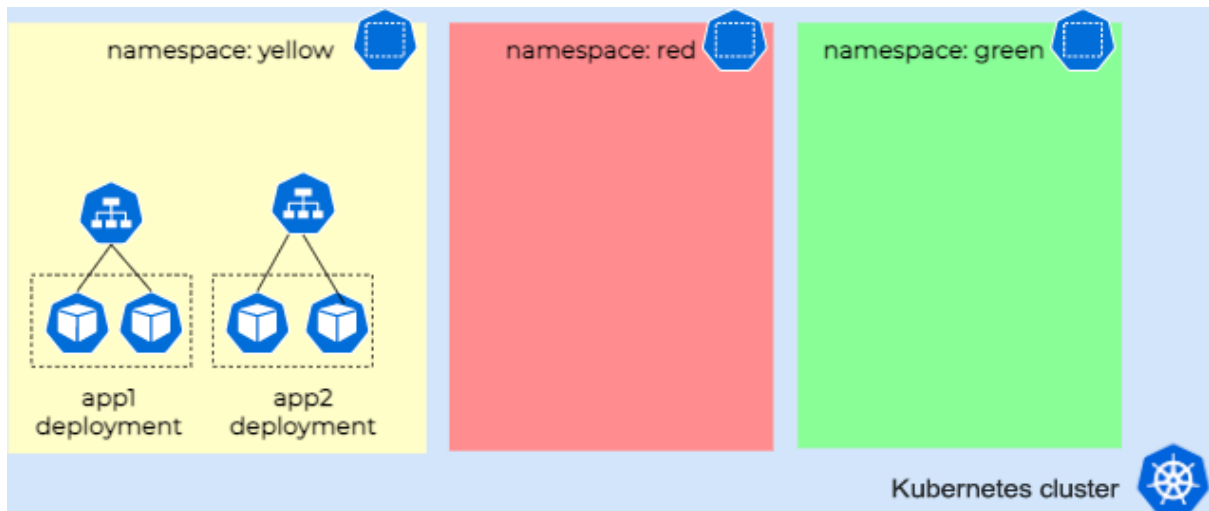
```

[ansible@ansible Chapter-11]$ ansible-playbook k8s-details.yaml

...<output omitted>..
ames': ['k8s.gcr.io/kube-scheduler@sha256:8be4eb1593cf9ff2d91b44596633b7815a3753696031a1eb4273d1b39427fa8c',
'k8s.gcr.io/kube-scheduler:v1.23.1'], 'sizeBytes': 53488305}, {'names': ['k8s.gcr.io/ingress-nginx/kube-webhook-
certgen@sha256:64d8c73dca984af206adf9d6d7e46aa550362b1d7a01f3a0a91b20cc67868660'], 'sizeBytes': 47736388}, {'names':
['k8s.gcr.io/coredns/coredns@sha256:5b6ec0d6de9baaf3e92d0f66cd96a25b9edbc8716f5f15dcd1a616b3abd590e',
'k8s.gcr.io/coredns/coredns:v1.8.6'], 'sizeBytes': 46829283}, {'names': ['kubernetesui/metrics-
scraper@sha256:36d5b3f60e1a144cc5ada820910535074bdf5cf73fb70d1ff1681537eef4e172'], 'kubernetesui/metrics-
scraper:v1.0.7'], 'sizeBytes': 34446077}, {'names': ['gcr.io/k8s-minikube/storage-
provisioner@sha256:18eb69d1418e854ad5a19e399310e52808a8321e4c441c1dddad8977a0d7a944', 'gcr.io/k8s-minikube/storage-
provisioner:v5'], 'sizeBytes': 31465472}}], 'apiVersion': 'v1', 'kind': 'Node'}) => {
  "msg": "minikube"
}

PLAY RECAP *****
localhost                : ok=5    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```



```
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: todo-app
  labels:
    app: todo
spec:
  replicas: 1
  selector:
    matchLabels:
      app: todo
  template:
    metadata:
      labels:
        app: todo
    spec:
      containers:
        - name: todoapp
          image: glnigangadharan/todo-app:latest
          ports:
            - containerPort: 3000
```

```
---
apiVersion: v1
kind: Service
metadata:
  name: todoapp-svc
spec:
  type: NodePort
  ports:
    - targetPort: 3000
      port: 3000
      nodePort: 30080
  selector:
    app: todo
```




```
---
# Chapter-11/k8s-app-deploy.yaml
- name: Deploying Application to Kubernetes
  hosts: localhost
  gather_facts: false
  vars:
    kubeconfig_file: /home/ansible/.kube/minikube-config
    namespace_name: todoapp-ns
  tasks:
    - name: Create a k8s namespace
      kubernetes.core.k8s:
        kubeconfig: "{{ kubeconfig_file }}"
        name: "{{ namespace_name }}"
        api_version: v1
        kind: Namespace
        state: present
```



```
[ansible@ansible Chapter-11]$ ansible-playbook k8s-app-deploy.yaml
```



```
[ansible@ansible Chapter-11]$ kubectl get namespace todoapp-ns
NAME          STATUS    AGE
todoapp-ns    Active    6s
```



```
# Chapter-11/k8s-app-deploy.yaml - tasks for deployment and service
```

```
- name: Create Deployment
  kubernetes.core.k8s:
    kubeconfig: "{{ kubeconfig_file }}"
    state: present
    src: todo-app-deploy.yaml
    namespace: "{{ namespace_name }}"

- name: Expose application on NodePort
  kubernetes.core.k8s:
    kubeconfig: "{{ kubeconfig_file }}"
    state: present
    src: todo-app-service.yaml
    namespace: "{{ namespace_name }}"
```

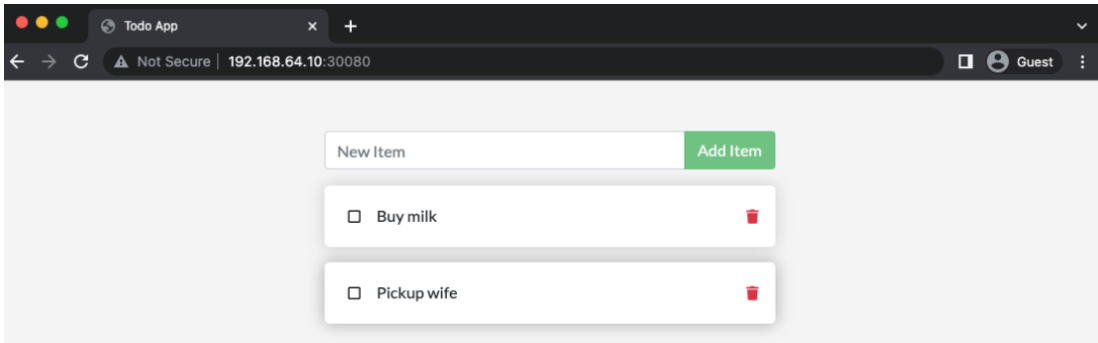
```
[ansible@ansible Chapter-11]$ kubectl -n todoapp-ns get all
NAME                                READY   STATUS    RESTARTS   AGE
pod/todo-app-546b5b58d-bhhnz       1/1     Running   0           5m36s

NAME                                TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)        AGE
service/todoapp-svc                NodePort    10.98.213.33 <none>        3000:30080/TCP 5m35s

NAME                                READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/todo-app           1/1     1             1           5m36s

NAME                                DESIRED   CURRENT   READY   AGE
replicaset.apps/todo-app-546b5b58d 1         1         1       5m36s
```

```
$ minikube service list
+-----+-----+-----+-----+
| NAMESPACE | NAME | TARGET PORT | URL |
+-----+-----+-----+-----+
| default | kubernetes | No node port | |
| ingress-nginx | ingress-nginx-controller | http/80 | http://192.168.64.10:31729 |
| | | https/443 | http://192.168.64.10:30711 |
| ingress-nginx | ingress-nginx-controller-admission | No node port | |
| kube-system | kube-dns | No node port | |
| kube-system | metrics-server | No node port | |
| todoapp-ns | todoapp-svc | 3000 | http://192.168.64.10:30080 |
+-----+-----+-----+-----+
```



```

apiVersion: networking.k8s.io/v1
kind: Ingress
metadata:
  name: todoapp-ingress
  annotations:
    nginx.ingress.kubernetes.io/rewrite-target: /$1
spec:
  rules:
    - host: todoapp.local
      http:
        paths:
          - path: /
            pathType: Prefix
            backend:
              service:
                name: todoapp-svc
                port:
                  number: 3000

```

```

- name: Create ingress resource
  kubernetes.core.k8s:
    kubeconfig: "{{ kubeconfig_file }}"
    state: present
    src: todo-app-ingress.yaml
    namespace: "{{ namespace_name }}"

```

```

[ansible@ansible Chapter-11]$ kubectl -n todoapp-ns get all
NAME                                READY  STATUS   RESTARTS  AGE
pod/todo-app-546b5b58d-bhhnz       1/1    Running  0          5m36s

NAME                                TYPE          CLUSTER-IP    EXTERNAL-IP  PORT(S)          AGE
service/todoapp-svc                NodePort      10.98.213.33  <none>       3000:30080/TCP   5m35s

NAME                                READY  UP-TO-DATE  AVAILABLE   AGE
deployment.apps/todo-app            1/1    1            1            5m36s

NAME                                DESIRED  CURRENT  READY  AGE
replicaset.apps/todo-app-546b5b58d  1        1        1      5m36s

```

```

$ kubectl -n todoapp-ns scale deployment/todo-app --replicas=3
deployment.apps/todo-app scaled

```



```
[ansible@ansible Chapter-11]$ kubectl -n todoapp-ns get all
```

NAME	READY	STATUS	RESTARTS	AGE
pod/todo-app-546b5b58d-bhhnz	1/1	Running	0	16m
pod/todo-app-546b5b58d-hk6zz	1/1	Running	0	21s
pod/todo-app-546b5b58d-lkmlt	1/1	Running	0	21s

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/todoapp-svc	NodePort	10.98.213.33	<none>	3000:30080/TCP	16m

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/todo-app	3/3	3	3	16m

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/todo-app-546b5b58d	3	3	3	16m



```
[ansible@ansible Chapter-11]$ kubectl -n todoapp-ns describe service/todoapp-svc
```

Name: todoapp-svc
Namespace: todoapp-ns
Labels: <none>
Annotations: <none>
Selector: app=todo
Type: NodePort
IP Family Policy: SingleStack
IP Families: IPv4
IP: 10.98.213.33
IPs: 10.98.213.33
Port: <unset> 3000/TCP
TargetPort: 3000/TCP
NodePort: <unset> 30080/TCP
Endpoints: 172.17.0.10:3000,172.17.0.11:3000,172.17.0.9:3000
Session Affinity: None
External Traffic Policy: Cluster
Events: <none>



```
$ kubectl -n todoapp-ns scale deployment/todo-app --replicas=1  
deployment.apps/todo-app scaled
```

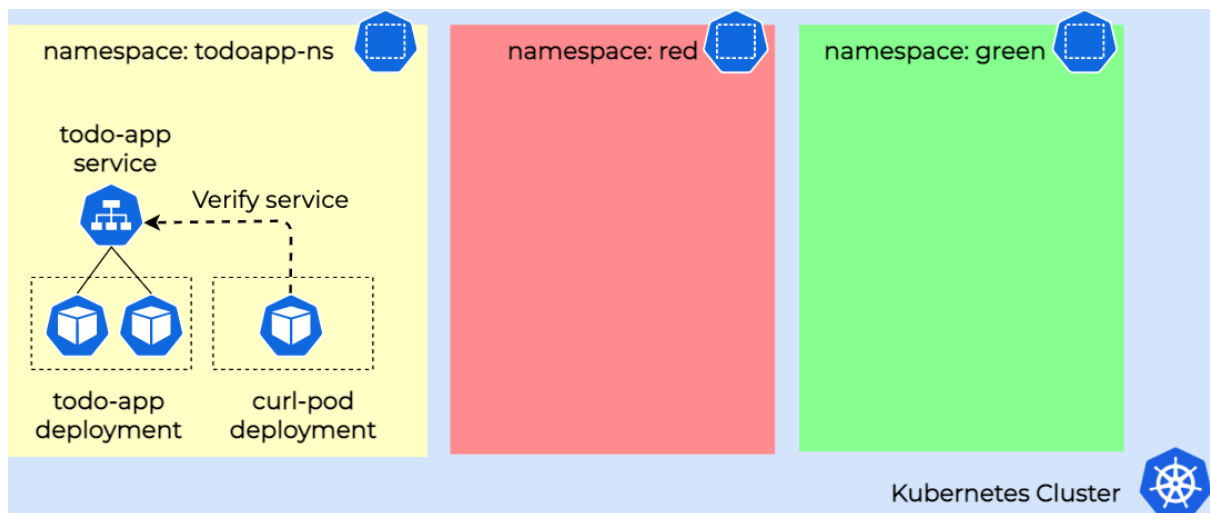
```
---
# Chapter-11/k8s-app-scale.yaml
- name: Scaling Applications in Kubernetes
  hosts: localhost
  gather_facts: false
  vars:
    kubeconfig_file: /home/ansible/.kube/minikube-config
    namespace_name: todoapp-ns
  tasks:
    - name: Scale deployment
      kubernetes.core.k8s_scale:
        kubeconfig: "{{ kubeconfig_file }}"
        api_version: v1
        kind: Deployment
        name: todo-app
        namespace: "{{ namespace_name }}"
        replicas: 4
        wait_timeout: 30
```

```
[ansible@ansible Chapter-11]$ ansible-playbook k8s-app-scale.yaml
```

```
[ansible@ansible Chapter-11]$ kubectl -n todoapp-ns get pods
```

NAME	READY	STATUS	RESTARTS	AGE
todo-app-546b5b58d-5j8nj	1/1	Running	0	28s
todo-app-546b5b58d-7sr8j	1/1	Running	0	28s
todo-app-546b5b58d-bhhnz	1/1	Running	0	24m
todo-app-546b5b58d-r9nmz	1/1	Running	0	28s

```
$ kubectl exec --stdin --tty POD_NAME -- /bin/bash
```



```
---
apiVersion: v1
kind: Pod
metadata:
  name: curl-pod
  namespace: todoapp-ns
  labels:
    app: curl-pod
spec:
  containers:
    - name: curl
      image: radial/busyboxplus:curl
      command:
        - "sleep"
        - "50000"
```

```
---
# Chapter-11/curl-app-deploy.yaml
- name: Deploying curl Pod
  hosts: localhost
  gather_facts: false
  vars:
    kubeconfig_file: /home/ansible/.kube/minikube-config
    namespace_name: todoapp-ns
  tasks:
    - name: Create a Pod with curl image
      kubernetes.core.k8s:
        kubeconfig: "{{ kubeconfig_file }}"
        state: present
        src: curl-app-pod.yaml
        namespace: "{{ namespace_name }}"
```



Chapter-11/curl-app-deploy.yaml - tasks for curl command and status

- name: Verify todo-app sevice
ignore_errors: **yes**
kubernetes.core.k8s_exec:
 kubeconfig: "{{ kubeconfig_file }}"
 namespace: "{{ namespace_name }}"
 pod: curl-pod
 command: **curl** todoapp-svc:3000
 register: curl_output
- name: Display **service** check output
debug:
 msg: "{{ curl_output.stdout_lines }}"
 when: curl_output.failed == **false**
- name: Display **service** check output
debug:
 msg: "Service (todoapp-svc) is not reachable !"
 when: curl_output.failed == **true**



Chapter-11/curl-app-deploy.yaml - tasks to delete the curl pod after validation

- name: Delete **curl** pod
kubernetes.core.k8s:
 kubeconfig: "{{ kubeconfig_file }}"
 state: absent
 src: curl-app-pod.yaml
 namespace: "{{ namespace_name }}"

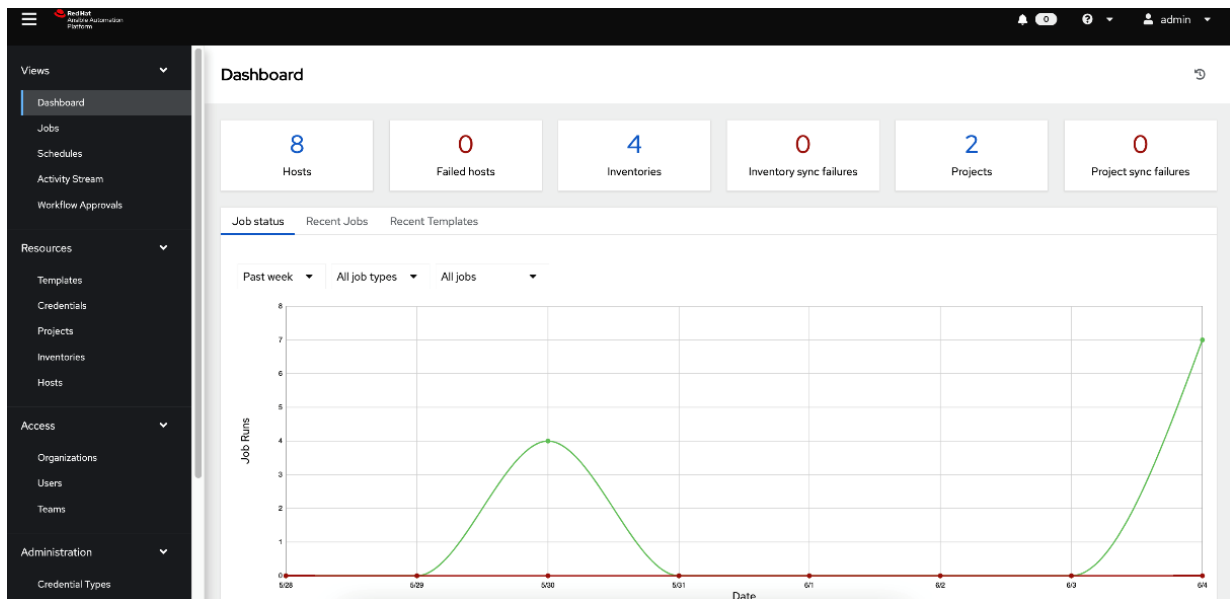
```
[ansible@ansible Chapter-11]$ ansible-playbook curl-app-deploy.yaml
...<ouput omitted>...
```

