

Never log in to your servers again with Ansible

Where does the name “ansible” come from?

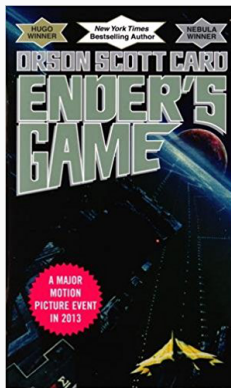
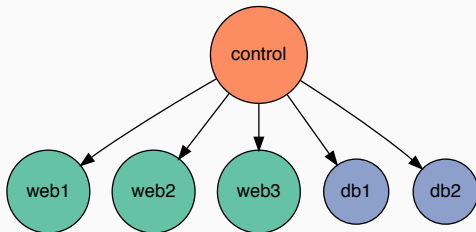


Figure 1: A sci-fi novel featuring an ansible as a communication device.

Use Ansible to talk to your fleet



display free disk space

```
control/$ ansible web -a "df"
```

```
control/$ ansible db -a "df"
```

```
control/$ ansible all -a "df"
```

Ad-hoc commands

```
# ansible [host] [-m module] [-a args]
```

```
# The default module is "command".
```

```
ansible web -a "df"
```

```
ansible web -m command -a "df"
```

```
# For piping, you need the "shell" module
```

```
ansible web -m shell -a "df | grep /dev/sda1"
```

```
# Could also use the "script" module
```

```
echo "df | grep /dev/sda1" > df_sda1.sh
```

```
ansible web -m script -a "df_sda1.sh"
```

Inventory files

```
# contents of /etc/ansible/hosts
```

```
[web]
```

```
web1.example.com
```

```
web2.example.com
```

```
web3.example.com
```

```
[web:vars]
```

```
ansible_user=webhat
```

```
[db]
```

```
db1.example.com
```

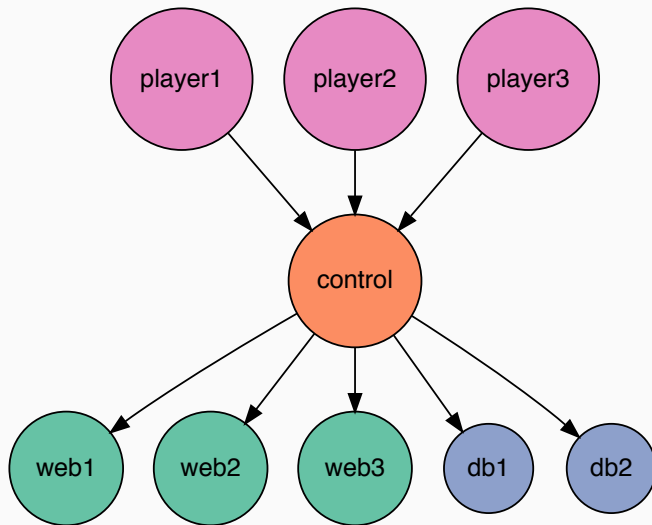
```
db2.example.com
```

Dynamic inventory files

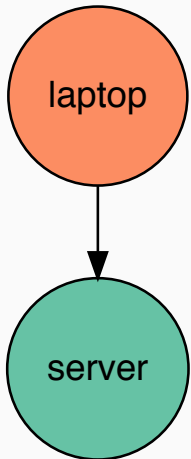
Any executable file can be used as a dynamic inventory!

```
# ping ec2 servers in us-east-1d  
ansible us-east-1d -i ec2.py -u ubuntu -m ping
```

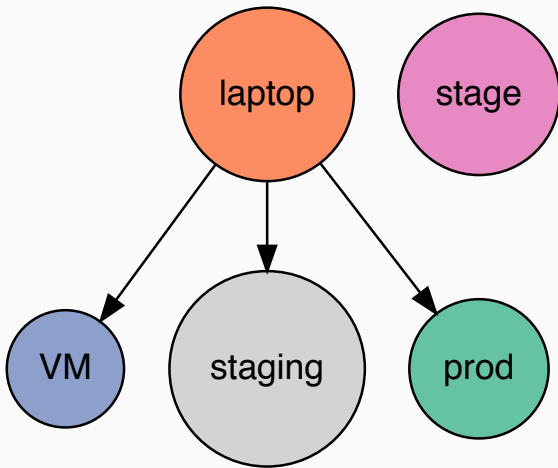
Share control of servers



Control a single server with Ansible



Continuous integration with Ansible



Provisioning on a Vagrant VM with Ansible

```
# Vagrantfile  
Vagrant.configure("2") do |config|  
  config.vm.box = "ubuntu/trusty64"  
  config.vm.provision "ansible" do |ansible|  
    ansible.playbook = "vagrant.yml"  
  end  
end
```