```
TASK [Display service check output] *****
```

```
ok: [localhost] => {
  "msg": [
    "",
    "<!DOCTYPE html>",
    "<html>",
    "<head>",
    "  <meta charset=\"utf-8\" />",
    "  <meta name=\"viewport\" content=\"width=device-width, initial-scale=1, shrink-to-fit=no, maximum-
scale=1.0, user-scalable=0\" />",
    "  <link rel=\"stylesheet\" href=\"css/bootstrap.min.css\" crossorigin=\"anonymous\" />",
    "  <link rel=\"stylesheet\" href=\"css/font-awesome/all.min.css\" crossorigin=\"anonymous\" />",
    "  <link href=\"https://fonts.googleapis.com/css?family=Lato&display=swap\" rel=\"stylesheet\" />",
    "  <link rel=\"stylesheet\" href=\"css/styles.css\" />",
    "  <title>Todo App</title>",
    "</head>",
    "<body>",
    "  <div id=\"root\"></div>",
    "  <script src=\"js/react.production.min.js\"></script>",
    "  <script src=\"js/react-dom.production.min.js\"></script>",
    "  <script src=\"js/react-bootstrap.js\"></script>",
    "  <script src=\"js/babel.min.js\"></script>",
    "  <script type=\"text/babel\" src=\"js/app.js\"></script>",
    "</body>",
    "</html>"
  ]
}
```

```
...<ouput omitted>...
```


Chapter 12: Integrating Ansible with Your Tools



Credentials

Create New Credential

The 'Create New Credential' form includes the following fields and options:

- Name ***: Text input field containing 'aws-credential'.
- Description**: Text input field containing 'AWS secret and access'.
- Organization**: Searchable dropdown menu showing 'Security Ops'.
- Credential Type ***: Dropdown menu with the following options:
 - Amazon Web Services
 - Ansible Galaxy/Automation Hub API Token
 - Centrify Vault Credential Provider Lookup
 - Container Registry
 - CyberArk AIM Central Credential Provider Lookup
 - CyberArk Conjur Secret Lookup
 - GitHub Personal Access Token

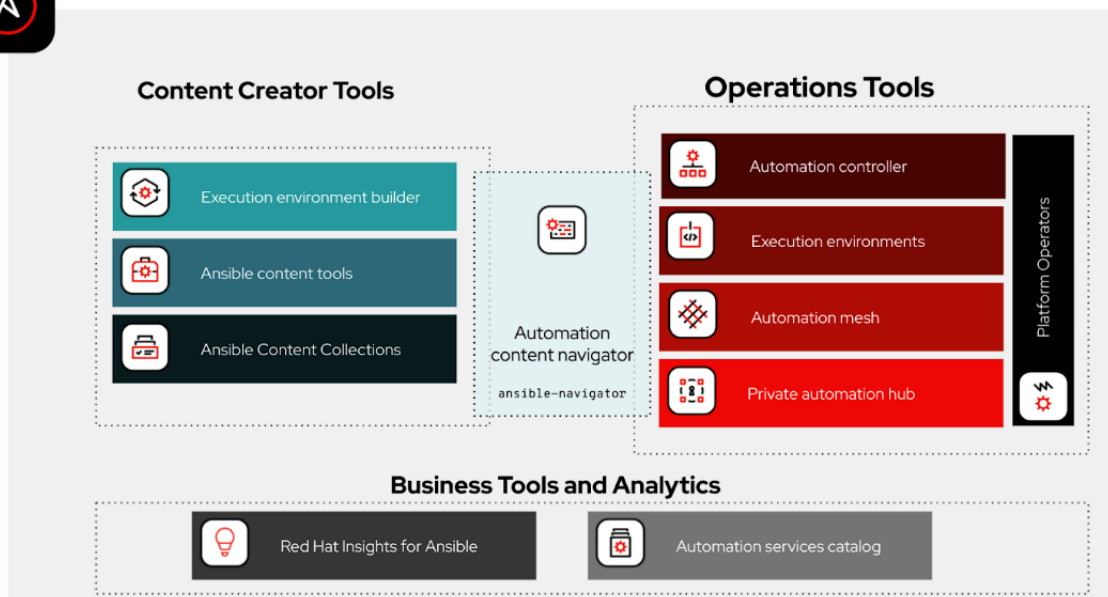
Create New Schedule

Name *	Description	Start date/time *	
Weekly	Job to run every Sunday midnight	2022-06-04	12:00 AM
Local time zone *	Run frequency *		
Asia/Singapore	Week		

Frequency Details

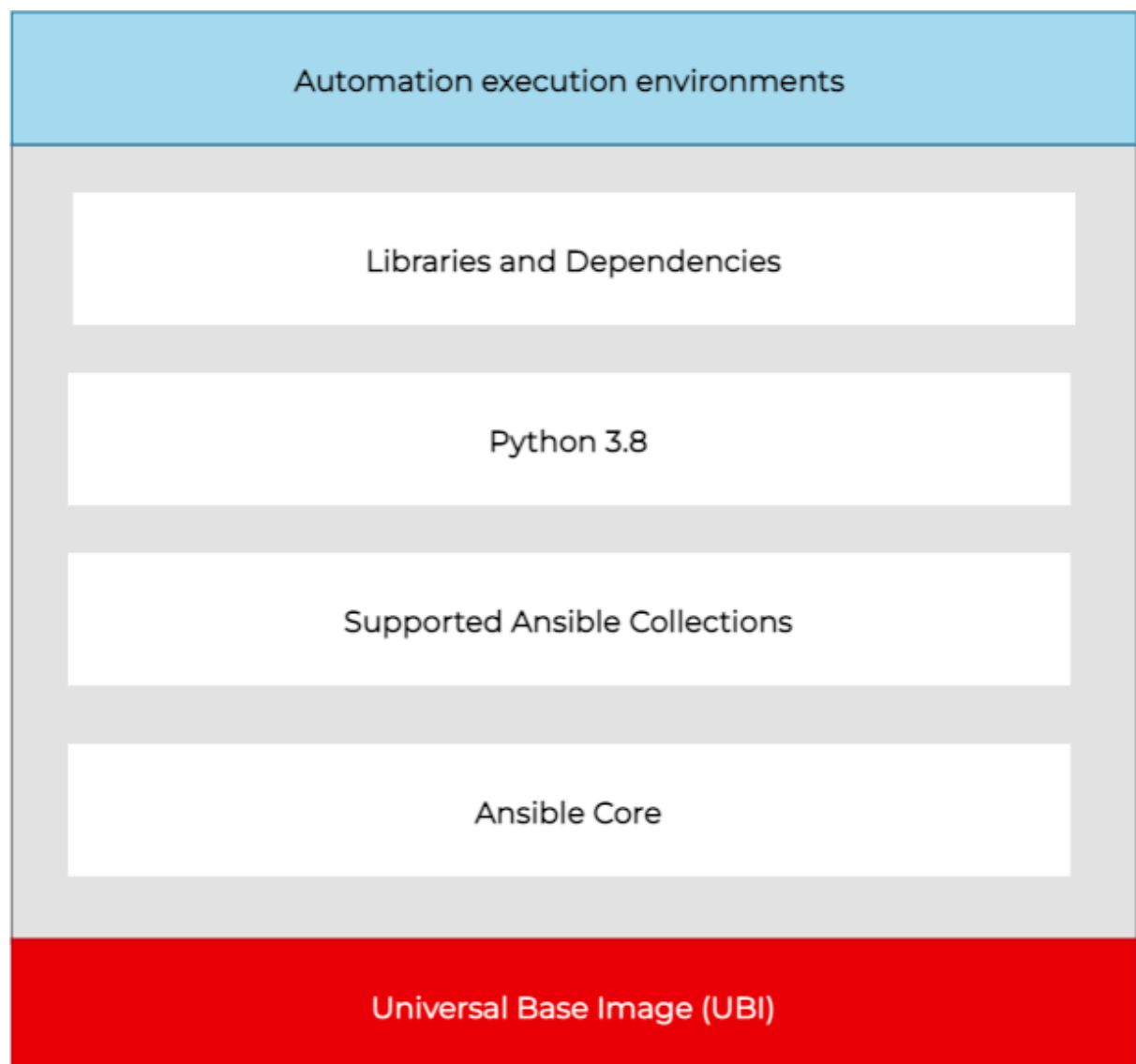
Run every *	On days *	End *
1	<input checked="" type="checkbox"/> Sun <input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat	<input checked="" type="radio"/> Never <input type="radio"/> After number of occurrences <input type="radio"/> On date

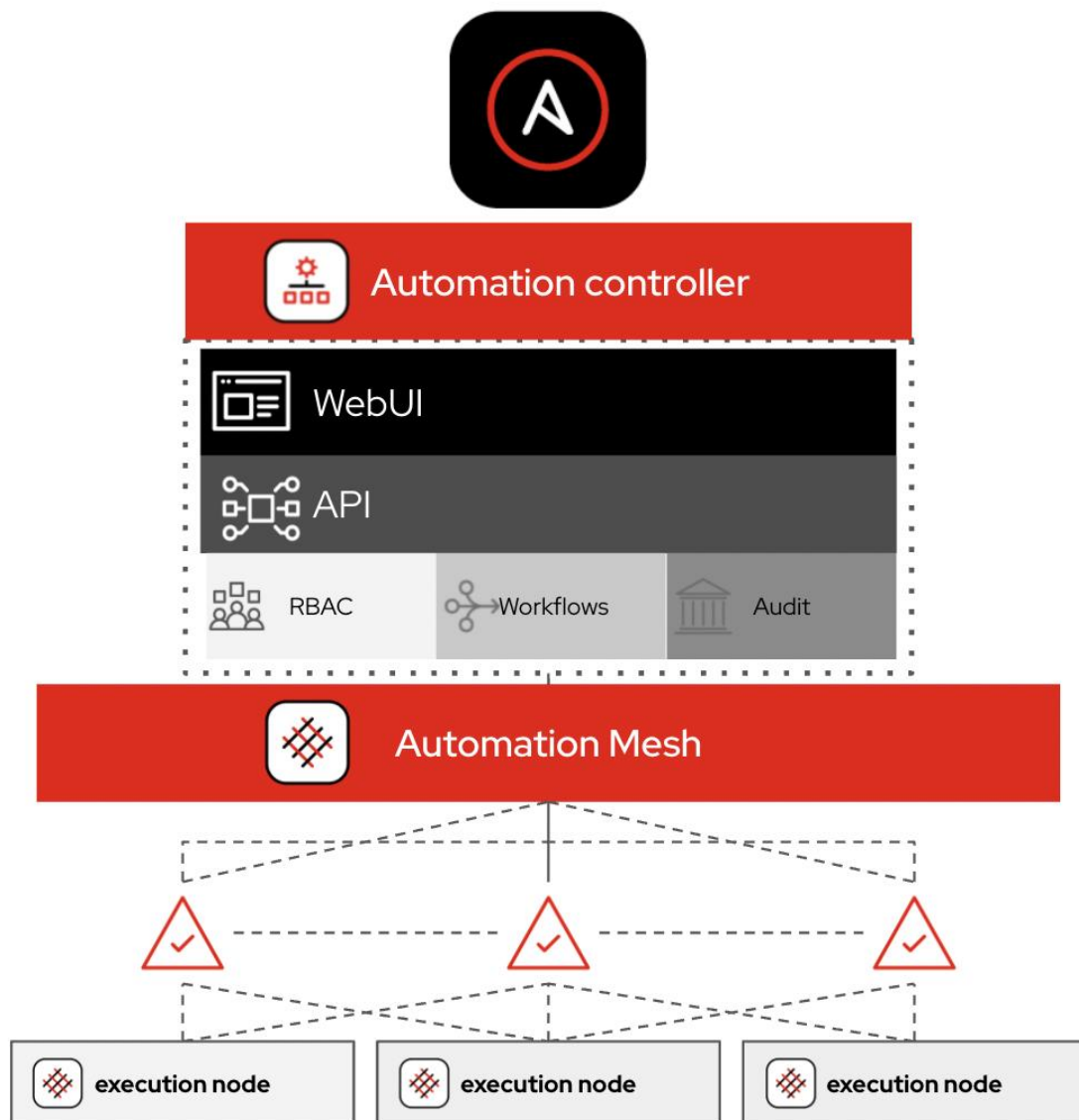
Save
Cancel



```
0 ## Welcome
1 -----
2
3 Some things you can try from here:
4 - `:collections`      Explore available collections
5 - `:config`          Explore the current ansible configuration
6 - `:doc <plugin>`     Review documentation for a module or plugin
7 - `:help`            Show the main help page
8 - `:images`          Explore execution environment images
9 - `:inventory -i <inventory>` Explore an inventory
10 - `:log`             Review the application log
11 - `:open`            Open current page in the editor
12 - `:replay`          Explore a previous run using a playbook artifact
13 - `:run <playbook> -i <inventory>` Run a playbook in interactive mode
14 - `:quit`            Quit the application
15
16 happy automating,
17
18 -winston
```

`^f/PgUp` page up `^b/PgDn` page down `↑↓` scroll `esc` back `:help` help





Red Hat Hybrid Cloud Console

All apps and services

Gineesh Mada Pparambath

Ansible Automation Platform

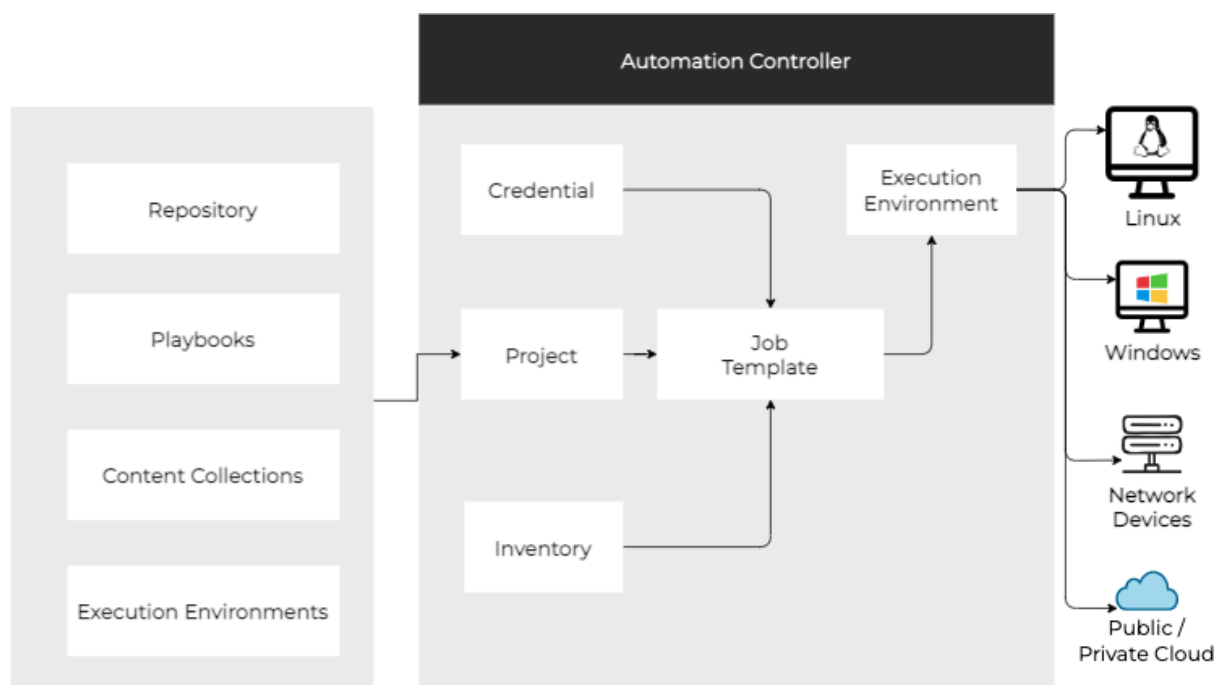
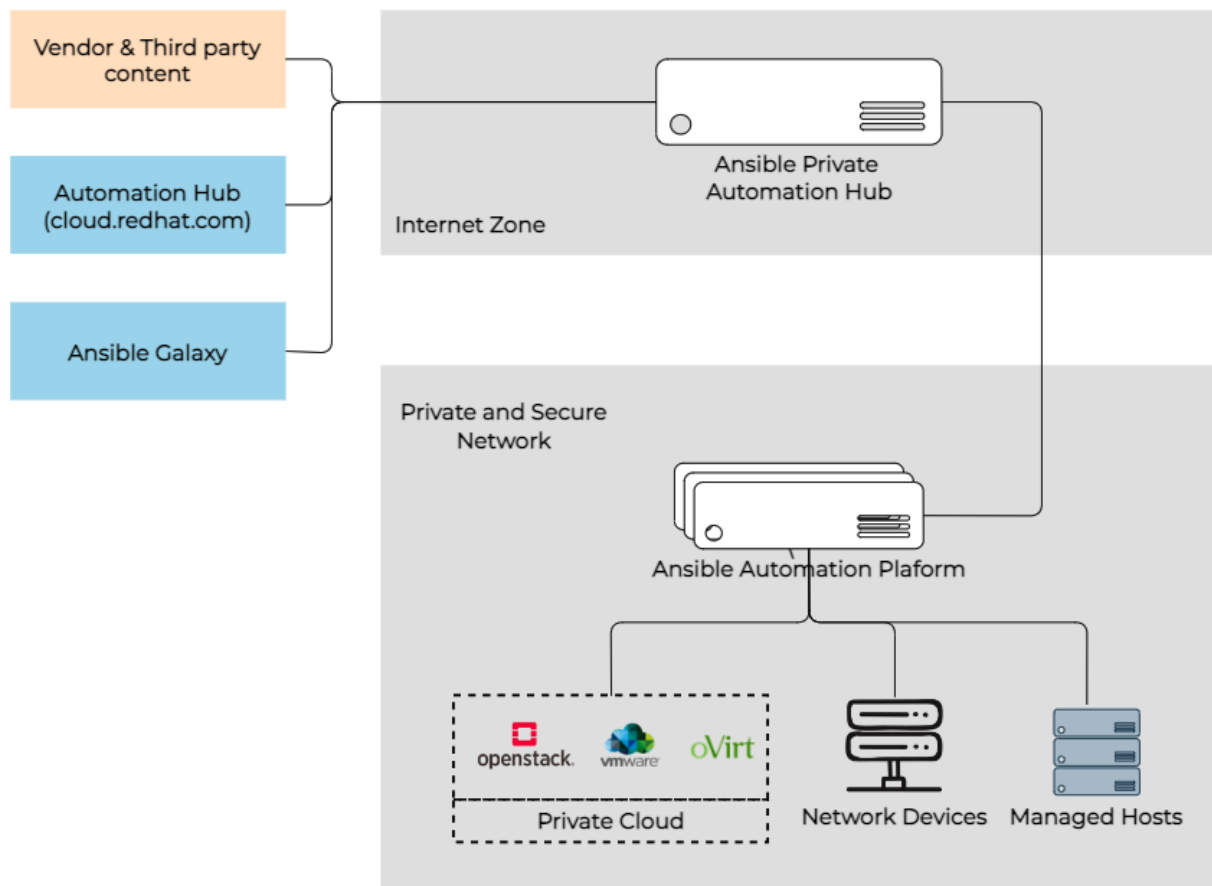
- Overview
- Automation Hub
 - Collections
 - Partners
 - Repo Management
 - Connect to Hub
- Automation Analytics
- Documentation
- Red Hat Insights
- Inventory
- Advisor
- Drift
- Policies
- Register Systems
- Remediations

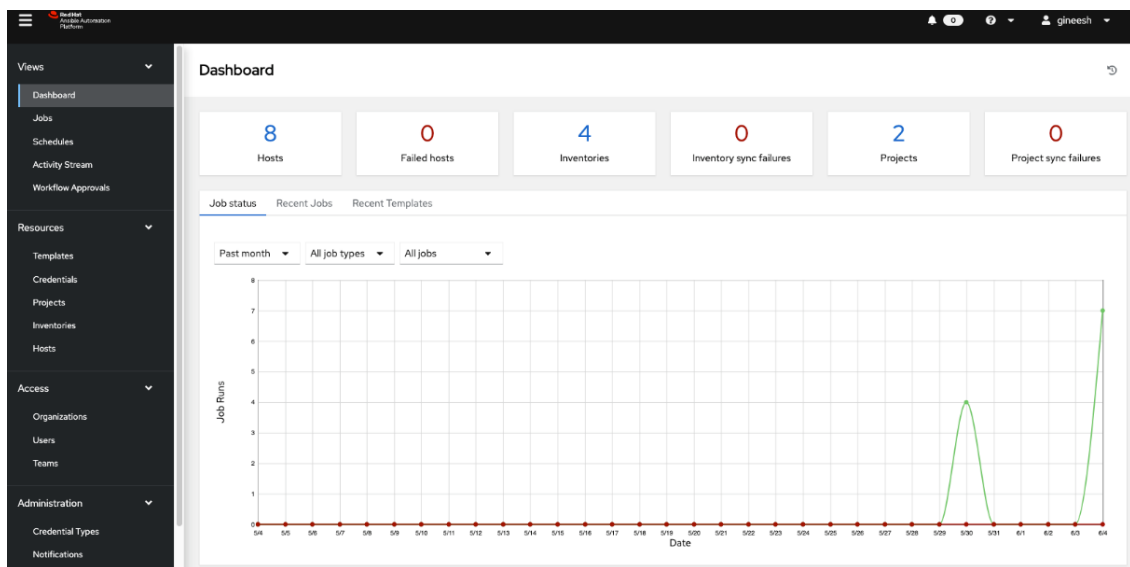
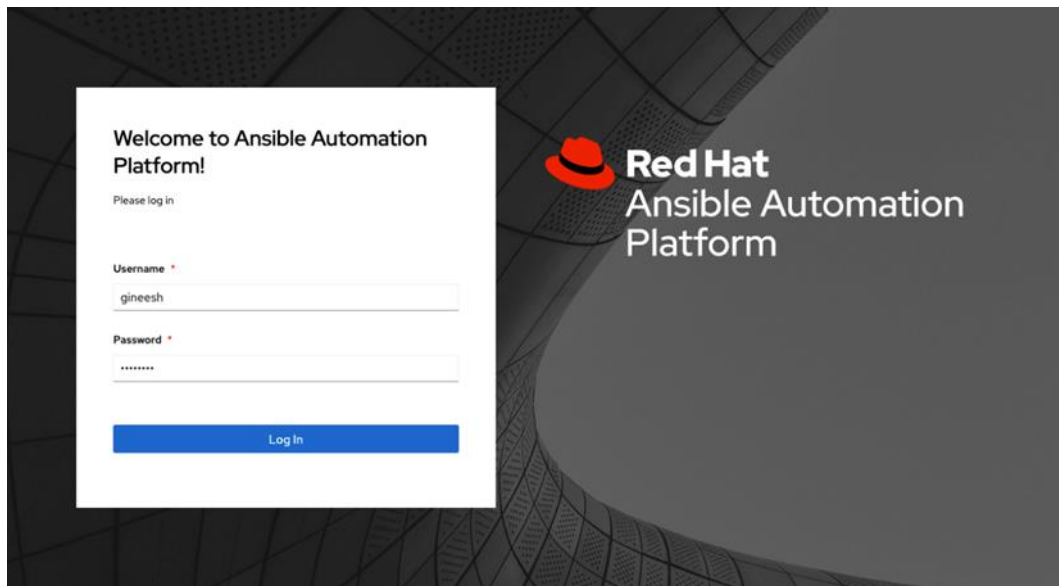
Collections

Keywords Filter by keywords

Collection	Provider	Modules	Roles	Plugins	Dependencies
cloud	Provided by Google Cloud	170	5	2	0
flashblade	Provided by Pure Storage	44	0	0	0
flasharray	Provided by Pure Storage	53	0	0	0
f5_modules	Provided by F5 Networks	178	0	8	1
ibm	Provided by IBM	14	0	1	1
dynatrace_collection	Provided by Dynatrace	2	2	0	0
mgmt	Provided by Check Point	136	0	2	0
aws	Provided by NetApp	4	0	0	0
aruba	Provided by Aruba	20	0	4	1
elements	Provided by NetApp	24	0	0	0

Feedback





Organizations

Create New Organization

Name *

Security Ops

Description

Security Team

Max Hosts ⓘ

0

Instance Groups ⓘ

Q

Execution Environment ⓘ

Q

Galaxy Credentials

Q Ansible Galaxy X

Save Cancel

Projects **Create New Project**

Name *

Database Management

Description

DB Administration jobs

Organization *

Security Ops

Execution Environment ⓘ

Default execution environment

Source Control Credential Type *

Git

Type Details

Source Control URL ⓘ

https://github.com/ginigangadharan/ansible-database-demo

Source Control Branch/Tag/Commit ⓘ

Source Control Refspec ⓘ

Source Control Credential

Options

☐ Clean ⓘ
 ☐ Delete ⓘ
 ☐ Track submodules ⓘ
 ☐ Update Revision on Launch ⓘ
 ☐ Allow Branch Override ⓘ

Save

Cancel

Projects > Database Management **Details**

[Back to Projects](#)
[Details](#)
[Access](#)
[Notifications](#)
[Job Templates](#)
[Schedules](#)

Last Job Status

Successful

Organization

Operations

Source Control URL

https://github.com/ginigangadharan/ansible-database-demo

Project Base Path

/var/lib/awx/projects

Last Modified

6/5/2022, 10:38:54 AM by gineesh

Edit

Sync

Delete

Name

Database Management

Description

DB Administration jobs

Source Control Type

Git

Cache Timeout

0 Seconds

Playbook Directory

_15__database_management

Source Control Revision

ace7398

Default Execution Environment

Default execution environment

Created

6/5/2022, 10:38:54 AM by gineesh

```
[ansible@ansible Chapter-12]$ cat hosts
[database]
node2 ansible_host=192.168.1.122
```

Ansible Project Automation Platform

Views: Dashboard, Jobs, Schedules, Activity Stream, Workflow Approvals

Resources: Templates, Credentials, Projects, **Inventories**, Hosts

Access: Organizations, Users, Teams

Inventories **Create new inventory**

Name *

Ansible Dev Lab

Description

Organization *

Security Ops

Instance Groups

Variables ⓘ

YAML JSON

1

Save

Cancel

Details

[Back to Inventories](#) [Details](#) [Access](#) [Groups](#) [Hosts](#) [Sources](#) [Jobs](#)

Name	Ansible Dev Lab	Type	Inventory	Organization	Security Ops
------	-----------------	------	-----------	--------------	--------------

Variables [YAML](#) [JSON](#)

1

Created 6/4/2022, 5:50:48 PM by [gineesh](#) Last Modified 6/4/2022, 5:50:48 PM by [gineesh](#)

[Edit](#) [Delete](#)

Create new group

Name *

dbnodes

Description

Database Server Host group

Variables [YAML](#) [JSON](#)

1

[Save](#) [Cancel](#)

Group details

[Back to Groups](#) [Details](#) [Related Groups](#) [Hosts](#)

Name	dbnodes	Description	Database Server Host group
------	---------	-------------	----------------------------

Variables [YAML](#) [JSON](#)

1

Created 6/4/2022, 6:01:41 PM by [gineesh](#) Last Modified 6/4/2022, 6:01:41 PM by [gineesh](#)

[Edit](#) [Delete](#)


Hosts

[Back to Groups](#) [Details](#) [Related Groups](#) [Hosts](#)

☐ **Name**

Add existing host

Add new host



No Hosts Found

Please add Hosts to populate this list

Create new host

Name *

Description

Variables

YAML

JSON

1

2

ansible_host: 192.168.1.122

Save

Cancel

Create New Credential

Name *

Description

Organization

Credential Type *

Machine

Type Details

Username

Password

☐ Prompt on launch

SSH Private Key

Drag a file here or browse to upload

-----BEGIN OPENSSH PRIVATE KEY-----
b3BlbnNzaC1rZXktbjEAAAAAAAAABG5vbmlUAAAAEbm9uZQAAAAAAAAABAAAABlAAAAAdzc2gtcn
NhAAAAAwEAAQAAAYEA4M6zyUOFaehRjuFIRIKUDc6UzsjtfqUy/cIXwao72PDjoHyTNnoP
66XLmzLDAGpgj83hZstESlyB4sQJ6OUp5vVXBDX6G5Jx2+CEJkatAEzohtZ4slgyQfXICJ
v92Dj7fmcT4olGv4kL3PAeBaixrwRklgfRmRODjzxZPrHwq5g65SPtpIAXkSd8SqJmal+9

Private Key Passphrase	<input type="checkbox"/> Prompt on launch	Privilege Escalation Method ⓘ	Privilege Escalation Username
<input type="password"/>	<input type="password"/>	<input type="text"/>	<input type="text"/>
Privilege Escalation Password <input type="checkbox"/> Prompt on launch			
<input type="password"/>			

Credentials > Ansible User SSH Credential

Edit Details

Name *	Description	Organization
Ansible User SSH Credential	SSH Key based access	Security Ops
Credential Type *		
Machine		
Type Details		
Username	Password	<input type="checkbox"/> Prompt on launch
ansible	<input type="password"/>	
SSH Private Key		
Drag a file here or browse to upload		
Sencrypted\$		
Browse... Clear		

Views

Dashboard

Jobs

Schedules

Activity Stream

Workflow Approvals

Resources

Templates

Credentials

Projects

Inventories

Hosts

Access

Templates

Name	Type	Last Ran	Actions
Demo Job Template	Job Template		
Deploy Backend App	Job Template		
List to String	Job Template	6/4/2022, 11:54:09 AM	

Name *	Description	Job Type *	<input type="checkbox"/> Prompt on launch
PostgreSQL - Create Database and User Access		Run	
Inventory *	<input type="checkbox"/> Prompt on launch	Project *	Execution Environment *
<input type="text" value="Ansible Dev Lab"/>	<input type="text" value="Database Management"/>	<input type="text" value="Default execution environment"/>	
Playbook *			
<input type="text" value="postgres-manage-database.yaml"/>			
Credentials *	<input type="checkbox"/> Prompt on launch		
<input type="text" value="SSH Ansible User SS... X"/>			
Labels *			
Variables *	<input type="checkbox"/> Prompt on launch		
<input type="text" value="YAML JSON"/>			
1			
2			

```
# postgres-manage-database.yaml
---
- name: Managing PostgreSQL Database Server
  hosts: "{{ NODES }}"
  vars:
    ansible_become_user: postgres
    postgres_user: postgres
    postgres_password: 'Password'
    postgres_host: localhost
    postgres_database: db_sales
    postgres_table: demo_table
    postgres_new_user_name: devteam
    postgres_new_user_password: 'DevPassword'
  tasks:
```

Survey

[Back to Templates](#) [Details](#) [Access](#) [Notifications](#) [Schedules](#) [Jobs](#) [Survey](#)

☐ [Add](#) [Delete](#)

No survey questions found.
Please add survey questions.

Add Question

Question *

Database Node(s)

Description

Target database nodes to execute the operations

Answer variable name *

NODES

Answer type *

Multiple Choice (multiple select)

☒ Required

Multiple Choice Options *

dbnode1

dbnode2

dbnode3

dbnodes

Type answer then click checkbox on right to select answer as default.
Press 'Enter' to add more answer choices. One answer choice per line.

Save

Cancel

Survey

<div><div>Back to Templates</div><div>Details</div><div>Access</div><div>Notifications</div><div>Schedules</div><div>Jobs</div><div>Survey</div></div>				
<div><div><input type="checkbox"/></div><div>Add</div><div>Edit Order</div><div>Delete</div><div><input checked="" type="checkbox"/> Survey Enabled</div></div>				
Name	Type	Default	Actions	
<input type="checkbox"/> Database Node(s) *	multiselect			
<input type="checkbox"/> PostgreSQL Admin User *	text			
<input type="checkbox"/> PostgreSQL Admin Password *	password	ENCRYPTED		
<input type="checkbox"/> Database Name *	text			
<input type="checkbox"/> Table Name to Create *	text			
<input type="checkbox"/> New Database Username to Create *	text			
<input type="checkbox"/> Password for New Database User *	password	ENCRYPTED		

Edit Details

Name *

PostgreSQL - Create Database and User Access

Description

Job Type *

Run

☐ Prompt on launch

Inventory *

Ansible Dev Lab

☐ Prompt on launch

Project *

Database Management

Execution Environment

Default execution environment

Playbook *

postgres-manage-database.yaml

Credentials

SSH: Ansible User SS... x

☐ Prompt on launch

Labels

Variables

YAML JSON

1

2

ansible_become_user: postgres

3

postgres_host: localhost

☐ Prompt on launch

Templates

>

☐ Name

1 - 1 of 1

<

>

Name (name__icontains)

postgres x

Clear all filters

Name ↑	Type	Last Ran	Actions
<div>></div> <div> <input type="checkbox"/> PostgreSQL - Create Database and User Access </div>	Job Template	6/5/2022, 11:40:38 AM	<div>Launch Template</div> <div> </div>

1 - 1 of 1 items

<<

<

1

>

>>

of 1 page

Launch | PostgreSQL - Create Database and User Access

1 Survey

2 Preview

Database Node(s) *

dbnode1 x

PostgreSQL Admin User *

postgres

PostgreSQL Admin Password *

.....

Database Name *

hr_db

Table Name to Create *

employees

New Database Username to Create *

devteam

Password for New Database User *

Next

Back

Cancel

Launch | PostgreSQL - Create Database and User Access

1 Survey

2 Preview

Playbook

postgres-manage-database.yml

Forks

0

Verbosity

0 (Normal)

Show Changes

Off

Job Slicing

1

Credentials

SSH: Ansible User SS...

Created

6/5/2022, 11:02:44 AM by gineesh

Last Modified

6/5/2022, 11:36:35 AM by gineesh

Prompted Values

Variables

YAMLJSON

1 NODES:

2 - dbnode1

3 postgres_user: postgres

4 postgres_password:

5 postgres_database: hr_db

Launch

Back

Cancel

Output

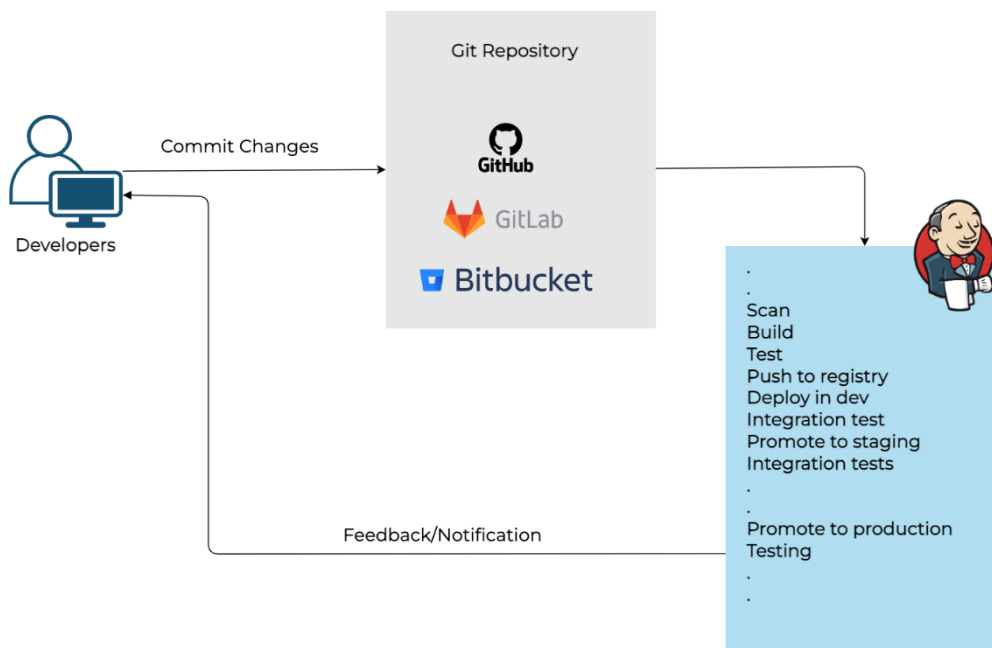
« Back to Jobs Details **Output**

PostgreSQL - Create Database and User Access

Plays 1 Tasks 4 Hosts 1 Elapsed 00:00:09

Stdout