Command line tools

ansible Run an ad-hoc command.

```
ansible web -a "df"
```

playbook Run a playbook.

```
ansible-playbook setup.yml
```

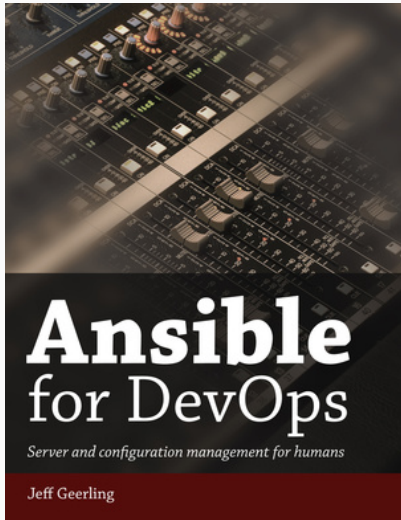
vault Simple encryption. Store a tough password in a password file, and set `ANSIBLE_VAULT_PASSWORD_FILE` environment variable.

```
ansible-vault encrypt vars/secrets.yml
```

galaxy 3rd party playbooks and dependencies.

```
ansible-galaxy install geerlingguy.mysql
```

Ansible for DevOps



playbook A YAML file containing one or more plays.

play A collection of tasks to run on a host or hosts.

task A task is a single action with accompanying arguments, including a verbal description of the task.

module A module is command or command wrapper.

role A bundle of tasks and variables to accomplish some goal.

Example playbook: Setting up a MySQL DB

```
---  
  
# ansible-playbook mysql.yml  
- hosts: db  
  become: yes  
  tasks:  
    - name: Install MySQL  
      apt: name=mysql-server state=present
```

- apt: name=mysql-server state=present
- apt:
 - name: mysql-server
 - state: present

Example playbook: Setting up a MySQL DB

```
---
- hosts: db
  become: yes
  vars:
    mysql_db_name: mydb
    mysql_root_password: dont-do-this
    mysql_user: pierce
    mysql_user_password: dont-do-this-either
  tasks:
    - include_role: name=geerlingguy.mysql
      vars:
        mysql_databases:
          - name: "{{ mysql_db_name }}"
        mysql_users:
          - name: "{{ mysql_user }}"
            host: "%"
            password: "{{ mysql_user_password }}"
            priv: "{{ mysql_db_name }}.*:ALL"
```


Example playbook: Setting up a MySQL DB

```
---  
- hosts: db  
  become: yes  
  vars_files:  
    - vars/main.yml  
    - vars/secrets.yml  
  tasks:  
    - name: Configure MySQL  
      include_role:  
        name: geerlingguy.mysql
```

Vars files

```
---  
# vars/main.yml  
  
mysql_databases:  
  - name: "{{ mysql_db_name }}"  
mysql_users:  
  - name: "{{ mysql_user }}"  
    host: "%"   
    password: "{{ mysql_user_password }}"  
    priv: "{{ mysql_db_name }}.*:ALL"
```

Typical project structure

```
root/$
  playbook.yml
  vars/
  tasks/
  roles/
```

```
# playbook.yml
```

```
- hosts: all
```

```
vars_files:
```

- vars/main.yml
- vars/secrets.yml

```
tasks:
```

- include_tasks: tasks/setup-webapp.yml
- include_role: name=custom_role

Modules

apt Package manager for Debian/Ubuntu.

- name: Install bash and OpenSSL
- ```
apt: name={{ item }} state=latest
with_items:
```
- bash
  - openssl

**git** Manage git repositories.

- git:
- ```
repo: https://github.com/me/myrepo.git
dest: /home/me/myrepo
```

pip Package manager for python.

- pip:
- ```
requirements: /myproj/requirements.txt
virtualenv: /venvs/myproj
```

**mysql\_db** Run commands on a MySQL db

- name: Dump the db

mysql\_db:

name: mydb

state: dump

target: /dumps/today.sql

**fetch** Retrieve a file from the host(s)

```
- fetch:
 src: /dumps/today.sql
 dest: /laptop/today.sql
 flat: yes
```

**copy** Copy a file to the server(s)

```
- copy:
 src: /laptop/yesterday.sql
 dest: /dumps/yesterday.sql

- name: Restore the DB from a backup
 mysql_db:
 name: mydb
 state: import
 target: /dumps/yesterday.sql
```