```
0 Identity added: /runner/artifacts/57/ssh_key_data (ansible@ansible-controlnode)
1
2 PLAY [Deploying PostgreSQL Database Server] ***** 12:14:06
3
4 TASK [Gathering Facts] ***** 12:14:06
5 ok: [dbnode1]
6
7 TASK [Create a new database] ***** 12:14:09
8 changed: [dbnode1]
9
10 TASK [Create table with few columns] ***** 12:14:10
11 changed: [dbnode1]
12
13 TASK [Create user and grant access to database] ***** 12:14:11
14 changed: [dbnode1]
15
16 PLAY RECAP ***** 12:14:12
17 dbnode1 : ok=4 changed=3 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
18
```



Branch Sources

Git

Project Repository ?

https://github.com/ginigangadharan/nodejs-todo-demo-app

Credentials ?

- none -

Add

Behaviours

Scan Multibranch Pipeline Triggers

☒ Periodically if not otherwise run ?

Interval ?

1 minute

```
pipeline {
  agent any

  environment {
    // Git Repo
    GIT_URL = "https://github.com/ginigangadharan/nodejs-todo-demo-app"
    // Database variables
    DATABASE_SERVER = "dbnode1"
    POSTGRES_USER = "postgres"
    POSTGRES_PASSWORD = "PassWord"
    POSTGRES_DATABASE = "app2_db"
    POSTGRES_TABLE = "data_table"
    POSTGRES_NEW_USER_NAME = "devteam"
    POSTGRES_NEW_USER_PASSWORD = "DevPassword"
  }
  .
  .
}
```

```
stage("Creating Database") {
  steps {
    echo "Create database and user access using Ansible Automation Controller"
    script {
      // Trigger Ansible controller job
      ansible_controller_job();
    }
  }
}
```

```
def ansible_controller_job(){
    ansibleTower(
        towerServer: 'AAP-Demo',
        templateType: 'job',
        jobTemplate: 'PostgreSQL - Create Database and User Access',
        importTowerLogs: true,
        inventory: 'Ansible Dev Lab',
        jobTags: '',
        skipJobTags: '',
        limit: '',
        removeColor: false,
        verbose: true,
        credential: '',

        extraVars: '''---
        NODES: ["$DATABASE_SERVER"]
        postgres_user: "$POSTGRES_USER"
        postgres_password: "$POSTGRES_PASSWORD"
        postgres_database: "$POSTGRES_DATABASE"
        postgres_table: "$POSTGRES_TABLE"
        postgres_new_user_name: "$POSTGRES_NEW_USER_NAME"
        postgres_new_user_password: "$POSTGRES_NEW_USER_PASSWORD"
        '''
    )
}
```

Up

Status

Changes

Build Now

View Configuration

Full Stage View

Pipeline Syntax

Build History

Filter builds...

#17

5 Jun 2022, 06:28

#16

5 Jun 2022, 06:22

#15

5 Jun 2022, 05:38

#14

5 Jun 2022, 05:37

#13

5 Jun 2022, 05:36

#12

5 Jun 2022, 05:33

Pipeline main

Full project name: To-Do App Deployment/main

Recent Changes


Stage View

Average stage times:
(Average full run time: ~19s)

	Declarative: Checkout SCM	Git Checkout	Build	Unit Test	Integration Test	Creating Database	Deploy
#17 Jun 05 14:28 1 commit	1s	773ms	114ms	148ms	142ms	14s	66ms
#16 Jun 05 14:22 No Changes	831ms	860ms	115ms	173ms	155ms	14s	77ms
#15 Jun 05 13:38 1 commit	772ms	792ms	51ms	114ms	99ms	15s	90ms

admin

log out

Job #67 'PostgreSQL - Create Database and User Access' successful: <https://towerhost/#/jobs/playbook/67> 

 [Inbox x](#)

ansible-automation@example.com

to me 


15:52 (3 minutes ago)   

Job #67 had status successful, view details at <https://towerhost/#/jobs/playbook/67>

```
{
  "id": 67,
  "name": "PostgreSQL - Create Database and User Access",
  "url": "https://towerhost/#/jobs/playbook/67",
  "created_by": "admin",
  "started": "2022-06-05T07:52:00.534533+00:00",
  "finished": "2022-06-05T07:52:09.030926+00:00",
  "status": "successful",
  "traceback": "",
  "inventory": "Ansible Dev Lab",
  "project": "Database Management",
  "playbook": "postgres-manage-database.yaml",
  "credential": "Ansible User SSH Credential",
  "limit": "",
  "extra_vars": "{\"ansible_become_user\": \"postgres\", \"postgres_host\": \"localhost\", \"postgres_user\": \"postgres\", \"postgres_password\": \"${encrypted$}\", \"postgres_database\": \"app2_db\", \"postgres_table\": \"data_table\", \"postgres_new_user_name\": \"devteam\", \"postgres_new_user_password\": \"${encrypted$}\", \"NODES\": [\"dbnode1\"]\", \"hosts\": {
    \"dbnode1\": {
      \"failed\": false,
      \"changed\": 0,
      \"dark\": 0,
      \"failures\": 0,
      \"ok\": 4,
      \"processed\": 1,
      \"skipped\": 0,
      \"rescued\": 0,
      \"ignored\": 0
    }
  }
}
```

 Reply

 Forward

 Customize messages...

Use custom messages to change the content of notifications sent when a job starts, succeeds, or fails. Use curly braces to access information about the job: `{{ job_friendly_name }}`, `{{ url }}`, `{{ job.status }}`. You may apply a number of possible variables in the message. For more information, refer to the [Ansible Tower Documentation](#).

Start message

1

`{{ job_friendly_name }} #{{ job.id }} '{{ job.name }}' {{ job.status }}: {{ url }}`

Start message body

1

2

3

`{{ job_friendly_name }} #{{ job.id }} had status {{ job.status }}, view details at {{ url }}`

`{{ job.metadata }}`

Success message

1

`{{ job_friendly_name }} #{{ job.id }} '{{ job.name }}' {{ job.status }}: {{ url }}`

Success message body

1

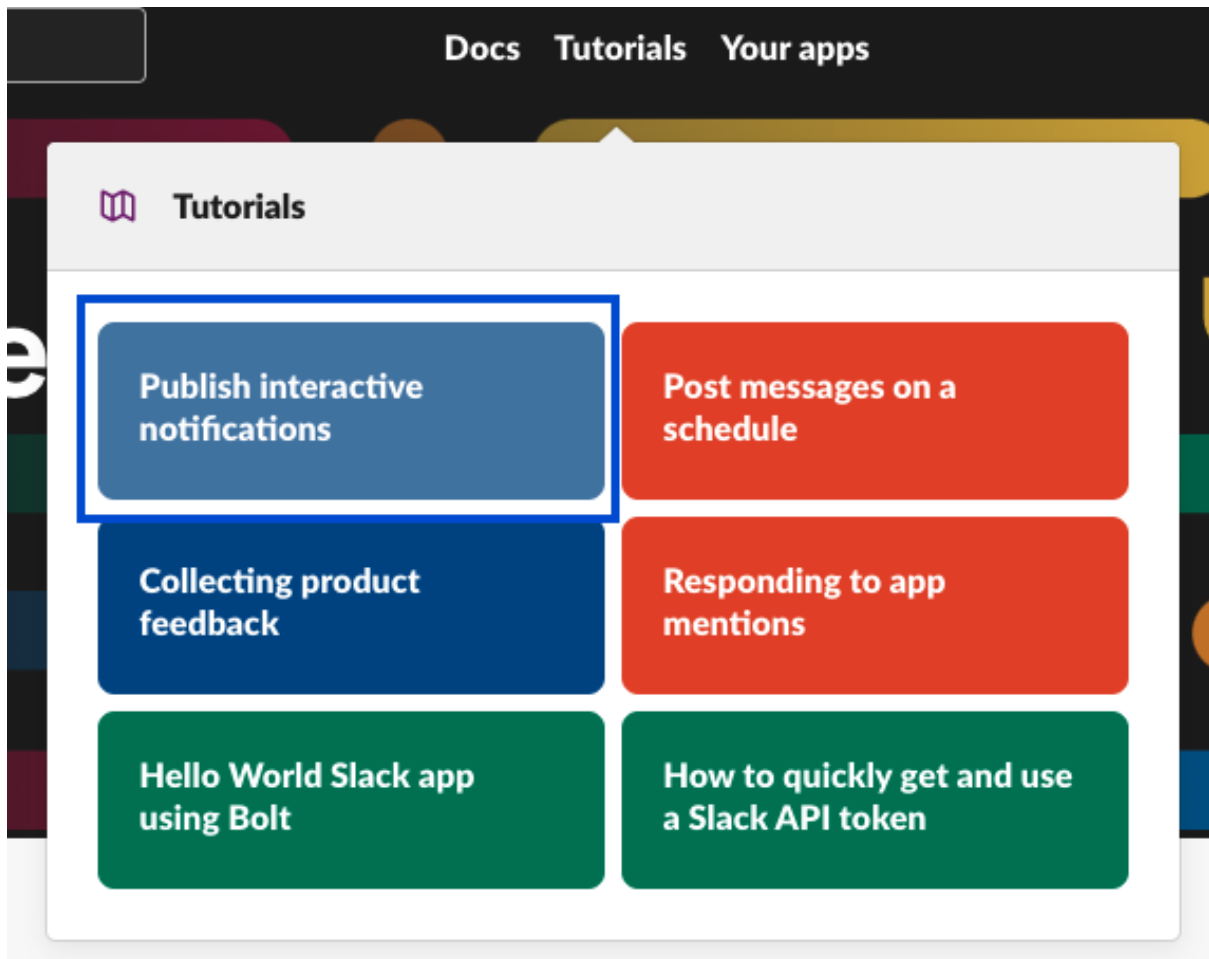
2

3

`{{ job_friendly_name }} #{{ job.id }} had status {{ job.status }}, view details at {{ url }}`

`{{ job.metadata }}`





ansible-automa... ▾

Settings

Basic Information

Collaborators

Socket Mode

Install App

Manage Distribution

Features

App Home

Org Level Apps

Incoming Webhooks

Interactivity & Shortcuts

Slash Commands

Workflow Steps

OAuth & Permissions

Event Subscriptions

User ID Translation

App Manifest NEW

Beta Features

OAuth & Permissions

Advanced token security via token rotation

Recommended for developers building on or for security-minded organizations – opting into token rotation allows app tokens to automatically expire after they're issued within your app code. [View documentation.](#)

Opt In

OAuth Tokens for Your Workspace

These tokens were automatically generated when you installed the app to your team. You can use these to authenticate your app. [Learn more.](#)

Bot User OAuth Token

vwWL

Copy

Access Level: Workspace

Reinstall to Workspace

Create New Notification Template

Name *

DB Notifications to Slack

Description

Database Operations

Organization *

Q

Security Ops

Type *

Slack

Type Details

Destination channels *

#database-operations

Token *

Notification color

☐ Customize messages...

Save

Cancel

Notifications

<div>Back to Templates</div> <div>Details</div> <div>Access</div> <div>Notifications</div> <div>Schedules</div> <div>Jobs</div> <div>Survey</div>		
<div>Name</div> <div>1 - 2 of 2</div>		
Name	Type	Options
DB Notification Email	Email	<div><div><input type="checkbox"/> Start</div><div><input checked="" type="checkbox"/> Success</div><div><input type="checkbox"/> Failure</div></div>
DB Notifications to Slack	Slack	<div><div><input checked="" type="checkbox"/> Start</div><div><input checked="" type="checkbox"/> Success</div><div><input checked="" type="checkbox"/> Failure</div></div>
<div>1 - 2 of 2 items</div> <div>1 of 1 page</div>		

techbeatly

Threads

Mentions & reactions

Saved items

Slack Connect

More

Starred

bau

Channels

bau-team

database-operations

general

database-operations

1

Today

Job #73 'List to String' successful: <https://aap.example.com/#/jobs/playbook/73>

Job #74 'List to String' running: <https://aap.example.com/#/jobs/playbook/74>

Job #74 'List to String' successful: <https://aap.example.com/#/jobs/playbook/74>

Job #75 'PostgreSQL - Create Database and User Access' running: <https://aap.example.com/#/jobs/playbook/75>

Job #75 'PostgreSQL - Create Database and User Access' successful: <https://aap.example.com/#/jobs/playbook/75>

Job #76 'PostgreSQL - Create Database and User Access' running: <https://aap.example.com/#/jobs/playbook/76>

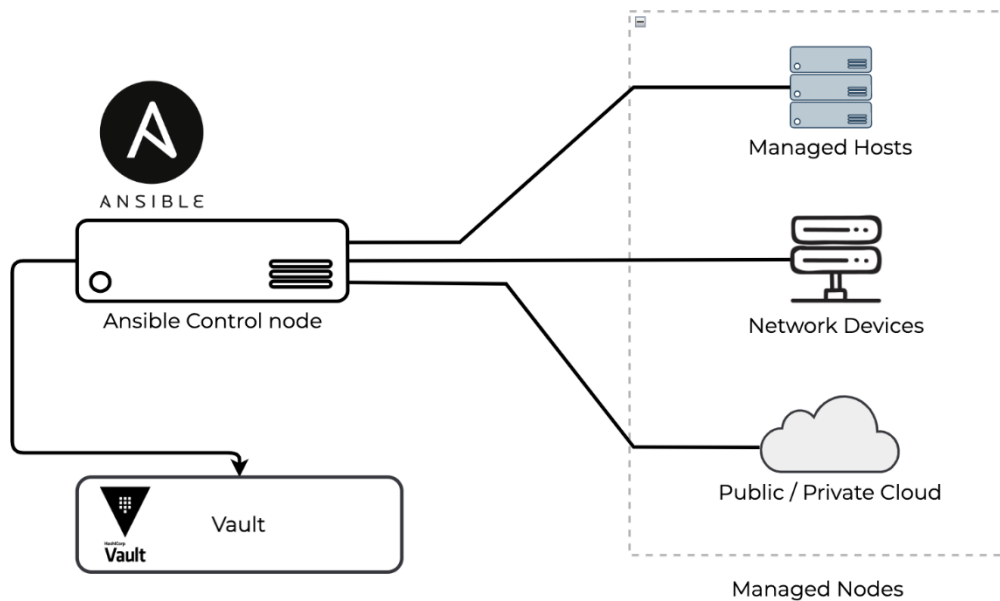
Job #76 'PostgreSQL - Create Database and User Access' successful: <https://aap.example.com/#/jobs/playbook/76>

ansible-automation 6:12 PM

Job #77 'PostgreSQL - Create Database and User Access' running: <https://aap.example.com/#/jobs/playbook/77>

Job #77 'PostgreSQL - Create Database and User Access' successful: <https://aap.example.com/#/jobs/playbook/77>

Chapter 13: Using Ansible for Secret Management



```
# Fetching database password from Hashicorp vault using hashi_vault lookup
- ansible.builtin.debug:
    msg: "{{ lookup('community.hashi_vault.hashi_vault', 'secret=secret/dbpass:value token=c975b780-d1be-8016-866b-01d0f9b688a5 url=http://myvault:8200') }}"

# Fetching secret from AWS Secret manager using aws_secret lookup
- name: lookup secretsmanager secret in the current region
  debug: msg="{{ lookup('amazon.aws.aws_secret', '/path/to/secrets', bypath=true) }}"
```

```
---
- name: Accepting sensitive data using prompts
  hosts: node1
  gather_facts: no

  vars_prompt:
    - name: database_username
      prompt: Enter your username
      private: no

    - name: database_password
      prompt: Enter your password

  tasks:
    - name: Print a message
      ansible.builtin.debug:
        msg: 'Login to database as {{ database_username }}'
```



```

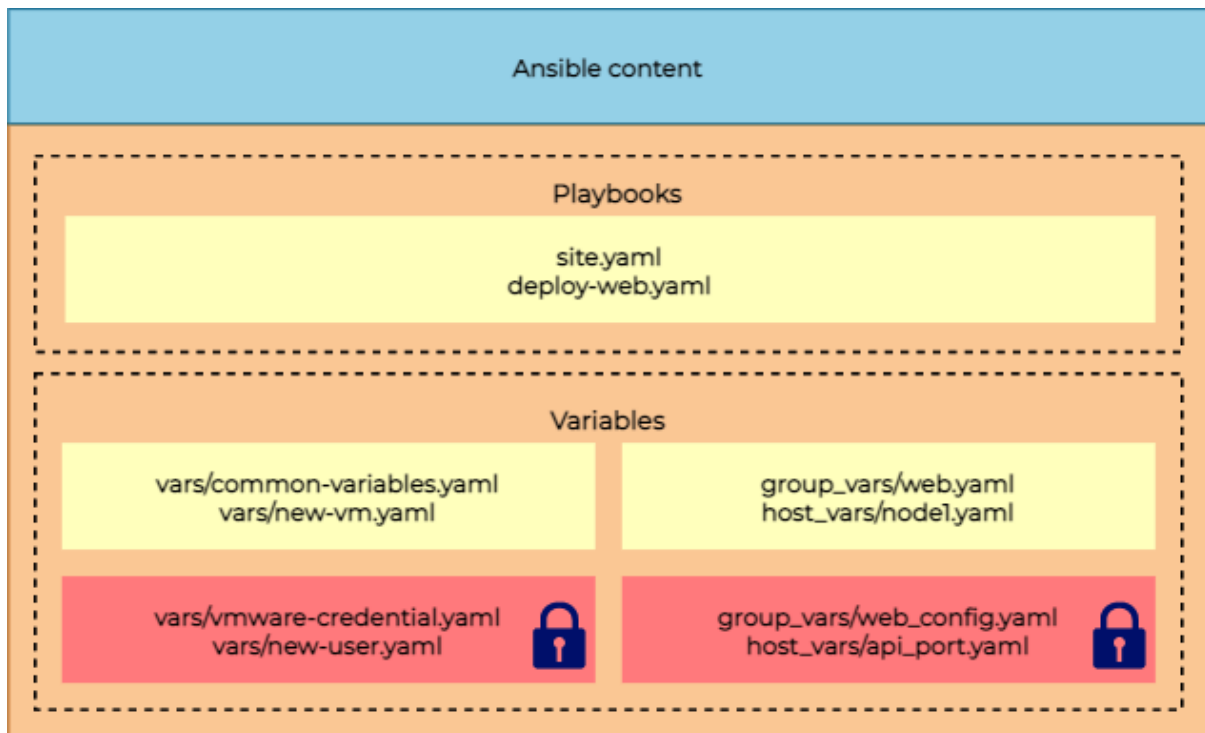
[ansible@ansible Chapter-13]$ ansible-playbook prompt.yaml
Enter your username: dbadmin
Enter your password:

PLAY [Accepting sensitive data using prompts] *****

TASK [Print a message] *****
ok: [node1] => {
  "msg": "Login to database as dbadmin"
}

PLAY RECAP *****
node1                : ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```



```

[ansible@ansible Chapter-13]$ ansible-vault create vars/cloud-credential.yaml
New Vault password:
Confirm New Vault password:

```

[illegible]

```
[ansible@ansible Chapter-13]$ cat vars/cloud-credential.yaml
$ANSIBLE_VAULT;1.1;AES256

663366373532393373738323435656233623865363461343234623339646535626537623762633132
3833366432313965336566663864356662393030643238320a3066308737264663164346235643137
61303830353863363034623638383235376465346133383635653433666461666131393736316437
6265646630653437300a306533643333313735626534396437363337363537343936666263353530
3636636262637306661346438633633616234623966383966623730363037613763333438366463
66356331303533316332393833363532353330363236326530363332356235373936376462326365
643266663335343966616431613633373838
```

```
[ansible@ansible Chapter-13]$ cat vars/dbdetails.yaml
database_username: dbadmin
database_password: dbPassWord
database_port: 5432
```

```
[ansible@ansible Chapter-13]$ ansible-vault encrypt vars/dbdetails.yaml
New Vault password:
Confirm New Vault password:
Encryption successful
```

```
[ansible@ansible Chapter-13] $ cat vars/dbdetails.yaml
$ANSIBLE_VAULT;1.1;AES256

39623133643337646637373132653835303939333737653361623132326336643237633466356665
3631646264353363373365626432383666306637636362300a613035646533333631643835613463
65333364373637643261303136383336663265383539383636656339356366613334373931366431
6266366132336561640a656330376461323831363533363237356335663239373733313133316563
33613536646363633861336232663964653035376635666461353363343936633566613862316462
64343135303561373664633062303862356565666634303734623735623161626236393338373434
64636666613830376266663364386364356633396339303433353164336238663666346162343261
32633832323237363337363661333161326131346265363734303263333238343366303538626362
3330
```



```
[ansible@ansible Chapter-13]$ ansible-vault create --vault-id mysecret@prompt vars/secret-with-id.yaml
New vault password (mysecret):
Confirm new vault password (mysecret):
```



```
[ansible@ansible Chapter-13]$ cat vars/secret-with-id.yaml
$ANSIBLE_VAULT;1.2;AES256;mysecret
343362306266393462346439313564333232376132616362393534323339303135633239323133
3335646361313465643562656166656262323765373461380a326431646361383336633233383366
3165333031653839366463303136646366613239646265303033656439393936333330366263663933
6163626332653366340a656634306161623035353539666665633365366132666135386330343939
31623130326463366333346332363031366237376163613534386237363737366431
```



```
# ansible.cfg
[defaults]
.
.
vault_identity_list = inline@~/ansible/.vault_pass , files@~/ansible/.secret_pass
```



```
[ansible@ansible Chapter-13]$ ansible-vault view vars/dbdetails.yaml
Vault password:
database_username: dbadmin
database_password: dbPassWord
database_port: 5432
```



```
[ansible@ansible Chapter-13]$ ansible-vault edit vars/dbdetails.yaml
Vault password:
```



```
database_username: dbadmin
database_password: dbPassWord
database_port: 5432
database_ha: true
~
~
~
~
~
~
~
~
~
```



```
[ansible@ansible Chapter-13]$ ansible-vault decrypt vars/dbdetails.yaml
Vault password:
Decryption successful
```



```
[ansible@ansible Chapter-13]$ cat vars/dbdetails.yaml
database_username: dbadmin
database_password: dbPassWord
database_port: 5432
database_ha: true
```



```
[ansible@ansible Chapter-13]$ ansible-vault rekey vars/cloud-credential.yaml
Vault password:
New Vault password:
Confirm New Vault password:
Rekey successful
```



```
[ansible@ansible Chapter-13]$ ansible-vault encrypt_string mysecretpassword --name password
New Vault password:
Confirm New Vault password:
password: !vault |
    $ANSIBLE_VAULT;1.1;AES256
    66656431373962663439343661653962633563336663396166393765376239653539386364643037
    39633438613838316231323432626363646336363136610a393361303835316636393139666637
    39316662343833623332353738616162303635333536306634666234663563333765616365396431
    3734646465376232630a393231303935623337313833646539393837396265363032613063636535
    64353630353366373239353834303333326466613334336262323261363832396636
Encryption successful
```



```
[ansible@ansible Chapter-13]$ ansible-vault encrypt_string --name password
New Vault password:
Confirm New Vault password:
Reading plaintext input from stdin. (ctrl-d to end input, twice if your content does not already have a newline)
this is a secret string typed from input.
!vault |
    $ANSIBLE_VAULT;1.1;AES256
    36646133396137623861373033633330313734666433663636373066306566303334366531303238
    3064363362633663373633343437653864343932646264610a333136336461386635363965376164
    336265393836623764343937636463636338313361343937666463366636633431393261643236
    3934366264376466640a626361333562323538316638336635633539636337313430303762383035
    66623038663364636664363637326437613961656361646334373238626366376662393039636366
    3865646439636163356538303232303739366133386434653138
Encryption successful
```

```

---
## Chapter-13/encrypted-string-playbook.yaml
- name: Using encrypted variables
  hosts: node1
  vars:
    password: !vault |
      $ANSIBLE_VAULT;1.1;AES256
      62386361656532643262336363636303262663738663134613439383938326335336237303463
      6138323038373665643164303531343431366232663666350a643362323264373532393036323361
      31393332613566303064343463613630353235316530343632363564323738633532666235353930
      3466663030386634300a633334386439656530663431343237626534623137326465363665643034
      64663932363236363939373561643739663339373139356539373032643565326233

  tasks:

    - name: Print a message
      ansible.builtin.debug:
        msg: 'Password is: {{ password }}'

```

```

userlist:
  john:
    username: john
    password: StrongPassword
  leena:
    username: leena
    password: AnotherPassWord

```

```

[ansible@ansible Chapter-13]$ cat vars/users.yaml
$ANSIBLE_VAULT;1.1;AES256
33666132363764303461393063623230653162613936373061663432643535636435383766383561
3432353431663666323438383731396636623036373233300a353734343137333666666133373632
32373865336266616235376461643130626234313731376234343032353334373839333934363263
3639663461663764310a646362313031313633653166333361633636613166343939353933643938
34343237333530646666363564363533363139363732396162303063306365313462313034366230
373134383938616163336332646330636362313431363738633333373461316532356566316131
32353963643033303266353662366133303432393563323139633033333332303134626163366364
64616432323239613934393731653063643332636137653135613665363563633263363230303330
35343735386538666337306662323039333838656232333635343637326134663430626232653731
64343837643433623234633738356636316439633932346133376531333938393865343364303434
393163396339616363666134353864636635

```

```

---
# Chapter-13/manage-user.yaml
- name: Creating Linux Users
  hosts: node1
  become: true
  gather_facts: false
  vars:
    new_group: admins
  vars_files:
    - vars/users.yaml
  tasks:

```

```
# Chapter-13/manage-user.yaml...
```

```
- name: Create new group
  ansible.builtin.group:
    name: "{{ new_group }}"
    state: present
- name: Add the user
  ansible.builtin.user:
    name: "{{ item.value.username }}"
    password: "{{ item.value.password | password_hash('sha256') }}"
    shell: /bin/bash
    groups: admins
    append: yes
  loop: "{{ lookup('dict', userlist, wantlist=True) }}"
```

```
[ansible@ansible Chapter-13]$ ansible-playbook manage-user.yaml
ERROR! Attempting to decrypt but no vault secrets found
```

```
[ansible@ansible Chapter-13]$ ansible-playbook manage-user.yaml --ask-vault-password
Vault password:

PLAY [Creating Linux Users] *****

TASK [Create new group] *****
ok: [node1]

TASK [Add the user] *****
changed: [node1] => (item={'key': 'john', 'value': {'username': 'john', 'password': 'StrongPassword'}})
changed: [node1] => (item={'key': 'leena', 'value': {'username': 'leena', 'password': 'AnotherPassWord'}})

PLAY RECAP *****
node1                : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

```
[ansible@ansible Chapter-13]$ ansible node1 -m shell -a "cat /etc/passwd |tail -2"
node1 | CHANGED | rc=0 >>
john:x:1003:1004::/home/john:/bin/bash
leena:x:1004:1005::/home/leena:/bin/bash
```

```
[ansible@ansible Chapter-13]$ echo "MyVaultSecret" > ~/.vault-secret

[ansible@ansible Chapter-13]$ cat ~/.vault-secret
MyVaultSecret
```

```

[ansible@ansible Chapter-13]$ ansible-playbook manage-user.yaml --vault-password-file ~/.vault-secret
PLAY [Creating Linux Users] *****

TASK [Create new group] *****
ok: [node1]

TASK [Add the user] *****
changed: [node1] => (item={'key': 'john', 'value': {'username': 'john', 'password': 'StrongPassword'}})
changed: [node1] => (item={'key': 'leena', 'value': {'username': 'leena', 'password': 'AnotherPassWord'}})

PLAY RECAP *****
node1                : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

```

[ansible@ansible Chapter-13]$ ansible-playbook manage-user.yaml --ask-vault-password
Vault password:

PLAY [Creating Linux Users] *****

TASK [Create new group] *****
ok: [node1]

TASK [Add the user] *****
changed: [node1] => (item={'key': 'john', 'value': {'username': 'john', 'password': 'StrongPassword'}})
changed: [node1] => (item={'key': 'leena', 'value': {'username': 'leena', 'password': 'AnotherPassWord'}})

PLAY RECAP *****
node1                : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

```

# Chapter-13/manage-user.yaml...
- name: Add the user
  ansible.builtin.user:
    name: "{{ item.value.username }}"
    password: "{{ item.value.password | password_hash('sha256') }}"
    shell: /bin/bash
    groups: admins
    append: yes
    loop: "{{ lookup('dict', userlist, wantlist=True) }}"
    no_log: True

```

```

[ansible@ansible Chapter-13]$ ansible-playbook manage-user.yaml --vault-password-file ~/.vault-secret
PLAY [Creating Linux Users] *****

TASK [Create new group] *****
ok: [node1]

TASK [Add the user] *****
changed: [node1] => (item=None)
changed: [node1] => (item=None)
changed: [node1]

PLAY RECAP *****
node1                : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

```

    ased,publickey -o PasswordAuthentication=no -o 'User="devops"' -o ConnectTimeout=10 -o
    ControlPath=/home/ansible/.ansible/cp/0726bd8bd1 192.168.56.25 '/bin/sh -c ''rm -f -r
    /home/devops/.ansible/tmp/ansible-tmp-1658050078.9681451-9038-50587566300946/ > /dev/null 2>&1 && sleep 0'''''
    <192.168.56.25> rc=0, stdout and stderr censored due to no log
    changed: [node1] => (item=None) => {
        "censored": "the output has been hidden due to the fact that 'no_log: true' was specified for this result",
        "changed": true
    }
    changed: [node1] => {
        "censored": "the output has been hidden due to the fact that 'no_log: true' was specified for this result",
        "changed": true
    }
    Read vars_file 'vars/users.yaml'
    META: ran handlers
    Read vars_file 'vars/users.yaml'
    META: ran handlers

PLAY RECAP *****
node1                : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

```

[ansible@ansible Chapter-13]$ mkdir -p group_vars/postgres/vault

[ansible@ansible Chapter-13]$ ansible-vault create group_vars/postgres/vault/dbuser.yaml
New Vault password:
Confirm New Vault password:

```

```

[ansible@ansible Chapter-13]$ cat group_vars/postgres/vault/dbuser.yaml
$ANSIBLE_VAULT;1.1;AES256
39393133613930333734653061653237326639306664323631623431663265316162636331396461
3334383863303133306536323266396439393365313164610a333030333661316230643862313237
33623262316432633366323430653639666262656630326338633731353231643961336236373136
6163306561646362360a653230333266393266653836343962383135633631646535613862306334
65653631316366666134373432306531393566383364643634373931373636383438383837373139
32383363323164363834663133346666393139656464393861363735656263616238386431306436
65663735323435336335383932623437643437643232663030386634363738313832353537303562
3565666334643661303

```

```

# Chapter-13/postgres-create-dbuser.yaml
---
- name: Add new PostgreSQL Database user
  hosts: "{{ NODES }}"
  vars:
    ansible_become_user: postgres
    postgres_user: postgres
    #postgres_password: moved to Vault file
    postgres_host: localhost
    postgres_database: db_sales
    postgres_table: demo_table
  tasks:

```



```
# Chapter-13/postgres-create-dbuser.yaml...

- name: Create user and grant access to database
  community.postgresql.postgresql_user:
    login_user: "{{ postgres_user }}"
    login_password: "{{ postgres_password }}"
    login_host: "{{ postgres_host }}"
    db: "{{ postgres_database }}"
    name: "{{ postgres_app_user_name }}"
    password: "{{ postgres_app_user_password }}"
    encrypted: yes
    priv: "CONNECT/{{ postgres_table }}:ALL"
    expires: "Dec 31 2022"
    comment: "Application user access"
    state: present
```

```
[ansible@ansible Chapter-13]$ ansible-playbook postgres-create-dbuser.yaml --vault-password-file ~/.vault-secret -e
"NODES=postgres"

PLAY [Add new PostgreSQL Database user] *****

TASK [Gathering Facts] *****
ok: [node2]

TASK [Create user and grant access to database] *****
ok: [node2]

PLAY RECAP *****
node2                : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Credentials

Create New Credential

Name *

app-backend-vault

Description

Vault password for backend app

Organization

Q

Security Ops

Credential Type *

Vault

Type Details

Vault Password *

.....

Prompt on launch

Vault Identifier ⓘ

backend

Save

Cancel

Select Credentials

You cannot select multiple vault credentials with the same vault ID. Doing so will automatically deselect the other with the same vault ID.

Selected Category

Vault

Selected

SSH: Demo Credential

Vault: app-backend-v...

Name

Q

<

>

Name

↑

☒

app-backend-vault | backend

<<

<

1

of 1 page

>

>>

Select

Cancel

Templates > Deploy Backend App

Edit Details

Name *

Deploy Backend App

Description

Backend App Deployment

Job Type *

Run

☐ Prompt on launch

Inventory *

☐ Prompt on launch

Project *

Execution Environment

Q

Demo Inventory

Q

Security Automation

Q

Playbook *

Ansible-AWS-Provisioning/aws-infr...

Credentials

☐ Prompt on launch

Q

Vault: app-backend-v...

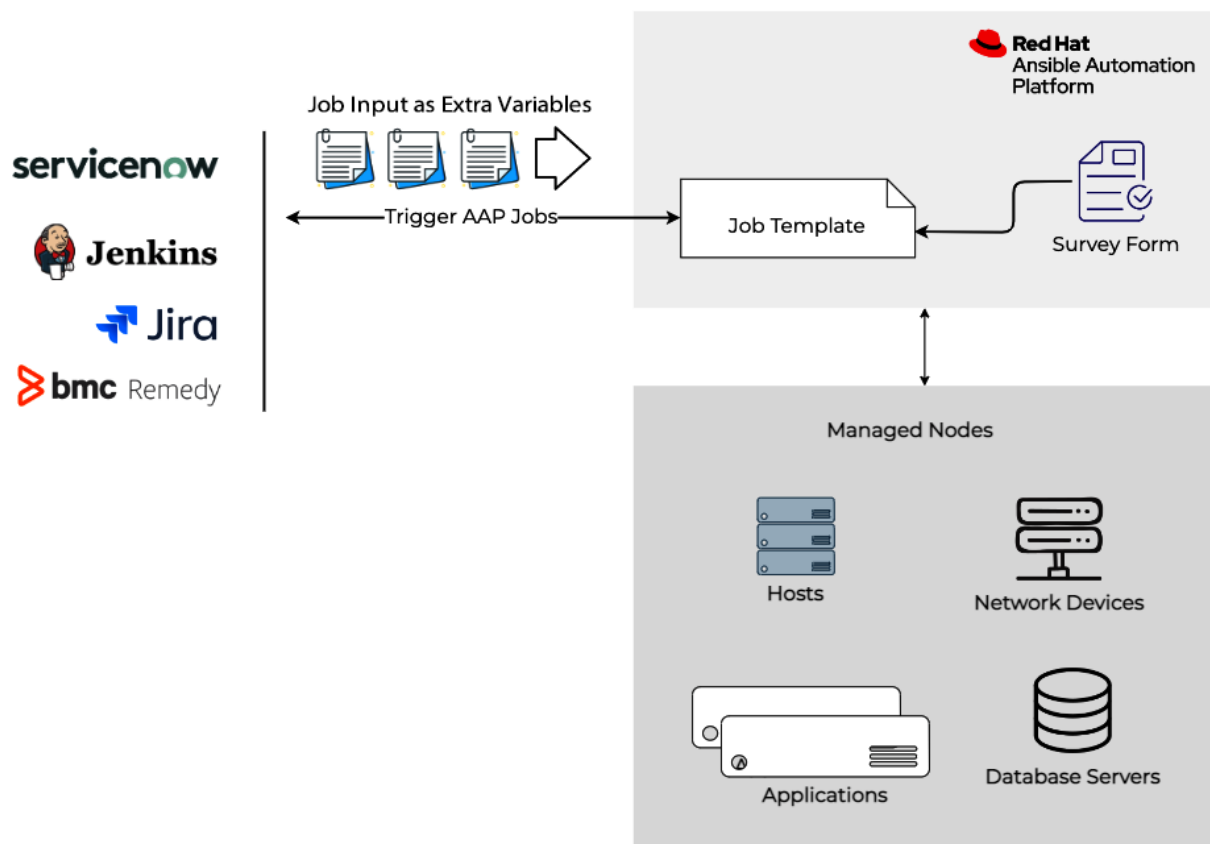
SSH: Demo Credential

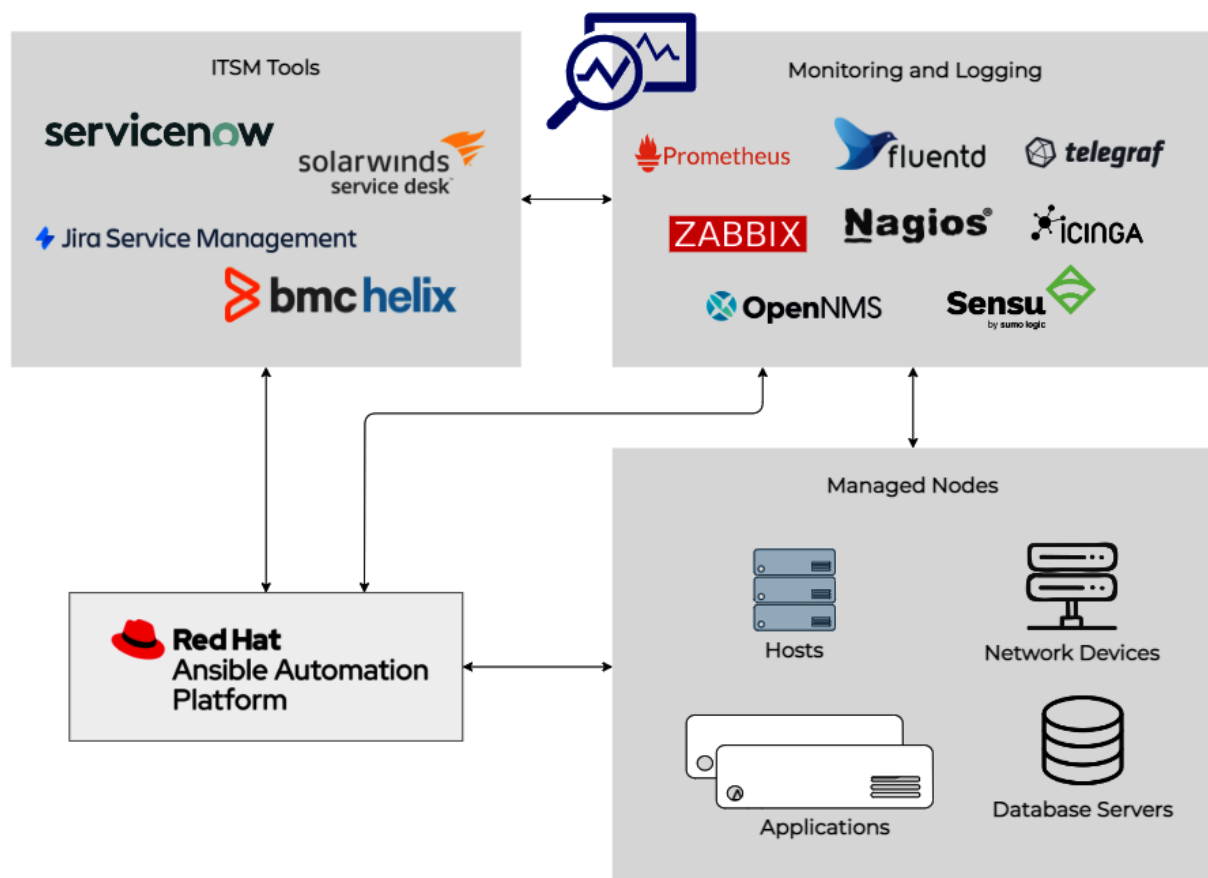
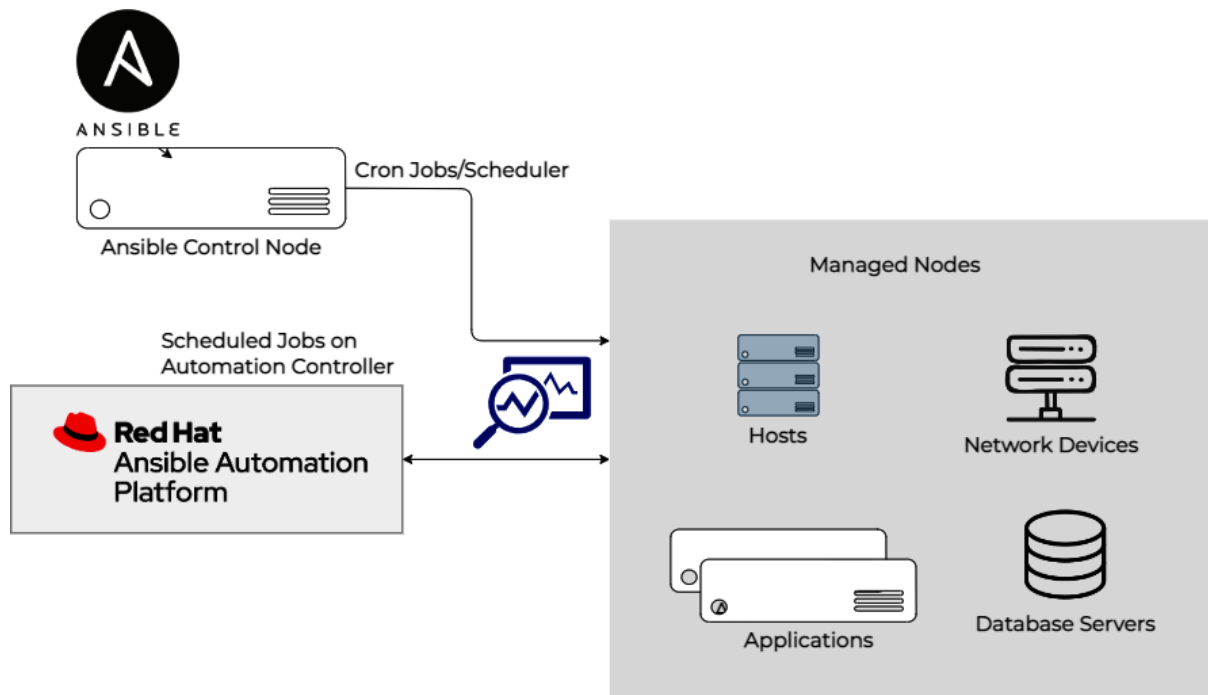
Labels

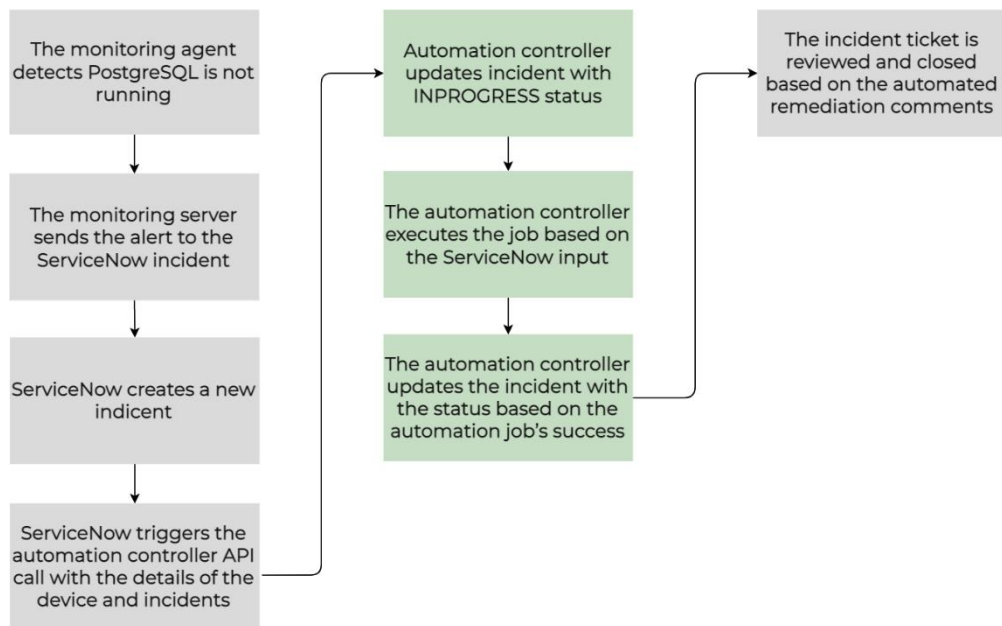
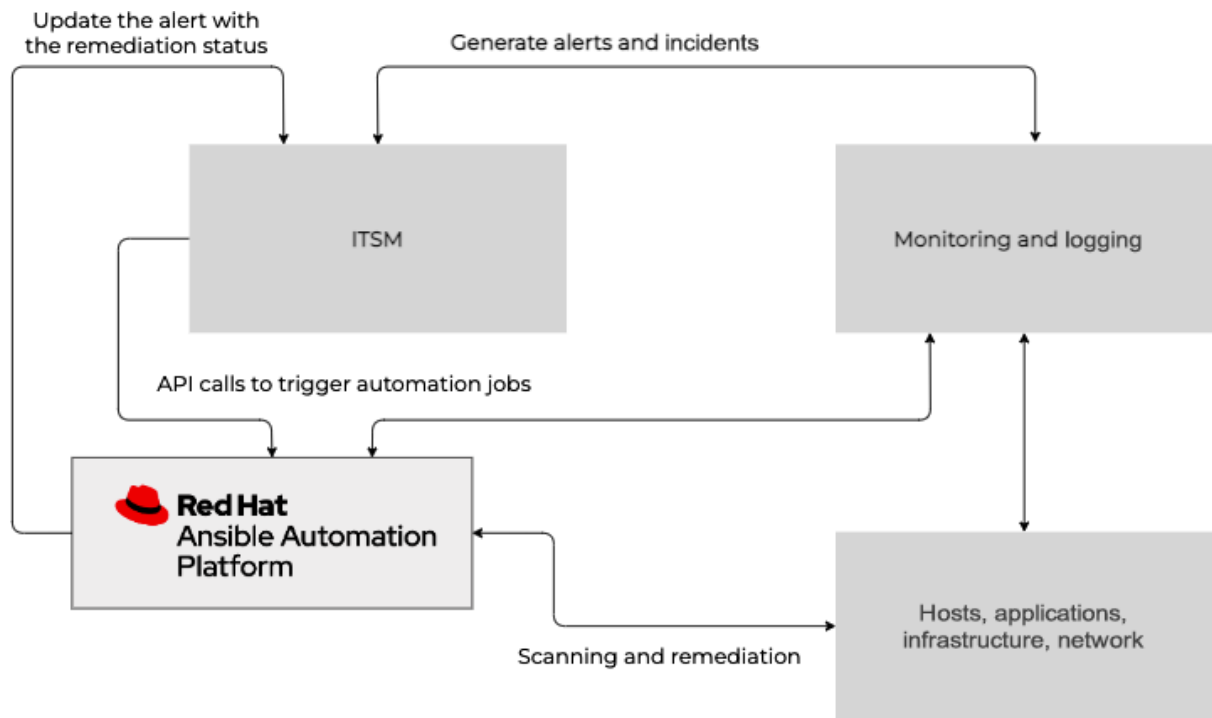
```
[ansible@ansible Chapter-13]$ ansible-vault view vars/dbdetails.yaml
Vault password:
database_username: dbadmin
database_password: dbPassWord
database_port: 5432
```

Chapter 14: Keeping Automation Simple and Efficient

The screenshot shows the 'Launch | PostgreSQL - Create Database and User Access' dialog box. The left sidebar contains a 'Details' panel with fields for Name, Inventory, Playbook, Timeout, Created, Credentials, and Variables. The main area has two tabs: 'Survey' (active) and 'Preview'. The 'Survey' tab contains several input fields: 'Database Node(s)' (a dropdown menu), 'PostgreSQL Admin User', 'PostgreSQL Admin Password', 'Database Name', 'Table Name to Create', 'New Database Username to Create', and 'Password for New Database User'. At the bottom of the survey section are 'Next', 'Back', and 'Cancel' buttons.







Templates



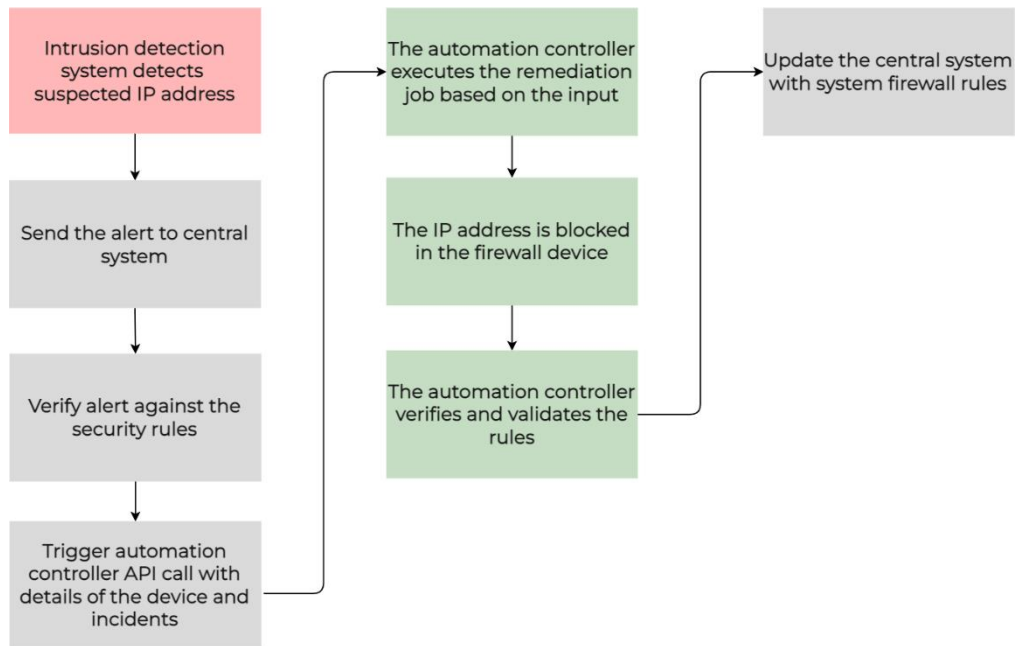
>	<input type="checkbox"/>	Name ▾	<input type="text"/>	<input type="button" value="Q"/>	<input type="button" value="Add ▾"/>	<input type="button" value="Delete"/>	1 - 1 of 1 ▾	<	>
Name (name__icontains) postgres ✕ start ✕ Clear all filters									
		Name ↑	Type ↑	Last Ran ↑	Actions				
>	<input type="checkbox"/>	PostgreSQL - Service Start	Job Template	6/5/2022, 6:12:58 PM					
1 - 1 of 1 items ▾ << < 1 of 1 page > >>									

```
# postgresql-service-start.yaml
---
- name: Restarting PostgreSQL Database service
  hosts: "{{ NODES }}"
  vars:
  tasks:

  - name: Update ServiceNow incident as In progress
    servicenow.servicenow.snow_record:
      username: "{{ snow_username }}"
      password: "{{ snow_password }}"
      instance: "{{ snow_instance_name }}"
      state: present
      number: "{{ snow_incident_number }}"
    data:
      work_notes : "Updating PostgreSQL service"
      state: -3
```

```
- name: Start service postgresql, if not started
  ansible.builtin.service:
    name: postgresql
    state: started
  register: psql_service_status
```

```
- name: Update ServiceNOW incident
  servicenow.servicenow.snow_record:
    username: "{{ snow_username }}"
    password: "{{ snow_password }}"
    instance: "{{ snow_instance_name }}"
    state: present
    number: "{{ snow_incident_number }}"
  data:
    work_notes : "PostgreSQL Service has been started"
    state: 0
  when:
    - psql_service_status.state == 'started'
```

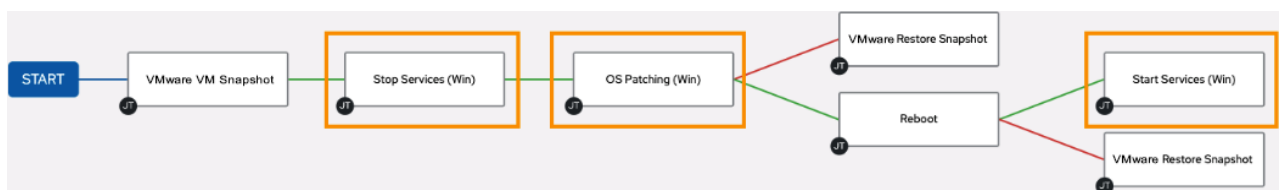
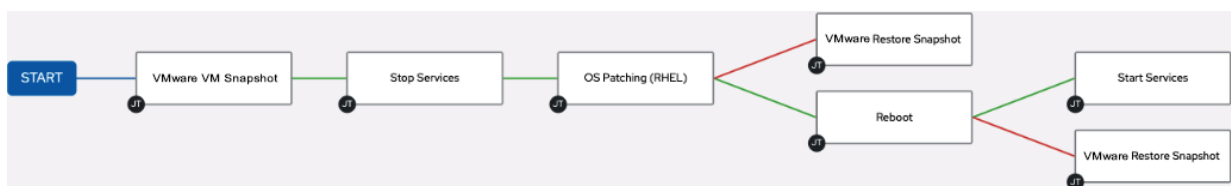
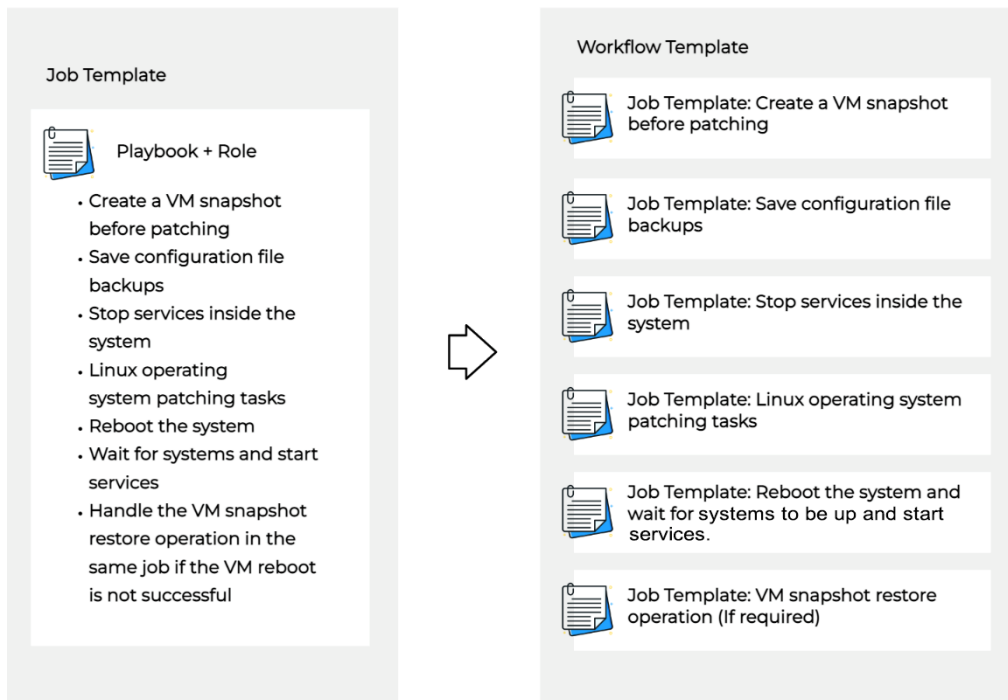
```
- name: Add new ACL Entry and Merge configuration with device configuration
cisco.asa.asa_acls:
  config:
    acls:
      - name: "{{ acl_identifier }}"
        acl_type: "{{ acl_type }}"
        aces:
          - grant: "{{ acl_action }}"
            #line: 1
            protocol_options:
              tcp: true
            source:
              address: "{{ acl_entry_source_ip }}"
              netmask: "{{ acl_entry_source_mask }}"
            destination:
              object_group: "{{ asa_object_group_name }}"
            #log: default
    state: merged
  register: acl_status
```




```
- name: Create {{ firewall_policy_address_entry_to_add }} Entry
delegate_to: localhost
fortinet.fortios.fortios_firewall_address:
  host: "{{ fortigate_host_ip }}"
  username: "{{ fortigate_username }}"
  password: "{{ fortigate_password }}"
  vdom: "{{ fortigate_vdom }}"
  https: "{{ fortigate_ssl_use }}"
  ssl_verify: "{{ fortigate_ssl_verify }}"
  state: "present"
firewall_address:
  allow_routing: "disable"
  #color: "6"
  comment: "{{ firewall_policy_address_comment }}"
  name: "{{ firewall_policy_address_name }}"
  policy_group: "{{ firewall_policy_address_group }}"
  subnet: "{{ firewall_policy_address_entry_to_add }}/32"
  type: "ipmask"
  visibility: "enable"
```



```
- name: Create Security Rule
paloaltonetworks.panos.panos_security_rule:
  provider: "{{ panos_provider }}"
  rule_name: "{{ panos_rule_name }}"
  source_ip: "{{ panos_source_ip_address.splitlines() | default('any') }}"
  source_user: "{{ panos_source_user.splitlines() | default('any') }}"
  destination_ip: "{{ panos_destination_ip_address.splitlines() }}"
  category: "{{ panos_url_category.splitlines() | default('any') }}"
  application: "{{ panos_application_category.splitlines() | default('any') }}"
  service: "{{ panos_service.splitlines() }}"
  group_profile: "{{ panos_group_profile | default('None') }}"
  action: "{{ panos_rule_action }}"
  rule_type: "{{ panos_rule_type }}"
  log_start: "{{ panos_log_start | bool }}"
  log_end: "{{ panos_log_end | bool }}"
```



Chapter 15: Automating Non-Standard Platforms and Operations

```

# install-python.yaml
---
- name: Installing Python on target machine
  hosts: "{{ NODES }}"
  gather_facts: false
  tasks:
    - name: Install Latest Python package
      ansible.builtin.raw: sudo yum -y install python36

    - name: Verify Python version
      ansible.builtin.raw: python3 -V
      register: python_version

    - name: Display installed Python version.
      ansible.builtin.debug:
        msg: "Installed Python version: {{ python_version.stdout_lines }}"

```

```

[ansible@ansible Chapter-15]$ ansible-playbook install-python.yaml -e "NODES=node1"

PLAY [Installing Python on target machine] *****

TASK [Install Latest Python package] *****
changed: [node1]

TASK [Verify Python version] *****
changed: [node1]

TASK [Display installed Python version.] *****
ok: [node1] => {
  "msg": "Installed Python version: ['Python 3.6.8']"
}

PLAY RECAP *****
node1                : ok=3    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```



```
[fortios]
fg01 ansible_host=192.168.57.125

[fortios:vars]
ansible_user=admin
ansible_ssh_pass='Admin#123'
ansible_host_key_checking=false
ansible_network_os=fortinet.fortios.fortios
ansible_connection=ansible.netcommon.httpapi
ansible_httpapi_use_ssl=True
ansible_httpapi_validate_certs=False
```

```
- name: Backup global settings on FortiOS device
  fortinet.fortios.fortios_monitor_fact:
    selector: 'system_config_backup'
    vdom: 'root'
    params:
      scope: 'global'
```

```
- name: FortiGate Configuration Backup
  raw: |
    execute cfg save
    execute backup config tftp {{ backup_filename }} {{ tftp_server }}
  register: tftp_copy_status
```

```
[fortios]
fg01 ansible_host=192.168.57.125

[fortios:vars]
ansible_user=admin
ansible_ssh_pass='Admin#123'
ansible_host_key_checking=false
#ansible_network_os=fortinet.fortios.fortios
#ansible_connection=ansible.netcommon.httpapi
#ansible_httpapi_use_ssl=True
#ansible_httpapi_validate_certs=False
```

```
- name: FortiGate Update Software
  raw: |
    execute restore image tftp {{ fortios_image_filename }} {{ tftp_server }}
  Y
  register: image_update_status
```

```
- name: Take Cisco ASA Backup
  cisco.asa.asa_command:
    commands:
      - write memory
      - copy /noconfirm running-config tftp://{{ tftp_server }}/{{ backup_filename }}
```

```
- name: Gather EC2 instance details
  amazon.aws.ec2_instance_info:

- name: Gather information about instances in Singapore
  amazon.aws.ec2_instance_info:
    filters:
      availability-zone: ap-southeast-1
```

```
$ curl http://todo-app.example.com:8081/api/todos
[{"id":1,"title":"Send weekly report to team","description":"Weekly health check report","completed":false},
{"id":2,"title":"Arrange team dinner","description":"Check for places","completed":false},{ "id":3,"title":"Schedule meeting with John for security audit","description":"Pending long time","completed":false}]
```

```

# todo-app.yaml
---
- name: Managing todo application using API
  hosts: localhost
  gather_facts: false
  become: false
  vars:
    todo_app_ur: 'http://todo-app.example.com:8081'
    todo_app_healthcheck: 'health'

```

```

tasks:
  - name: Check that you can connect (GET) to a page and it returns a status 200
    uri:
      url: "{{ todo_app_ur }}/{{ health_check }}"
      return_content: yes
      status_code: 200
      register: health_status

  - name: Display health check status
    debug:
      msg: "{{ health_status.content }}"

```

```

...<omitted>...
TASK [Display health check status]
*****
ok: [localhost] => {
  "msg": {
    "changed": false,
    "connection": "close",
    "content": "{\n\"uptime\":2438.67611528,\n\"message\":\"\nOK\n\", \"timestamp\":1655004678873}",
    "content_length": "66",
    "cookies": {},
    "cookies_string": "",
    "date": "Sun, 12 Jun 2022 03:31:18 GMT",
    "elapsed": 0,
    "failed": false,
    "msg": "OK (66 bytes)",
    "redirected": false,
    "status": 200,
    "url": "http://todo-app.example.com:8081/health"
  }
}
...<omitted>...

```

```

TASK [Display health check status]
*****
ok: [localhost] => {
  "msg": {
    "message": "OK",
    "timestamp": 1655004693105,
    "uptime": 2452.908586769
  }
}

```

```

- name: Get ToDo Items
  uri:
    url: "{{ todo_app_ur }}/api/todos"
    return_content: yes
    status_code: 200
  register: todo_items

- name: Display items
  debug:
    msg: "{{ todo_items.content }}"

```

```

<omitted>...
TASK [Display items]
*****
****
ok: [localhost] => {
  "msg": [
    {
      "completed": false,
      "description": "Weekly health check report",
      "id": 1,
      "title": "Send weekly report to team"
    },
    {
      "completed": false,
      "description": "Check for places",
      "id": 2,
      "title": "Arrange team dinner"
    },
    {
      "completed": false,
      "description": "Pending long time",
      "id": 3,
      "title": "Schedule meeting with John for security audit"
    }
  ]
}
<omitted>...

```

```

vars:
  todo_app_ur: 'http://todo-app.example.com:8081'
  health_check: 'health'

new_item:
  title: Learn API call using Ansible
  description: A new task added by Ansible
  completed: false

```

```

- name: Add a new item in ToDo list
  uri:
    url: "{{ todo_app_ur }}/api/todos"
    method: POST
    return_content: yes
    status_code: 201
    body_format: json
    body: "{{ new_item }}"
    register: item_add_status

- name: Display items
  debug:
    msg: "{{ item_add_status }}"

```

```

<omitted>...
TASK [Add a new item in ToDo list]
*****
ok: [localhost]

TASK [Display items]
*****
****
ok: [localhost] => {
  "msg": {
    "changed": false,
    "connection": "close",
    "content": "{\"id\":12,\"title\":\"Learn API call using Ansible\",\"description\":\"A new task added by
Ansible\\\", \"completed\":false}\",
    "content_type": "application/json",
    "cookies": {},
    "cookies_string": "",
    "date": "Sun, 12 Jun 2022 04:21:50 GMT",
    "elapsed": 0,
    "failed": false,
    "json": {
      "completed": false,
      "description": "A new task added by Ansible",
      "id": 12,
      "title": "Learn API call using Ansible"
    },
    "msg": "OK (unknown bytes)",
    "redirected": false,
    "status": 201,
    "transfer_encoding": "chunked",
    "url": "http://todo-app.example.com:8081/api/todos"
  }
}
<omitted>...

```

```

{"add":[
  {% for dns in dns_list %}
  {"name": "{{ dns }}" },
  {% endfor %}
]}

```



```

# akamai-dns-block.yaml
---
- name: Block DNS in Akamai Device
  hosts: localhost
  gather_facts: false
  become: false
  vars:
    akamai_api_endpoint: 'http://10.1.10.100:8080'
    akamai_list_path: '/list/blacklist/nodes'
    akamai_api_username: 'admin'
    akamai_api_password: 'secretpassword'

    dns_list:
      - blockthisurl.com
      - antherwebsite.com
      - notagoodwebsite.com

```

```

tasks:
  - name: Template the DNS List to block
    ansible.builtin.set_fact:
      dns_list_templated: "{{ lookup('template', 'akamai-url-block-format.j2') }}"

  - name: "{{ akamai_list_name }}" - Create substitute records Akamai"
    uri:
      url: "{{ akamai_api_endpoint }}{{ akamai_list_path }}"
      method: POST
      return_content: yes
      user: "{{ akamai_api_username }}"
      password: "{{ akamai_api_password }}"
      status_code:
        - 201
        - 200
      headers:
        Accept: application/json
        Content-Type: application/json
      body_format: json
      body: "{{ dns_list_templated }}"
    register: akamai_add_out

```

```

[ansible@ansible Chapter-15]$ ansible-config dump |grep DEFAULT_MODULE_PATH
DEFAULT_MODULE_PATH(default) = ['/home/ansible/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']

```

```

[defaults]

library = ./library

```

```

[ansible@ansible Chapter-15]$ cat library/customhello.sh
#!/bin/bash
#
# This script accepts two inputs
# 1. application_name
# 2. application_version

changed="false"
display="This is a simple bash module"
OS="$(uname)"
HOSTNAME="$(uname -n)"

source $1
display="Application Name: $application_name (version: $application_version)"
if [ "$application_name" == "bash" ]; then
    changed="true"
    display="$display - This is a bash App"
fi

printf '{"changed": %s, "msg": "%s", "operating_system": "%s", "hostname": "%s"}' "$changed" "$display" "$OS"
"$HOSTNAME"
exit 0

```

```

---
- name: Testing Custom Module
  hosts: node1
  gather_facts: false
  vars:
    app_name: "bash"
    app_version: "1.0"
  tasks:
    - name: Application Name and Version
      customhello:
        application_name: "{{ app_name }}"
        application_version: "{{ app_version }}"
      register: custom_value

    - debug:
        msg: "{{ custom_value }}"

```

```

<omitted>...
TASK [debug]
*****
ok: [node1] => {
  "msg": {
    "changed": true,
    "failed": false,
    "hostname": "node-1",
    "msg": "Application Name: bash (version: 1.0) - This is a bash App",
    "operating_system": "Linux"
  }
}
<omitted>...

```

```

DOCUMENTATION = '''
---
module: hello_message
short_description: A Hello Message Module
version_added: "2.10"
description:
    - "A Hello Message Module"
options:
    message:
        description:
            - The message to be printed.
        required: true
        type: string
...<omitted>...

author:
    - Gineesh Madapparambath (@ginigangadharan)
'''

```

```

EXAMPLES = '''
# Simple Custom Hello App
- name: Calling hello_message module
  hello_message:
    message: "Hello"
    name: "John"
'''

```

```

RETURN = '''
greeting:
    description: Hello Response
    returned: success
    type: str
    sample: Hello World
os_version:
    description: Operating System Information
    returned: success
    type: str
    sample: Linux 4.18.0-305.el8.x86_64 #1 SMP Thu Apr 29 08:54:30 EDT 2021
'''

```

```

.
.
from ansible.module_utils.basic import AnsibleModule, platform

def main():
    module_args = dict(
        message=dict(type='str', required=True),
        name=dict(type='str', required=False),
    )
    result = dict(
        changed=False,
        greeting='Sample Message',
        os_version=''
    )
    .
    .

```

```

[ansible@ansible Chapter-15]$ ansible-doc hello_message
> HELLO_MESSAGE      (/home/ansible/ansible-book-packt/Chapter-15/library/hello_message.py)

    A Hello Message Module

OPTIONS (= is mandatory):

= message
    The message to be printed.

    type: string

- name
    The name of the person.
    [Default: (null)]
    type: string

AUTHOR: Gineesh Madapparambath (@ginigangadharan)

```

```

<omitted>...
EXAMPLES:

# Simple Custom Hello App
- name: Calling hello_message module
  hello_message:
    message: "Hello"
    name: "John"

RETURN VALUES:
- greeting
    Hello Response

    returned: success
    sample: Hello World
    type: str

- os_version
    Operating System Information
<omitted>...

```

```

---
- name: Testing Custom Module
  hosts: localhost
  gather_facts: false
  vars:
    custom_message: "Hello"
    custome_name: "John"
  tasks:
    - name: Calling custom module
      hello_message:
        message: "{{ custom_message }}"
        name: "{{ custome_name }}"
        register: custom_value

    - debug:
        msg: "{{ custom_value }}"

```

```

TASK [debug]
*****
ok: [localhost] => {
  "msg": {
    "changed": false,
    "failed": false,
    "greeting": "Hello John",
    "os_version": "Linux 4.18.0-305.el8.x86_64 #1 SMP Thu Apr 29 08:54:30 EDT 2021"
  }
}
<omitted>...

```

```

collection/
├─ docs/
├─ galaxy.yml
├─ meta/
│   └─ runtime.yml
├─ plugins/
│   ├── modules/
│   │   └─ module1.py
│   ├── inventory/
│   └─ .../
├─ README.md
├─ roles/
│   ├── role1/
│   ├── role2/
│   └─ .../
├─ playbooks/
│   ├── files/
│   ├── vars/
│   ├── templates/
│   └─ tasks/
└─ tests/
...<omitted>...

```

```

---
namespace: ginigangadharan
name: custom_modules_demo
version: 1.0.4
readme: README.md
authors:
  - Gineesh Madapparambath <gini@iamgini.com>
description: Ansible Custom Module Demo for Ansible Book
license:
  - GPL-2.0-or-later
license_file: ''
tags:
  - demos
  - ansible
  - devops
dependencies: {}
repository: https://github.com/PacktPublishing/Ansible-for-Real-life-Automation/
documentation: https://github.com/PacktPublishing/Ansible-for-Real-life-Automation/tree/main/Chapter-15/collection
homepage: https://github.com/PacktPublishing/Ansible-for-Real-life-Automation/tree/main/Chapter-15/collection
issues: https://github.com/PacktPublishing/Ansible-for-Real-life-Automation/issues

```


A Hello Message Module

Chapter 16: Ansible Automation Best Practices for Production

```
[ansible@ansible Chapter-16]$ tree ./
./
├── ansible.cfg           # ansible configuration
├── deploy-web.yml        # a playbook
├── group_vars            # directory for group level variables
│   ├── dbnodes.yaml     # variables for inventory group dbnodes
│   └── web.yaml          # variables for inventory group web
├── hosts                 # another inventory file
├── host_vars             # directory for host level variables
│   ├── node1.yaml       # variables for node1
│   └── node2.yaml       # variables for node2
├── nodes_development     # inventory for development nodes
├── nodes_production      # inventory for production nodes
├── nodes_staging         # inventory for staging nodes
└── README.md
```

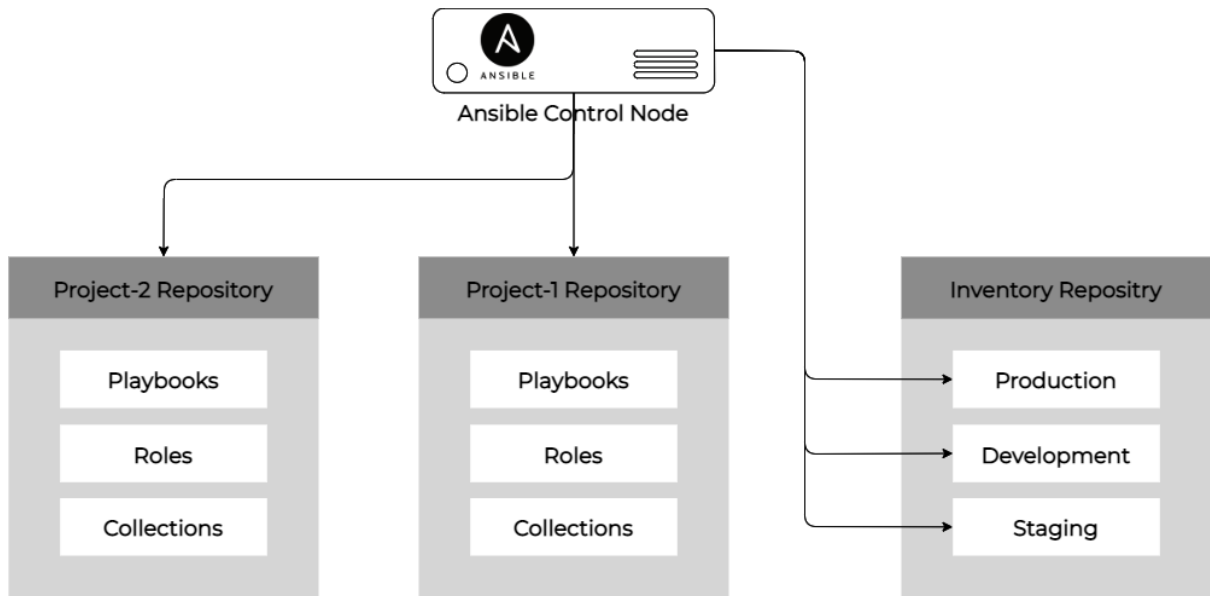
```
├── roles                 # roles directory
│   ├── deploy-web-server # web deployment role
│   │   ├── defaults
│   │   │   └── main.yaml
│   │   ├── tasks
│   │   │   └── main.yaml
│   │   ├── templates
│   │   ├── tests
│   │   │   ├── inventory
│   │   │   └── test.yaml
│   │   └── vars
│   │       └── main.yaml
│   └── security-baseline-rhel8 # security hardening role
│       ... output omitted...
├── site.yml
├── system-info.yml
└── system-reboot.yml

38 directories, 56 files
```

```
10.1.10.100
192.168.1.25
10.1.10.25
10.2.100.40
dbserver-101.example.com
prod-app-101.example.com
```



```
web01 ansible_host=10.1.10.100
app02 ansible_host=192.168.1.25
lb101 ansible_host=10.1.10.25
db201 ansible_host=10.2.100.40
web102 ansible_host=sglxwp-101.example.com
app301 ansible_host=slxmkp-app-101.example.com
```



```
[ansible@ansible inventories]$ tree ./
./
├── dev
│   ├── group_vars
│   │   ├── dbnodes.yaml
│   │   └── web.yaml
│   └── hosts
├── prod
│   ├── group_vars
│   │   ├── dbnodes.yaml
│   │   └── web.yaml
│   ├── hosts
│   └── host_vars
│       ├── node1.yaml
│       └── node2.yaml
└── stg
    └── hosts
```

```

# file: dev/hosts
# singapore web servers
# group variables in dev/group_vars/web.yaml
[web]
web101.example.com
web102.example.com
web103.example.com

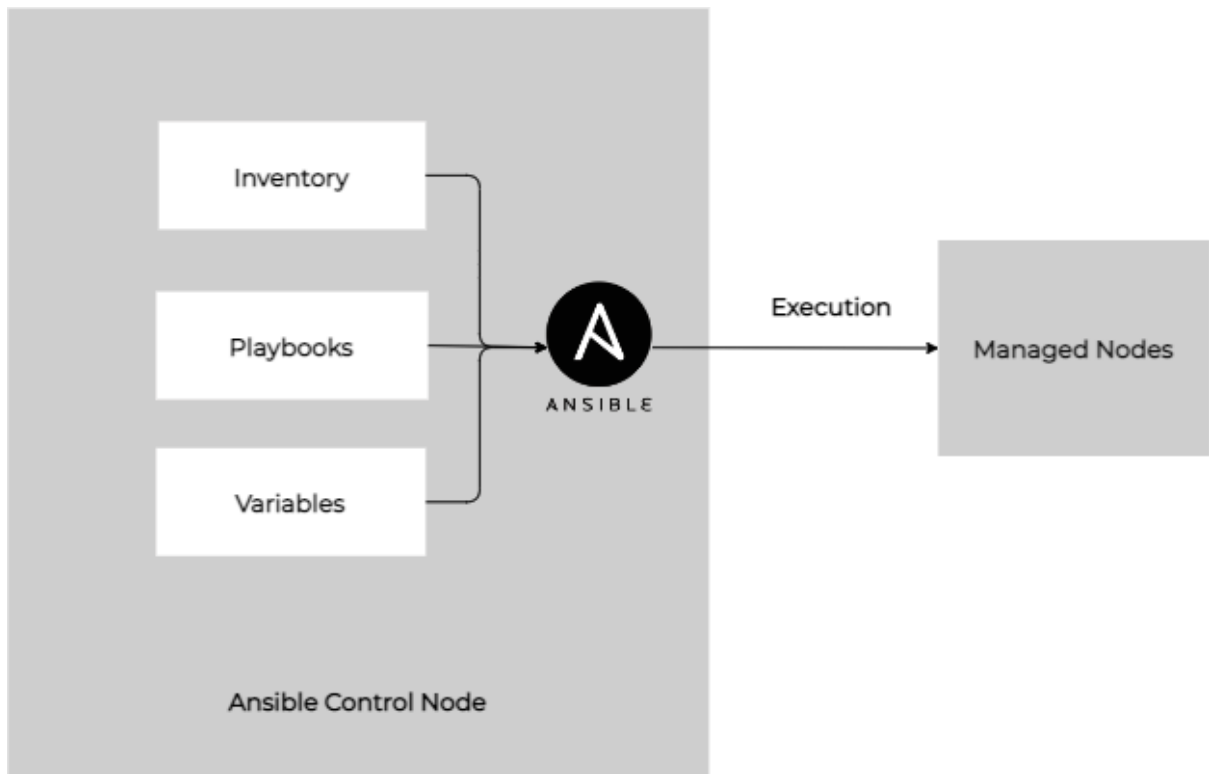
# singapore db servers
# group variable in dev/group_vars/dbnodes.yaml
[dbnodes]
db201.example.com
db202.example.com
db203.example.com

# backup nodes in Malaysia
[backupnodes]
bkp101.example.com
bkp102.example.com

# Singapore servers in a parent group
[sgnodes:children]
web
dbnodes
```

```

[ansible@ansible inventories]$ ansible-inventory -i dev/hosts --list
{
  "_meta": {
    "hostvars": {}
  },
  "all": {
    "children": [
      "backupnodes",
      "sgnodes",
      "ungrouped"
    ]
  },
  ... output omitted...
  "sgnodes": {
    "children": [
      "dbnodes",
      "web"
    ]
  },
  "web": {
    "hosts": [
      "web101.example.com",
      "web102.example.com",
      "web103.example.com"
    ]
  }
}
```



```
[ansible@ansible Chapter-16]$ tree inventories/stg/
inventories/stg/
├── group_vars
│   ├── dbnodes.yaml
│   └── web.yaml
├── hosts
└── host_vars
    ├── node1.yaml
    └── node2.yaml

2 directories, 5 files
```

```
[ansible@ansible Chapter-16]$ tree inventories/stg/
inventories/stg/
├── group_vars
│   ├── dbnodes.yaml
│   └── web.yaml
├── hosts
└── host_vars
    ├── node1.yaml
    └── node2.yaml

2 directories, 5 files
```

```
# file: stg/hosts
[web]
node1 ansible_host=192.168.56.25
node2 ansible_host=192.168.56.24
node3 ansible_host=192.168.56.60

[all:vars]
ansible_ssh_private_key_file=/home/ansible/.ssh/id_rsa
```

```
[ansible@ansible Chapter-16]$ mkdir inventories/stg/group_vars
[ansible@ansible Chapter-16]$ mkdir inventories/stg/host_vars
```

```
# file: stg/group_vars/web.yml
web_server_port: 80
```

```
# file: stg/host_vars/node1.yml
web_server_port: 8080
```

```
# file: stg/host_vars/node2.yml
web_server_port: 8081
default_web_page_content: "Welcome to node2"
```

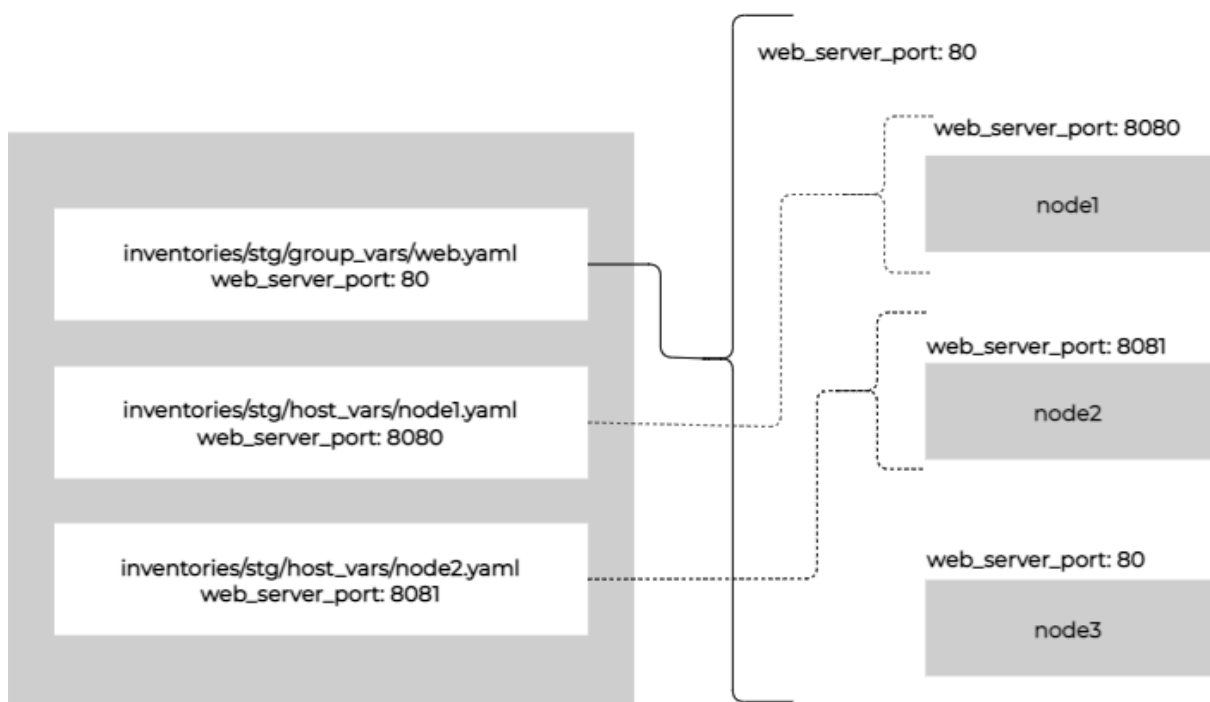
```
[ansible@ansible Chapter-16]$ tree inventories/stg/
inventories/stg/
├── group_vars
│   ├── dbnodes.yml
│   └── web.yml
├── hosts
└── host_vars
    ├── node1.yml
    └── node2.yml

2 directories, 5 files
```

```

[ansible@ansible Chapter-16]$ ansible-inventory --list -i inventories/stg/
{
  "_meta": {
    "hostvars": {
      "node1": {
        "ansible_host": "192.168.56.25",
        "ansible_ssh_private_key_file": "/home/ansible/.ssh/id_rsa",
        "web_server_port": 8080
      },
      "node2": {
        "ansible_host": "192.168.56.24",
        "ansible_ssh_private_key_file": "/home/ansible/.ssh/id_rsa",
        "default_web_page_content": "Welcome to node2",
        "web_server_port": 8081
      },
      "node3": {
        "ansible_host": "192.168.56.60",
        "ansible_ssh_private_key_file": "/home/ansible/.ssh/id_rsa",
        "web_server_port": 80
      }
    }
  },
  ...output omitted...
}

```



```

[ansible@ansible Chapter-06]$ ansible-inventory web --list
{
  "_meta": {
    "hostvars": {
      "node1": {
        "ansible_host": "192.168.56.25",
        "ansible_ssh_private_key_file": "/home/ansible/.ssh/id_rsa",
        "ansible_user": "ansibleadmin"
      },
      "node2": {
        "ansible_host": "192.168.56.24",
        "ansible_user": "user1"
      },
      "node3": {
        "ansible_host": "192.168.56.60",
        "ansible_user": "devops"
      },
      "win2019": {
        ...output omitted...
        "ansible_user": "ansible",
        "ansible_winrm_server_cert_validation": "ignore",
        "ansible_winrm_transport": "basic"
      }
    }
  },
  ...output omitted...
}

```

```

[ansible@ansible Chapter-03]$ ansible-vault create vars/secrets
New Vault password:
Confirm New Vault password:
[ansible@ansible Chapter-03]$ cat vars/secrets
$ANSIBLE_VAULT;1.1;AES256
38393063373031356638353866353937306462663565366266323166363130356435326564343735
3061663831326237356430353361646235396661663538310a373337376339383561353762356265
39363830316465346166303666373064353061343563613734343336653630656533393739643238
3136306130633761610a646138326130333435373836303832343335373737303535353665616430
32323537303765356366383930623631666561393661626535663135316362326134623066623234
31373138616137346132626230626464343034306637316636633539663530303338396163666131
383237626162626334376133663039366331

```

```

[ansible@ansible Chapter-06]$ ansible-playbook password-prompt.yaml --ask-pass
SSH password:

```

```

# Task to send a notification email before the reboot operation.
- name: Email notification before reboot
  include_role:
    name: send-email
  vars:
    email_report_body: "Alert: {{ inventory_hostname }} is rebooting as per schedule. Please do not use the
server. Notification will be sent after the reboot activity is completed."
    email_smtp_subject: "Weekly System Reboot - {{ inventory_hostname }} - Initiated"
  tags:
    - email
    - notification

# You may add your pre-reboot tasks here
# such as taking backups, configure maintainance mode,
# disable monitoring and so on.
- name: Running Pre-reboot tasks
  debug:
    msg: "Taking backup and snapshot"
  tags:
    - pretasks
    - backup

```

immediate boolean	Should this configuration be applied immediately, if set as permanent. Choices: <ul style="list-style-type: none">no ← (default)yes
-----------------------------	--

```

- name: Enable and Run Firewallld
  ansible.builtin.service:
    name: firewalld
    enabled: true
    state: started

- name: Firewallld permit httpd service
  ansible.posix.firewalld:
    service: http
    permanent: true
    state: enabled
    immediate: yes

```

```

tasks:
  - name: Copy a file to managed hosts
    copy: name=demo.txt dest=/tmp/demo.txt owner=ansible group=ansible
  - name: Create a new directory if it does not exist
    file: path=/home/ansible/new-dir state=directory mode='0755'

```

```
tasks:
  - name: Copy a file to managed hosts
    copy:
      src: files/demo-text-file.txt
      dest: /home/ansible/demo-text-file.txt
      owner: ansible
      group: ansible

  - name: Create a new directory if it does not exist
    file:
      path: /home/ansible/new-dir
      state: directory
      mode: '0755'
```

```
- name: Installing Web Packages
hosts: webservers
tasks:
  - name: Installing Web
    yum:
      name: httpd
      state: present
```

```
- name: Installing Web Packages
hosts: "{{ nodes }}"
tasks:
  - name: Installing Web
    yum:
      name: "{{ web_package }}"
      state: present
```

```
tasks:
  - block:
      - name: Show Message
        debug:
          msg: "Trying httpd"
      - name: Install Package
        yum:
          name: httpd-wrong
          state: present

  rescue:
    - name: Show error
      debug:
        msg: "Unknown Package"
    - name: Install nginx
      yum:
        name: nginx
        state: latest

  always:
    - name: Message
      debug:
        msg: "Playbook Done"
```




```
- name: "Patching Pre-tasks"
  include_role:
    name: linux-patching
    tasks_from: linux-patching-pre-tasks.yaml

- name: "Patching Tasks"
  include_role:
    name: linux-patching

- name: "Patching Post-tasks"
  include_role:
    name: linux-patching
    tasks_from: linux-patching-post-tasks.yaml
```



```
# variable names with shortnames
myvar: something
webport: 8080
dbpath: /opt/mysql
fwpackage: firewallld
fg_api: 10.1.10.10

# variables with meaningful names
user_location: /home/devops/
httpd_web_port: 8080
mysql_database_home: /opt/mysql
firewall_package: firewallld
fortigate_api_ip: 10.1.10.10
```